



LEGISLATIVE ASSEMBLY

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SELECT COMMITTEE ON SALINITY

**REPORT ON THE NATIONAL LOCAL
GOVERNMENT SUMMIT ON SALINITY
17 – 19 JULY 2001**

November 2001

DISCLAIMER:

This Report is based on notes made during the Committee's attendance at the National Local Government Summit. At the time of printing full transcripts were not available to check for inaccuracies.

For a full record of the Summit papers, readers should contact the Murray Darling Association.

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TERMS OF REFERENCE

A select committee has been appointed to inquire and report with the following terms of reference:

To examine:

- (a) Business opportunities created by salinity that contribute to the improved management of groundwater recharge and discharge areas.
- (b) The options for salinity management that are available to local councils, including but not limited to, planning instruments, building codes, urban water management plans, differential rating, development of local council expertise and resource-sharing between councils.
- (c) Any barriers to adoption of salinity management strategies by local councils, and means to overcome the barriers.
- (d) The adequacy of the Commonwealth's response and contribution to addressing salinity.

CHAIRMAN'S FOREWORD

This Report provides a public record of the attendance by Committee members at the National Local Government Summit on Salinity on 17 to 19 July 2001 in Moama. While in the region, which is significantly affected by salinity, the Committee took the opportunity to inspect one of the salt harvesting businesses in the Kerang area.

The impacts of salinity on local government are likely to be considerable. The Report Summary *Financial Costs to Local Government of Dryland Salinity* states:

".....if left unchecked, salinity will become a major future driver of Local Government finances. Salinity will degrade Local Government provided infrastructure, requiring an ever increasing proportion of rate revenue to be dedicated to responding to salinity induced repair and replacement requirements. It will also undermine Local Government's ability to raise rate revenue through degrading land value. This study had predicted that the cost of salinity to Local Government is such that Local Government must take a pro active role to reverse this decline" (4:SGS and SMEC for the Research Planning and Design Group (National Dryland Salinity Program, September 2000)

There are many ways in which local government can take a pro-active role, including:

- use of environmental planning powers;
- strategic planning, monitoring and reporting;
- development of expertise at council level;
- design and management of water supply, sewerage and stormwater;
- design and maintenance of roads;
- engineering works to protect assets;
- providing incentives for land-use change;
- community education and participation; and
- fostering business opportunities to address salinity.

At this stage, few councils are implementing long term management plans to address salinity, Wagga Wagga City Council and Coorong District Council being notable exceptions.

There is an urgent need for councils to engage with the issue of managing salinity. Councils need a better understanding of the financial implications and management options. In this regard, the National Local Government Summit on Salinity was timely.

The three day Summit was organised by the Murray Darling Association, a non-government organisation with membership from 80 councils in the Murray Darling Basin, corporate groups and individuals. The Summit was also organised by the Institute of Public Works Engineering Australia. The Summit was underwritten by Sinclair Knight Merz which provides consultant services in the management of salinity. The Summit was supported by the Australian Local Government Association, Department of Water Resources (South Australia), Murray Darling Basin Commission,

National Dryland Salinity Program, Action Salinity and Water Australia, BRL Hardy Wine Company and the Department of Land and Water Conservation (NSW).

The Summit was the first to be held on salinity by local government and was comprehensive in its coverage of the topics. The Summit provided important networking opportunities to bring councils together to share best practice and to link with scientists, consultants, industry groups, government officials and community organisations.

The Summit was also an opportunity for debate on local government's role in the management of salinity. The message which was made most often and most clearly by Summit delegates was that the role of councils in relation to catchment management organisations needs clarification. Delegates put the view that the role should be negotiated, local government treated as an equal partner and provided with resources appropriate to the task.

The Committee has noted these concerns and will address them in its forthcoming report on its terms of reference in relation to council management of salinity. Whilst in Moama, the committee took the opportunity to take evidence from The Murray Darling Association, Sinclair Knight Merz and Cotton Australia Ltd. The transcript is available from the committee's page on the Parliament of NSW website (www.parliament.nsw.gov.au).

