

Director's Message

The last few months have been a very busy period for all in the Institute. The end of first semester has brought with it the normal load of exams and marking. It has also been a very busy period for research, and a time of some substantial changes. The CRC for Catchment Hydrology has officially "nearly ended", and the new eWater CRC has officially "nearly started" (some contractual delays have resulted in the "nearly" qualification). At the same time, the new "Facility for Advancing Water Biofilters", funded through an STI grant, is also very close to being officially up and running, with contractual agreements between Monash University and its joint-venture partner, Ecological Engineering, currently being signed (see the article by Ana Deletic)

The CRC for Catchment Hydrology ended its life with a spectacular "roll-out" of all its products, and the "Catchment Modelling School '05", held in Brisbane and Sydney. School'05 had around 600 registrants, and feedback from those who attended has been excellent. Many ISWR members lead training workshops at the school, including Bob Keller, Grace Mitchell, Hugh Duncan, André Taylor, and Tim Fletcher. The School provided a good lead-in for the new eWater CRC

Some interesting changes are also on the horizon, regarding the way research impact is evaluated. In general, it looks likely that future assessment will pay greater attention to the "quality" of research, rather than just its quantity. For example, more emphasis will be placed on the Impact Factor of journal articles, in the future. The Associate Dean (Research), David Suter, has circulated a request for input on these issues, so take the opportunity to express your view – since the outcomes are likely to affect you.

Urban Drainage Modelling & Water Sensitive Urban Design Conference 2006

The abstract review process is complete. We have a total of 230 papers accepted and invited for submission. Second announcement brochures will be available soon.

Triple Bottom Line Assessment Guidelines for Proposed Stormwater Projects that aim to improve waterway health. These have recently been finalised and are available on the CRC for Catchment Hydrology's web site (in the 'news' section):

<http://www.catchment.crc.org.au/cgi-bin/WebObjects/CRCDataViewer.woa/wa/newsItem?id=1000192>).

UNESCO International Hydrologic Program

The Institute's contribution to this UNESCO Program is continuing, with Tim Fletcher chairing a working-group meeting in Paris on July 5-7 (Ana Deletic and Grace Mitchell were unable to attend due to other commitments). The project is producing guidelines on "Data Requirements for Integrated Urban Water Management", and a first draft was presented at the July workshop. The guidelines will ultimately be published as a book, in 2006.

For those of you who have any interest, the Table of Contents of the guidelines are presented below. The draft material has some very useful information which may help you in designing your own monitoring programs, so please let me know if you want to have a look at any of the sections (tim.fletcher@eng.monash.edu or 9905 2599).

Chapter 1 – Introduction, Background and Objectives

- 1.1 Introduction
- 1.2 Description of integrated urban water systems
- 1.3 Relationship to other guidelines
- 1.4 Relationship to other UNESCO IHP projects

Chapter 2 – Guiding Principles for Data Acquisition and Management

- 2.1 Introduction
- 2.2 Defining objectives and applications of monitoring programmes
- 2.3 Selecting variables to monitor
- 2.4 Temporal and spatial considerations
- 2.5 Understanding and managing uncertainty
- 2.6 Choosing monitoring equipment
- 2.7 Data validation: principles and implementation
- 2.8 Data handling and storage
- 2.9 Use of data to create information and knowledge
- 2.10 Financial considerations

Chapter 3 – Consideration and Integration of Urban Water Cycle Components

- 3.1 Monitoring to understand interactions between urban water components
- 3.2 Urban meteorology
- 3.3 Water supply
- 3.4 Wastewater and greywater
- 3.5 Stormwater
- 3.6 Combined sewer systems
- 3.7 Groundwater
- 3.8 Aquatic Ecosystems
- 3.9 Human Health

Chapter 4 – Conclusions

Tony Ladson's bit

One of my main jobs in the past month has been putting together a 'rejoinder' to reviewers' comments on an Australian Research Council grant application that Brian Finlayson and I have submitted (with help from James Grove).

The compact Oxford English dictionary describes a rejoinder as 'a sharp or witty reply'. That's what we were aiming for.

The task is to take 5000 characters (including spaces), to respond to 4 anonymous people; three of whom were reasonably happy. One was grumpy. The grumpy one's assessment of the methodology was one sentence: 'weak and uninteresting'. Fortunately one of the non-grumpy reviewers described the benefits of the project as so 'important and urgent that such a project should be solicited, were it not being proposed'.

Our project title is: *Supporting the rehabilitation of streams by improving the prediction of geomorphic response to urbanisation*. Our intention is to contribute to a cure for sick urban streams that focuses on their physical, rather than their ecological ailments. We know urbanisation changes streams. We would like healthier streams but we cannot stop urbanisations. What we can do is learn from the way streams have changed in the past, and are currently changing, to understand their behaviour and guide future management. Predictions of future channel behaviour need to be informed by history and based on physics.

Let's hope the ARC panel of experts thinks this is worthwhile.

ISMAR 05 it's summer in Germany - Anke Wendelborn

After two years in Australia, I finally made it back to Germany and for a good cause as well (not that enjoying summer in the beer garden wouldn't be reason enough). The five-day International Symposium on management of aquifer recharge (ISMAR) is held every 2 years and attracts the crème de la crème of hydrogeologists working in artificial aquifer recharge, mostly ASR and bank filtration. Australia was represented by 24 people (not a bad number out of 210 participants), but only one was from Melbourne. I managed to get myself introduced to the most important ASR person, namely David Pyne and can prove it (see Fig.1)!! Naturally most talks were about groundwater, which is of minor interest to everybody else in the group, but I have to mention Patricia Göbel's talk on stormwater infiltration devices, which looked mainly at Zn and Cu attenuation.

