



AquaAustralis

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Newsletter of the Hydrological Society of South Australia

Welcome to the August 2003 edition of AquaAustralis. In the next few editions of the newsletter we feature cover articles provided by a number of guests. In this edition we feature an article by **Richard Clark** regarding Water-Proofing Adelaide. We thank Alan Ockenden for his contribution to the last edition.

Susan Lee (newsletter editor)

Water-Proofing Adelaide – Can We Get It Right?

(The ideas expressed below are those of the author and must not be assumed to necessarily reflect those of any organisations to which he belongs).

It is now over a decade since we all suddenly realised the very large benefits that could be gained by changing our mind-set from considering stormwater as a disposable, dangerous nuisance to considering it as a potentially harvestable and value-adding resource. Since then a tremendous amount has been achieved.

We have legislated that stormwater and wastewater are to be included as resources under the Water Resources Act. We have established Catchment Water Management Boards in urban areas with responsibility for improving stormwater management. We have adopted many methods for cleaning up our urban catchments and the stormwaters they generate. We have rekindled interest in on-site storages as sources of water supply and components of flood mitigation systems. We have adopted wetlands, with their multiple benefits, as an integral part of urban living. We have shown how treated stormwater can be stored in, and recovered from our extensive underlying aquifers. We have built many demonstrations that encapsulate our 'new' thinking into prototype demonstrations which integrate stormwater (in some cases with its re-use) into our 'new generation' of more sustainable urban developments. We have started to do our sums and now glimpse that our urban areas could eventually achieve sustainability for their future water supplies by only using and re-using the rain that falls on them – all at sustainable prices that might be comparable to our present very unsustainable system charges!

All very amazing and very exciting (and all very *obvious* when you think on the factors associated with our local water cycle, the totality of water management objectives that urban dwellers have, and the array of new technologies for water management that we now have at our disposal). Only local rainwater and stormwater use and reuse have the *intrinsic* legitimacies for incorporation into our urban water interests, objectives and systems if sustainability is our goal

So, with these new concepts and technologies now under our belt, we should be able to move smoothly into stage two – by incorporating them into plans for progressively restructuring our old, ageing and non-integrated water systems into a 'new generation' of integrated and sustainable systems. In these systems the better quality stormwater would become the primary source of water for higher quality demands. Wastewater, generated

from the usage, would be the source of 'secondary' water for irrigation and other lower quality demands.

Moving into stage two (or at least investigating the feasibility of it) was what I understood to be the intention when the government announced its 'Water Proofing Adelaide' project. I have seen the four page pamphlet put out on the project and, superficially at least, it looks good. However, on delving deeper and reflecting on matters that have concerned me for many years, I am still not convinced that we are properly on track yet.

I suggest that problems may emerge for the 'Water Proofing' project that will stem from two crucial factors:

1. The basic criteria for urban water 'sustainability' have not yet been identified, discussed and agreed. When they are, the rainwater/stormwater use/reuse option will, surely, be recognised as the *only* system contender because of the multiple objectives it can cover. Cleaning up, using and re-using your own water, in your own catchment (while mitigating floods and reducing downstream pollution) before importing water from someone else's catchment, is surely a cornerstone of sustainability. We need to get this recognition out into the open, so that we can all know the direction we are going in. (I am not saying that other options have not got a part to play – but where they have, they should be recognised as less sustainable, less desirable and temporary 'gap-fillers' for situations where the more sustainable options cannot be, or have not yet been made to work).

On re-reading the 'Water Proofing' pamphlet it can be seen to be very oriented towards water supply only. For example no mention is made of flooding at all. Moreover, when I listen to the radio or read my newspapers, I could be easily persuaded that the project is a competition for dredging up all the old and discredited schemes such as ice-bergs, desalination, pipes from the Ord, turning rivers inland, etc, etc. – all of which are *only* about water supply, do not address the multi-objectives for water management that urban dwellers have and are not compatible with concepts of 'sustainability'.

It is suggested that unless the appropriate objectives and criteria for the 'Water Proofing' project are identified at the start, the solutions may easily be sub-optimal.

2. We have not reformed the Waterworks and Sewage Acts to bring them in line with the minimum needs of integrated water management.

If you recall, at that time that SA Water was corporatised, it was arranged that:

- SA Water should operate as a monopoly at arms length from government. Subject to important performance criteria and some limited environmental constraints, the corporation was given the single objective of maximising its annual profit from its inherited water supply and sewerage infrastructure. Infrastructure which has been continuously laid out in accordance with the separated and monolithic water system design concepts current in 1932 and 1929 when the Acts were last substantially reviewed.
- We, the public should continue to own the infrastructure, but would continue to have no means for being involved in investigations and decisions on how this infrastructure is to be planned or operated.

SA Water must of course be a major player in the 'Water Proofing' project. It seems strange to me, however, that SA Water has been appointed as its leader, despite the fact that SA Water's objectives, systems and management approaches have traditionally been quite divergent to those of the project, and (legally) still are. It also seems unfortunate that a review of the administrative structures for water to enable the Water Resources Act to embrace the planning of water services has not been identified as a necessary (or possible) outcome of the 'Water Proofing' project. It seems doubly unfortunate that the minds of those responsible for the Water Resources Act are

Member Contributions

If you have any news, notices of coming events, articles etc that you think other HydSoc members would like to know about, please send details to susan.lee@flinders.edu.au. All contributions will be considered and are warmly welcomed.