The Committee also undertook an inspection of Pyramid Salt Pty Ltd, a commercial salt harvesting business producing high quality salt. It is also involved in the commercial application of energy from solar ponds. The experiment involves RMIT University and Geo-Eng and is funded by the Renewable Energy Commercialisation Program of the Australian Greenhouse Office. Both salt harvesting and the production of energy from solar ponds are business opportunities which address the problem of salinity.

The Committee congratulates the Murray Darling Association and Institute of Public Works Engineers for a successful Summit and particularly recognises the efforts of Brian Sharp, National President, and Leon Broster, General Manager, of the Murray Darling Association.



Hon. Pam Allan MP
Chairman

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| 1 NATIONAL LOCAL GOVERNMENT SUMMIT ON SALINITY |
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OVERVIEW

- 1.1 Conference papers from the Summit and notes of the proceedings will be made available. Following is an overview of the Summit.
- 1.2 The National Local Government Summit on Salinity, held in Moama in July 2001, was attended by 303 delegates. Of these, 30% were from councils. Fifty councils were represented at the Summit (see Appendix 1).
- 1.3 The list of Summit delegates shows a high level of interest from state government organisations, including many from catchment management organisations. There was also a high level of interest from businesses that provide services to assist councils to manage salinity. Sinclair Knight Merz, which provides a salinity planning tool on a fee-for-service basis to councils, underwrote the cost of the conference.
- 1.4 The business category also includes delegates from irrigators' industry groups such as Murray Irrigation Limited and Cotton Australia which may be concerned about the impact of any future regulation of development by councils (see Appendix 2).
- 1.5 The main themes to emerge from the Summit were the following.

ROLE OF LOCAL GOVERNMENT

- ◆ **Local Government has no mandate from Commonwealth or State governments to manage salinity**
- 1.6 Many conference papers set the context of what is being done to address salinity by the Commonwealth through the National Action Plan on Salinity and Water Quality; by State governments through salinity strategies; and the Murray Darling Basin Commission through Integrated Catchment Management.
 - 1.7 Overwhelmingly, the main issue raised by delegates was that neither the Commonwealth nor state governments have given local government a mandate to manage salinity. Council management of salinity has not been addressed in legislation or through identified funding programs. Institutional arrangements have been developed focussing on catchment management organisations in most states. There are no institutional arrangements currently in place to ensure that catchment management plans and council plans are complementary and work towards the same targets.
 - 1.8 A Draft Summit Statement was circulated to delegates expressing concern at the lack of interest in the Summit shown by federal parliamentarians and calling on Ministers to facilitate local government's formal involvement in the National Action Plan on Salinity and Water Quality.
 - 1.9 Many delegates believed that local government should be proactive in the management of salinity, and not wait for other levels of government to solve the matter of councils' role. The view was put by several delegates that local government needed to emphasise what they had to offer and their willingness to actively manage salinity.

1.10 Dr Mike Young from the CSIRO made the point that councils need to overcome the perception by other levels of government that they are “recalcitrant and difficult to work with”.

1.11 On a positive note, the National President of the Australian Local Government Association is a member of CoAG and has recently been invited to be a member of the new Natural Resource Management Ministerial Council.

◆ **The need for a regional focus by councils**

1.12 Jim Hullick of ALGA was the key speaker in the workshop on policy development. He made the following points.

- Salinity is a regional level problem – councils need to work across local government boundaries, develop regional approaches and develop partnerships with other bodies addressing salinity at a regional level.
- Council policy is often defensive, aimed at limiting what councils can do. Risk managers encourage this approach to protect councils from liability claims. Salinity requires councils to “step outside the square”- to be pro-active.
- Councils are not limited by legislation. The general competence powers in the Local Government Act allow local government to act in the public interest, unless specifically excluded by other acts of Parliament.
- Councils find their involvement in catchment management organisations limiting as they are treated like just another stakeholder group rather than as a level of government.
- Councils want time to develop and propose the role that they should play in addressing salinity.

1.13 Bruce Gill of Sinclair Knight Merz informed the Summit that the planning process of councils needs to contribute to total catchment management efforts.

1.14 Trevor Budge, Research Planning and Design Group, stated that there is a trend of state governments removing control for major development decisions from local government. He warned that if councils cannot quickly develop regional approaches to natural resource management they will lose planning powers.