We also went on a field trip looking at Berlin-Adlershof, a pilot study for WSUD.

The new physics building (Fig. 2) is an integrated decentralised system completely containing the stormwater in the limits of the structure itself. Energy optimisation is achieved through deciduous climbing plants on the facades. Stormwater is used for irrigation of these plants and for adiabatic cooling in air conditioners. WSUD designs include green roof, pervious pavement, an infiltration retention pond and underground tank for storage. As this is the first year that it is running there will be more experience to come.

The second stop was at a stormwater retention basin (Fig.3), which is still in the building phase unfortunately, so keep an eye on it for future results. The stormwater drains of a 130ha catchment area from high traffic roads and industrial area. The total drainage is expected to be ~330ML/year.

If you want more info on any of this, I have some addresses for you.

Wenda



Fig.1: David Pyne (the "guru" of ASR)



Fig. 2: Physics building with energy and water sensitive urban design, Adlershof



Fig.3: Stormwater treatment system, Adlershof

Heavy Metal Assault ... The Legacy of Rum Jungle – Gavin Mudd

In late June, during a research trip to Darwin and Kakadu, I found time to visit the old mine site of Rum Jungle, a former uranium-copper mine from the 1950's-60's era. It has left a major legacy of heavy metal and salt pollution in the Finnis River. See the photos - quite the contrast to urban stormwater (unfortunately).

The Rum Jungle site was rehabilitated in the 1980's but the performance of these engineering works has been less than desired. This has important implications for understanding the rehabilitation of such problems across the mining industry, but especially in the Top End. A new company now wants to mine an additional mineral deposit adjacent to this which would potentially complicate the pollution problems significantly.



Great Artesian Basin - Bore Drains and Longreach

During mid-July, the Great Artesian Basin Co-ordinating Committee (GABCC) met in Longreach, central Queensland (the spiritual home and birthplace for Qantas). After the formal meeting was over we visited nearby Aramac and saw many old bore drains no longer in use (good) and some still in use (bad). It is interesting to see the progress on the ground being made towards sustainable groundwater management in the outback, and the positive community attitudes towards water issues - something people in the city could learn from I think.

The STI Biofiltration Facility

Our STI facility has got a new name. We are to be known as **Facility for Advancing Water Biofiltration (FAB or FAWB)**. This is much, much better than the previous name that was AFSBT (no one was able to pronounce this without having a fit).

Unincorporated Joint Venture has been formed! Both Ecological Engineering and Monash have signed an almost 50 pages long UJV agreement (after a long 'battle' between the lawyers that became very tiring for us who had to watch it from a close range). This means that we now exist officially as FAB.

The Grant Agreement with DIIRD has been agreed and it is now in the final phase of checking. We hope to sign it within a couple of weeks. This means that the \$1.46 million should start flowing in the very near future.

The best news is that both partners to the UJV agreed that Tony Wong should become our C.E.O. This means that I can stop doing admin (as well as reporting to the ISWR newsletter) since from now on, that will all be done by Tony. Thanks Tony for agreeing to take this position!

Tony has already called the Stakeholder Advisory Committee meeting, and hopefully we will finalise the Collaboration Agreements with our Industry partners in the near future (to help our cash flow further).

The planning has begun (so finally there is some fun in all of this). There are 4 main research projects:

Project 1: Technology Development - Tim is heading this (when he decides to visit Australia for a while he will have a HUGE budget at his disposal)

Project 2: Policy and Risk- Rebekah is doing a fantastic job of leading this project (it was all planned and ready to start even at the first planning meeting)

Project 3: Design Tool Development - I am to lead this (after Tim spends all the money on Project 1, I will have to do all the work by myself in order to deliver something!)

Project 4: Demonstration and Testing - Tony is to lead this important project (since he is the C.E.O. he may decide that all of the Project 4 budget is to be spent on entertainment, new sports car, etc)

I hope that from now on, we will have lots of fun working on this exciting project. I would like to say many, many thanks to all of you who helped in getting FAB started!

Monash Water Progress Report

This is an update on the progress of “Monash Water”.

The momentum behind Monash Water has continued to grow as the concept has been tested and refined with the help of a cross faculty working group. The Monash Water initiative now forms the cornerstone of a broader budget proposal that will focus research effort progressively around a series of “sustainability” themes.

The concept still has Monash Water operating as a federation of cross-faculty water-related interests, generating ideas and momentum through internal coordination and interchange and by offering a forum and a focal point for external interaction. Monash Water is not envisaged as a “Centre” or an “Institute” with its own research staff, rather it is a facilitator and a generator of water-related research undertaken elsewhere in the university.

The proposal has key Monash Water positions funded directly from university revenue. Returns are generated through increased research activity with funds and reputation flowing directly to schools and faculties. Melbourne University’s “Melbourne Water Research Centre” is already demonstrating the success of a similar decentralised cross-faculty model and has generated around eight times its cost in new research revenue.

Some important “Monash Water” developments include the following.

- Support for the Monash Water concept has come from across Monash faculties and campuses
- An opportunity analysis indicates a strong market for water related research at regional, state, national and international scales.
- Monash is already attracting more than \$6 million annually in water related research funding and Monash Water aims to double this level of funding.
- As a member of the International Water Centre, opportunities include a project to provide water advice to AusAid in PNG, East Timor and the Pacific and an international education and training proposal.
- South East Water has approached Monash to work together on strategic issues around water and wastewater retailing.
- A collaborative proposal to develop sustainability strategies for Melbourne is underway in partnership with Melbourne University.
- The mining industry in South Africa has expressed interest in a Monash Water node at the South African campus.

Success in the current budget bid will allow Monash Water to build its water reputation and contribute to development of a “sustainability” focus in research at Monash.

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