Committee contact details

The Executive Committee of the HydSoc are always interested in hearing from our members. If you have any ideas or suggestions for future meetings, newsletters or other activities you would like to see from the HydSoc, please contact us and let us know.

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"Decision Points for Land and Water Futures" seminar

Sébastien Lamontagne

On Thursday 15 April, the HYDSOC hosted a seminar by Michael Dunlop from the CSIRO Division of Sustainable Ecosystems in Canberra. Michael is an environmental scientist with the "Resource Future Program", which aims at providing long-term, national-scale, land, water, and biodiversity futures for Australia. Michael was in Adelaide to present the outcomes of a comprehensive research project on land and water futures that will soon be submitted to Land & Water Australia.

Michael and his co-workers used a simulation model of the physical economy of Australia (the Australian Stocks and Flows Framework) to assess the impacts of three possible future land and water use scenarios for Australia:

- *Water, water everywhere* (expansion and improved water use efficiency in dryland agriculture).
- *Give and take* (expansion of irrigation agriculture and the return of rain-fed agricultural land to perennial vegetation).
- *Brave new regions* (diversification of rural economies towards tourism and services industries, etc).

All scenarios were built with the frame of mind that, with optimal use of resources, positive environmental outcomes were possible. Some key findings arose from Michael's work, including that:

- Half of the current agricultural land has been under agriculture for less than 50 years. Because of time lags between change in land-use and environmental impacts, much of the adverse impacts of agriculture on the environment (salinity, etc) have not been felt yet.
- All scenarios could provide some benefits to the environment but not necessarily in the same way. In *water, water everywhere* benefits would be greatest for aquatic ecosystems because of the return to more natural flow regimes in southern rivers. In the other scenarios, land ecosystems would benefit most because of the retirement of rain-fed agricultural land.
- Major change in land-use is inevitable within the next 100 years because current practices are not environmentally or economically sustainable. The cost of fossil fuels will increase and this will strongly impact the economics of agriculture.

The presentation generated much discussion with the audience. Michael made it clear that what he proposed were scenarios as opposed to forecasts. In other words the scenarios cannot determine the future but they could be used to influence it. All proposed approaches to land and water use management could provide positive outcomes (but not without hard work).

The report is not public yet but a draft copy could be obtained from Michael if requested.

Ian Laing Prize - 2002

Ken Schalk

The 2002 Ian Laing prize was awarded to Mr G (Joe) La Spina, who is a Bachelor of Engineering (Civil & Water) Honours Student studying at the University of SA. The prize was awarded to Joe at the March Technical Meeting of the Hydrological Society.

Joe's final year investigation involved the 'Development of a Risk Assessment Method for Stormwater and Soil Erosion Management for the City of Onkaparinga'. At the meeting Joe provided a short presentation describing his final year work.

His research was aimed at developing a method for assessing and implementing sediment and erosion control measures on development sites within the City of Onkaparinga. The method takes into account various erosion risk factors including the type of development, duration of works, season, rainfall zone, area of disturbed ground, site slope, overland flow length, soil type and proximity to a watercourse.

Through his research, Joe has developed a method that has enabled these factors to be assessed, weightings applied to the various factors in a consistent manner and an overall 'Level of Risk' (classified as Low, Moderate, High or Extreme) assigned to each site. The method is simple and reproducible (ie different users applying the method should assign the same risk classification to each site).

The assigned 'Level of Risk' is then used to specify the actions required to plan for and manage sediment and erosion at the site.

The method has been adopted and is being further developed by the City of Onkaparinga.

Upcoming Seminars and Meetings

Annual General Meeting - Thursday 25 September

Details of the upcoming Dryland Salinity Seminar will be circulated as soon as they are finalised. Please mark the 25th of September in your diary and keep watching your email or mailbox for updates.

Other Important Dates

WATER WEEK is coming up in **October**, in this the International Year of Freshwater. There are always many watery activities and seminars during this week so watch for details.

presently focussed on its integration into a Natural Resources Act at the very time that we have a much more pressing need for its integration with water services operations planning.

In summary, we now know that stormwater is a resource that we want to collect in drainage systems, harvest via water supply systems and re-use via sewerage systems. We need to recognise that in order to move towards sustainability, our first option water systems must comprise local systems based on the use and reuse of rainwater and stormwater. We must review our water administrative framework in order to integrate our planning for water supplies, sewerage and drainage with those for protecting and allocating our water resources.

I am not convinced that the 'Water Proofing Adelaide' project recognises these fundamentals. Without them – can we get it right?

PS. I would like to hear from anyone who shares similar views. Please contact me on 8362 9265 or via richardc@chariot.net.au.



Subscriptions Reminder

Earlier this year subscription notices were mailed to all current HydSoc members. Subscriptions were due and payable by March 31st. If you have not yet paid your subscription please do so promptly. If you no longer wish to be a member of HydSoc you must let Bill Lipp know (contact details on back page).