1.15 Trevor Budge cited the South Australian Regional Assessment Panel as an interesting model of the assessment of developments at a regional level.

◆ **The need for better linkage between natural resource management, regional development and industry groups.**

1.16 John Powell, Principal of Optimal ICM, said that many councils are still approving agricultural developments without looking at natural resource management issues, such as forestry plantations that soak up fresh water and grapes in dryland areas. He said that there was a poor link between natural resource management, regional development and industry groups (eg farmers, businesses).

1.17 Partnerships and liaison with state government natural resource management committees can be difficult for councils because of the sheer number of such committees.

◆ **The roles of councils and Catchment Management Boards**

- 1.18 Bryan Short, Director of Engineering and Technical Services, City of Wagga Wagga, explored models for addressing salinity at a regional level. He emphasised the need for councils and Catchment Management Boards to have complementary roles which recognise councils as elected governments. Councils' current representation on Catchment Management Boards gives them the same status as community groups.

DLWC/Landcare/Landholder model

- 1.19 Landcare groups have been shouldering the burden of natural resource management at a local level for 10 – 15 years. Many groups have “burnt out”. This model has also produced a piecemeal approach to treating natural resource problems.

Catchment management organisations versus landholders

- 1.20 Mr Short stated that Catchment Management Boards in NSW are under-resourced. The Murrumbidgee Catchment Management Board has one full-time staff member. Too much is expected of appointees and the Boards rely on volunteers to carry out tasks, such as surveys.
- 1.21 However, if these groups were well resourced they would, in effect, be another tier of government.
- 1.22 The Murrumbidgee Catchment Management Board covers 30 LGAs but there are only three local government representatives on the Board.
- 1.23 Bryan Short argued that a better connection is needed under this model between the resources of local government and the needs of catchment management organisations. Local government could offer project management skills to put catchment management projects on the ground. This would also give small councils the critical mass to be more sustainable.

Catchment Management Board/Council model

- 1.24 Councils must negotiate a partnership arrangement with Catchment Management Boards to link their plans and resources. This model recognises that local government is another level of government with its own natural resource agenda based on consultations with residents.

Landcare model

- 1.25 A minority of farmers is involved in Landcare in the Wagga Wagga area (recent surveys show that, on average, 40% of practising farmers are actively involved in Landcare throughout Australia). There are difficult social dynamics with people in one part of the sub-catchment refusing to talk to people in the other parts. The model will not work to address large-scale problems.
- 1.26 Richard Price from the CSIRO also suggested that councils need to go beyond a local approach to salinity. He said there is a lack of research on salinity and local government and suggested that councils band together to fund research and development, as farmers do.

An alternative approach: Regional government

- 1.27 Mr Mike Young of CSIRO delivered a visionary paper that described a future where salinity had been addressed by making use of the information known to us from current research and national and international best-practice approaches to natural resource management.
- 1.28 Mr Young said that the way forward should involve:
- the development of skills and institutional structures to access the large amount of knowledge which is available;
 - administration at the scale needed;
 - moving institutional structures from partnerships to regional governance;
 - subsidiarity not devolution;
 - performance based planning;
 - local levies and off-sets; and
 - ‘action delivered’ funding.
- 1.29 The aspects of the presentation directly related to councils are as follows.

Knowledge

- 1.30 Information from all agencies involved in planning and managing salinity should be shared; the data should be consistent and available on the internet.

Administration at the scale needed

- 1.31 Administration of natural resource management should be at the scale needed. This should be lead from the lowest administrative level possible but not lower than the scale of the dominant problem. This is likely to be the regional level.

From regional partnerships to regional governance

- 1.32 Mr Young suggested that councils should go to state governments with their own amalgamation proposals. Mr Young imagined a future where catchment management authorities and the councils in each catchment area amalgamated to form regional governments. Under this model, 80% of the staff of the Victorian Department of Natural Resources and Environment were transferred to regional governments. The regional governments then had the capacity and skills for natural resource management on a regional basis.

Subsidiarity rather than devolution

- 1.33 Mr Young said that research shows that national schemes for the management of natural resources have very high overheads. It is an expensive way to address the problem. Integration can focus agencies on meetings rather than action.

- 1.34 Mr Young suggests subsidiarity rather than devolution from national or state governments as the appropriate institutional model. He also suggests the use of statutory plans at the scale of the problem.

Local levies and off-sets

- 1.35 In 1984 the Dutch local government had to address the problem of nitrates entering waterways from the disposal of manure. Within a year local government set up a system of manure off-set accounts from every farm to regulate the disposal of manure. Mr Young suggested that, based on this model, councils should introduce recharge accounts and excess recharge should be offset or paid for.
- 1.36 Onkaparinga Shire Council in South Australia provides rate rebates to farms which are ISO 14001 (environmentally) accredited.
- 1.37 Mr Young's imagined future involves a funding strategy where 30% of a National Environment Levy is distributed in proportion to the size of local levies raised by councils and the rest is delivered on the basis of environmental actions.

Action Delivered Funding

- 1.38 The latter is similar to the system introduced in 1985 by the Swedish government which provides funding for contracted outcomes not inputs. The system works as follows:
- 100% subsidised for the first year;
 - reducing to 40% by fourth year, 20% by fifth year, and no funding after that;
 - then if change is not implemented councils are fined.
- 1.39 This approach encourages long term planning and the implementation of higher standards over time.

BENEFITS FOR COUNCILS OF ADDRESSING SALINITY

- 1.40 Many speakers provided compelling reasons for councils to actively manage salinity.
- 1.41 Half the costs of salinity in Murray-Darling Basin catchments are non-farm costs eg damage to infrastructure.
- 1.42 The National Land and Water Resources Audit shows that salinity accounts for only 1% of the costs for farmers—it is not a significant economic issue. However, the off-farm costs of salinity are five times those of on-farm costs. The costs for local government are likely to be greater than the costs for the agricultural sector. (Mike Young, CSIRO)
- 1.43 Flood peaks arrive twice as quickly and flood levels are twice as high when the ground water level is high (Alex Campbell, Chairman, Cooperative Research Centre for Plant Based Management of Dryland Salinity)

ONLY A MINORITY OF COUNCILS HAVE INITIATIVES FOR MANAGING SALINITY

- 1.44 The proceedings of the Summit suggest that currently only a minority of councils is managing salinity. The following councils gave conference papers:
- Wagga Wagga City Council
 - Dubbo City Council
 - Toowoomba City Council
 - City of Whyalla
 - Coorong City Council
 - Douglas Shire Council.
- 1.45 Agriculture Western Australia gave a paper on the Rural Towns Program which assists councils to manage urban infrastructure affected by salinity.
- 1.46 It was clear that whilst councils are not required by other levels of government to address salinity, planning legislation is broad enough in all states for councils to play a significant role in managing urban salinity.
- 1.47 Brian Sharp, President of the Murray Darling Association, expressed the view that the efforts of local government in natural resource management are unrecognised. He cited an Australian Bureau of Statistics survey which demonstrates that local government is spending \$3.5 billion on natural resource management, which is more than is spent by state governments.

OVERCOMING BARRIERS TO COUNCIL MANAGEMENT OF SALINITY

◆ Resources

- 1.48 Another key theme was the need for long-term, stable funding arrangements for councils to address natural resource management. The President of the Murray Darling Association stated that councils are afraid of setting financially unsustainable precedents. Several other speakers echoed this point saying that “unfunded mandates” from state governments have become a pattern that they want to avoid with the issue of salinity.
- 1.49 Trevor Budge is the Director of the Research Planning and Design Group, which is completing a project for the National Dryland Salinity Program: *Enhancing the Capacity of Local Government to Contribute to the Management of Dryland Salinity*.
- 1.50 Trevor Budge says that local councils which lead salinity management are generally the exception. Usually they are larger, better-resourced councils responding to community group pressure. To date, most councils have only been bit players in natural resource management.
- 1.51 For their part, natural resource management agencies generally have poor understanding of, and relationships with, local government.

- 1.52 He stated that councils do not regard natural resource management as core business and that councils have not been resourced for the role. He made the following useful points:
- Only Wagga Wagga City Council in NSW and Coorong Council in South Australia have prepared long term salinity management plans which have been implemented.
 - The impetus for these councils to develop plans had been community concern, local champions and the capacity to link environmentally sustainable development with economic development.
 - It can be difficult for rural councils to get salinity onto planning agendas as metropolitan planning matters usually dominate these.
 - Submission-based funding programs are inequitable because they deliver the most funding to the councils that need it least (ie have larger rate bases).
 - Within 50 years a number of small councils will be broke if they do not address salinity but these same councils currently lack funding for any major initiatives.
 - Addressing salinity at local government level requires:
 - a long term commitment by councils (continuity through electoral cycles is a challenge);
 - dedicated staff (the 3 – 5 year contracts of council staff and their high mobility is a challenge);
 - stable, long-term funding;
 - partnerships with the community to embrace local groups; and
 - a strong working relationship with relevant state natural resource management agencies.

Levies

- 1.53 In the session ‘Issues in Review’, the option of raising funding for salinity through a Commonwealth Government environment levy through taxation was discussed. Some delegates warned that revenue from an environment levy was likely to be spent mainly in the cities for political reasons. Any levy would need tight criteria to ensure it was directed to environmental problems in rural areas.
- 1.54 Mike Young suggested that 30% of a national levy be provided to councils in proportion to revenue raised through local levies.
- 1.55 Bryan Short of Wagga Wagga City Council commented that council has twice considered and rejected a proposal for an environmental levy, most recently in 2001. The proposal was that ratepayers pay a percentage of their land value towards the levy, which worked out on average at \$30 per annum for urban residents and \$100 per annum for rural landholders. It did not receive the support of the majority of councillors as there were arguments about equity of payments between businesses, farmers and urban residents. Bryan Short commented that councils considering levies need to have identifiable projects, separate accounting and a sunset clause for the levy.

PLANNING, LANDUSE AND ZONING

◆ The need for a consistent national approach to managing salinity

- 1.56 Trevor Budge, Director, Research Planning and Design Group, advocated a nationally consistent approach to the use of planning legislation to manage salinity. He made the following points.
- 1.57 The current institutional arrangements, the planning culture and failure to integrate state natural resource management and council decisions will serve us poorly as we try to address salinity.
- 1.58 Salinity is a national problem. Australia needs a common framework for managing salinity across states. There needs to be a consistent method of applying natural resource management, integrated catchment management and addressing salinity hazards in the planning processes. We are a long way from achieving this.
- 1.59 There is an enormous gap between States' salinity strategies and how to apply them to planning controls.
- 1.60 There is not currently a working model of the application of planning provisions to salinity management in any of the States that can be applied nationally.
- 1.61 Each of the States has a different planning culture because urban planning was a response to particular issues in each State eg housing, metropolitan coordination in Perth.
- 1.62 Each of the States' planning legislation requires major changes to integrate natural resource management into it.
- 1.63 Catchment management schemes are different in each State.
- 1.64 Planning controls are only triggered by the need for a permit. Many uses of land do not require a permit. Agricultural permits rarely take into account salinity.
- 1.65 Rural areas are "beset by localism" and "the tyranny of small decisions and imperatives of development at all costs". It is often who is applying rather than what they are applying for that is instrumental in the final decision. These small decisions have a cumulative effect. Politically some councils cannot be seen to be anti-development.
- 1.66 The Victorian Salinity Management Overlay which addresses salinity in planning has been used by only eight out of the 35 councils affected by salinity.
- 1.67 Salinity hazard maps can be misused. It is often assumed that areas outside of the hazard maps do not need planning controls even though land use in these areas will affect the salinity problem in adjacent areas.
- 1.68 One of the biggest problems in trying to get a national approach is the metropolitan focus of urban planning. Salinity never makes the agenda because the agenda is dominated by metropolitan issues.
- 1.69 Council planning schemes must be reviewed every three to five years but the level of detail in such reviews differs and whether it includes salinity is usually left to individual councils.

◆ **Salinity Mapping**

- 1.70 Several speakers emphasised the need for councils planning to manage salinity to commence with detailed mapping of salt pathways. Several speakers and also several delegates to the Summit provide consultancy services to councils to provide maps and planning tools.
- 1.71 Sinclair Knight Merz provides a planning tool to councils in the Murray Darling Basin based on available mapping of an area. Greg Hoxley of Sinclair Knight Merz explained that dryland salinity occurs in pockets of land and large areas are unaffected. This can be a challenge to manage. Solutions have to be tailored to these areas. The current declining terms of trade in agriculture makes it difficult for landholders to pay for solutions.
- 1.72 By contrast, irrigation salinity affects large areas of highly valuable land. There is the economic incentive to address salinity and large-scale solutions can be applied.
- 1.73 Bruce Gill, Sinclair Knight Merz, also stated that future land use planning can alter the rate of recharge and discharge. But it is important that mapping is used to ensure that people know exactly where the salinity hazard is.
- Planning approval should take into account salinity status of land (eg recharge, discharge, local flow system).
 - Landholders and developers must be made aware of salinity conditions and impacts.

◆ **The need for planning for salinity to include social planning**

- 1.74 Greg Hoxley informed the Summit that councils need to address social factors when planning to manage salinity. Salinity affects the amenity of an area, making it a less attractive place to live and work in. Salinity is a threat to the social fabric of rural Australia and likely to lead to population shifts from affected areas. Councils need to plan for future social changes caused by salinity and not only plan treatments for salinity. In some areas the treatments (eg large-scale tree planting) may be as disruptive as the problem. Councils and communities may have to identify areas where they can live with salt.

◆ **Infrastructure design can be part of salinity treatments and should be included in plans**

- 1.75 Greg Hoxley said that infrastructure design can be an important part of salinity management plans. For example, buried pipes are affected by salinity but if designed to withstand salinity can be part of the solution as they act as drains, diverting saline water.
- 1.76 Bruce Gill explained that in Shepparton sub-surface drainage is a key part of the Salinity Management Plan. Most irrigation farmers had no formal drainage system. A regional drainage system was designed and incentives provided to farmers.
- 1.77 Planning guidelines were also put in place to control earthworks on farms. The Plan was significant because councils had to put aside their own interests to achieve regional outcomes.

◆ **The need to replace zoning with performance based policies**

- 1.78 Gary Mavrinac, Team Leader, Country Unit Plan Amendment Branch, Planning South Australia, recommended legislative change to replace prescriptive zoning with performance based policies.
- 1.79 He said that planning is urban focused and designed to protect built areas. Natural resource matters are not ‘developments’ and are therefore not controlled in such plans. It takes time to amend plans. In the meantime, as the development plans are not flexible, certain activities have to be allowed. South Australia is moving away from prescriptive zoning to performance based policies which identify environmental standards and principles for development.
- 1.80 Gary Mavrinac also stressed the need for streamlining of agencies managing salinity.
- 1.81 There is a Bill before the Parliament of South Australia to create a natural resource authority above catchment management organisations. He suggested that amalgamations of some bodies such as catchment management organisations and Soil Boards would be useful in streamlining natural resource management.

2 VISIT TO PYRAMID SALT PTY LTD

- 2.1 The area around Kerang in northern Victoria has serious problems with salinity. The Committee inspected the areas of Barr Creek, Cohuna and Kerang. For many kilometres the vegetation consisted only of dead trees and salt tolerant plants.
- 2.2 The Kerang area has several salt harvesting enterprises. Some of these are experimental and subsidised by the Commonwealth Government and the Murray-Darling Basin Commission. Government agencies are investing in research and development because the extraction of saline water to produce salt also lowers the ground water table and rehabilitates the surrounding land.
- 2.3 Gavin Privett, an industrial chemist with experience in salt production, and John Ross, Manager of Ross Hunt Real Estate, formed Pyramid Salt Pty Ltd in 1994. The Company has produced high grade salt commercially since 1998. It commenced its operations with private funding and after 18 months received a loan from Ausindustry's Early Commercialisation Fund to commercialise the technology.
- 2.4 Gavin Privett, Operations Manager, took the Committee on an inspection of the site.
- 2.5 Pyramid Salt has 20 hectares of evaporation ponds which reduce the water table on 1,000 hectares of surrounding land. The water table in 1995 was 0.5m from the surface. In 2001 it is 6.5m below the surface. Only three kilometres away the ground watertable is 2m from the surface.
- 2.6 The evaporation basins at Pyramid Salt are unique because they have been designed for the extraction of salt. In other areas evaporation basins have been designed for interception schemes and salt harvesting has been added later.
- 2.7 At Pyramid Salt, one million litres of bore water is pumped daily into 13 evaporation ponds. As the water travels through the ponds it becomes more concentrated until it crystallises. The salt is then harvested, purified, dried, sifted and bagged.
- 2.8 Brine shrimps in the evaporation ponds keep the water clean and algae extract the base metals. Gypsum and magnesium are other by-products of salt harvesting. Mr Privett informed the Committee that these by-products are sold cheaply as a way of disposing of them as there is not a viable commercial market for the production of magnesium.
- 2.9 Pyramid Salt produces salts of different levels of purity. High grade salt is produced in specially designed polyhouses. High grade salt is sold as import replacement into the Australian market and when sufficient production capacity is available export markets will be developed into Japan and South East Asia.
- 2.10 Pyramid Salt is capitalising cautiously and increasing its production by 10,000 tonnes this year (currently 5,000 tonnes) and intends to supply 100,000 tonnes at full capacity. Mr Privett estimates that every increase in production of 2,000 tonnes creates one job. The company expects to employ fifty people to produce 100,000 tonnes of salt.
- 2.11 Flake salt is produced in a machine designed by Pyramid Salt. It sells at a much greater price (\$4,000 per tonne) compared to bulk salt (\$60 per tonne). It is considered to be a value

added product. Pyramid Salt has a new product line which is salt flavoured with different native Australian herbs. This is a joint venture with Alma Distributions, a Sydney based fine food distribution company.

2.12 The global market for salt is 200 million tonnes for industrial use and 10 million tonnes for high quality domestic consumption. However, Mr Privett told the Committee that the production of raw bulk salt for export would require transport subsidies if salt production from the Murray Darling Basin is to compete on the overseas market. Salt is a low cost commodity. Transport costs can quickly eradicate profits.

2.13 Important factors in Pyramid Salt's success are the production of high grade salt and proximity to food processing plants in the Shepparton Basin.

2.14 Pyramid Salt is negotiating a contract with the Murray Darling Basin Commission/Victorian Government to harvest salt from the Pyramid Creek Groundwater Interception Scheme. Pyramid Salt would cover the operating and managing costs and contribute some of the capital costs. Pyramid Salt would make royalty payments to the project.

◆ **Solar Pond Project: Innovative technology to collect solar energy for heating purposes and to reduce greenhouse gas emissions**

2.15 RMIT University, Geo-Eng Australia Pty Ltd and Pyramid Salt Pty Ltd have been awarded a \$550,000 grant under Round 2 of the Australian Greenhouse Office's Renewable Energy Commercialisation Program. The project is to demonstrate and commercialise a system using a solar pond to generate heat for a range of industrial purposes

2.16 A solar pond is a body of shallow saline water several metres deep set up so there is increasing salinity with depth. Solar radiation entering the pond is stored as heat in the lower layer. This heat (up to 80 degrees Celsius) is then available on a 24-hour basis. The salinity of the water prevents convection, trapping the heat in the lower level.

2.17 The solar pond at Pyramid Hill is being used to supply heat to dry air used in the salt production process.

2.18 RMIT states that solar ponds have strong market prospects to provide process heat from sunlight to other rural industries in salt affected areas such as:

- dairy industry, for example, to preheat feed water to boilers;
- aquaculture to grow fish or brine shrimp;
- fruit and grain drying;
- water supply for desalination; and
- factory and office space and water heating at suitable rural sites.

2.19 RMIT estimates the cost of heat from solar ponds to be competitive with the use of LPG and electricity in rural areas. Research indicates the cost of heat from solar ponds to be \$10 to \$15/GJ compared with \$20/GJ for LPG (at 43c/GJ); \$45/GJ for peak electricity and \$9/GJ for off-peak electricity. Solar pond heating would not be competitive with natural gas priced at only \$4 – 5/GJ.

(www.me.rmit.edu.au/research/solarpd.htm accessed 28 June 2001)

- 2.20 Mr Privett took the Committee to inspect the 3,000 square metre pond.
- 2.21 The temperature at the bottom of the pond in winter is 35 degrees and 30 kilowatts of electricity is being extracted from the heat. The cost of producing the electricity is half way between that of retail and wholesale power costs. In summer the temperature in the pond is 80 degrees celsius and produces 100 kilowatts of electricity on a continuous basis.
- 2.22 The pond cost \$200,000 to establish. Mr Privett explained that solar ponds “are not rocket science” – the process of technological development involves experimenting to iron out practical problems. The project aims to make ponds which are cheap to construct and have low maintenance costs. In other parts of the world, such as the USA, there are solar ponds but these use chemicals to keep the water clean. The pond at Pyramid Hill uses brine shrimp. A new strain of brine shrimp has been developed which survives well in the solar pond.
- 2.23 Mr Privett informed the Committee that solar ponds have great commercial potential. He believes that within a few years the commercialisation of the ponds will be at a level where a five hectare solar pond could provide electricity for a town of 200-300 people. He believes that by 2008 solar ponds will be a \$60 million per annum industry for Australia.
- 2.24 Israel ran a commercial power station using solar ponds. The system was expensive to run and there were technical difficulties. When global fossil fuel prices dropped, Israel reverted to using them.

APPENDIX 1: COUNCILS ATTENDING THE SUMMIT

| Council | NO. OF DELEGATES | Council | No of delegates |
|---------------------------------|-------------------------|------------------------------------|------------------------|
| Albury City Council, NSW | 1 | Jerilderie Shire Council, NSW | 1 |
| Alexandrina Council, SA | 3 | Jondaryan Shire Council, QLD | 1 |
| Balranald Shire Council, NSW | 2 | Leeton Shire Council, NSW | 2 |
| Bendigo, City Of Greater, VIC | 2 | Loxton Waikerie DC, SA | 1 |
| Berri Barmera Council, SA | 3 | Meander Valley Council, TAS | 1 |
| Blacktown City Council, NSW | 3 | Mid Murray Council, SA | 1 |
| Bourke Shire Council, NSW | 1 | Mildura Rural City Council, VIC | 2 |
| Brewarrina Shire Council, NSW | 1 | Mt Marshall Shire of, WA | 2 |
| Brookton, Shire of, WA | 1 | Mudgee Shire Council, NSW | 3 |
| Camden Council, NSW | 1 | Murray Shire Council, NSW | 3 |
| Campaspe, Shire of, VIC | 4 | Onkaparinga, City of, SA | 1 |
| Cardinia Shire Council, VIC | 1 | Orange City Council, NSW | 2 |
| Central Darling Shire, NSW | 1 | Penrith City Council, NSW | 2 |
| Coorong District Council, SA | 1 | Port Pirie Regional Council, SA | 1 |
| Cootamundra Shire Council, NSW | 1 | Renmark Paringa DC, SA | 3 |
| Corowa Shire Council, NSW | 2 | Shepparton, City of Greater, VIC | 2 |
| Crookwell Shire Council, NSW | 1 | Swan Hill Rural City Council, VIC | 4 |
| Deniliquin Council, NSW | 5 | Toowoomba City Council, QLD | 3 |
| Douglas Shire Council, QLD | 1 | Wagga Wagga City Council, NSW | 4 |
| Dubbo City Council, NSW | 2 | Wangaratta Rural City Council, VIC | 2 |
| Forbes Shire Council, NSW | 3 | Warwick Shire Council, QLD | 1 |
| Gannawarra Shire, VIC | 1 | Wellington Shire Council, NSW | 5 |
| Gosford City Council, NSW | 1 | Whyalla, City of, SA | 1 |
| Hindmarsh Shire Council, VIC | 1 | Yarriambiack Shire Council, VIC | 1 |
| Horsham Rural City Council, VIC | 1 | TOTAL | 92 |
| Hume Shire Council, NSW | 1 | | |

APPENDIX 2: DELEGATES TO THE SUMMIT, OTHER THAN COUNCILS

| Category of delegates | Approx. No. |
|---|--------------------|
| State Government agencies, including catchment management organisations | 46 |
| Business | 44 |
| Local government associations | 30 |
| Other non government organisations | 19 |
| Commonwealth Government | 15 |
| Research (including government) | 14 |
| Parliamentarians | 11 |
| Murray Darling Basin Commission and Ministerial Council | 7 |
| Media | 2 |