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Welcome

Welcome to NAIFNEWS No. 6.

In the previous edition of NAIFNEWS we mentioned the Australian Government's commitment to establish a Northern Australia Land and Water Taskforce under the leadership of Senator Bill Heffernan. This Taskforce is now up and running and was briefed on the NAIF project in Darwin in July. It was clear from those briefings that the Taskforce was "... exploring a wide range of economic



Keith Bristow on the Daly River, NT

development opportunities, including industry and tourism, and that its interest was not limited to agricultural development opportunities ...". It was also made clear that the Taskforce deliberations "... would be informed by the best available science ...". It is timely, therefore, that NAIF, and other programs and organisations such as CSIRO, the Tropical Rivers and Coastal Knowledge consortium, Charles Darwin University and northern State and Territory governments have been undertaking research to help build the understanding of northern Australian systems.

The long-term strategic focus that NAIF has brought to its work on the relationships between irrigation and tropical catchments (especially water systems) and the focus on supporting those with the responsibility to make decisions about the future of northern Australia was welcomed by the Taskforce. The NAIF team discussed the project activities and lessons from the history of irrigation which shows that while achieving short term benefit from irrigation may be relatively easy, long-term sustainability is the real challenge. Helping to understand the difference between

uncertainty and risk, and then manage those issues that carry the greatest risk, is at the heart of the NAIF work in developing frameworks to support decision making about the sustainability of irrigation in northern Australia. The NAIF project has identified ways in which knowledge about how individual catchments operate (socially, economically and environmentally) can be improved. Better access to the most current knowledge, tools and processes will help governments and communities debate and decide about the future of irrigation in northern Australia.



Murray Chapman

In closing I also want to take this opportunity to thank Murray Chapman on behalf of the NAIF Steering Committee, NAIF project team, and I'm sure many others from across the country, for his commitment to and support of the NAIF project since its inception. Initiated in 2003, NAIF was possible because of funding through Land and Water Australia's National Program for Sustainable Irrigation (NPSI). As NPSI program manager for much of the time since 2003, Murray made a major contribution to the NAIF project. Murray's attention to detail, challenging the project team to deliver the best possible outcomes and his connections to a diverse range of other activities and people has made a major contribution to helping the NAIF project achieve even more than was thought possible just a few years ago. Murray has completed his NPSI contract and has decided to move on to other challenges. We wish him and his family well in their future ventures.

Keith L. Bristow – Project Leader

Northern Australia Land and Water Taskforce

The Northern Australia Land and Water Taskforce, chaired by Hon Bill Heffernan, has been established by the Prime Minister to examine the potential and opportunities for further land and water development in northern Australia. The Taskforce terms of reference are available at <http://www.environment.gov.au/water/action/development/nalwt-tor.html>



Irrigated peanut crops, NT

On 24 July, the NAIF Project team (represented by Keith Bristow and Jeff Camkin) travelled to Darwin to brief the Northern Australia Taskforce on the NAIF project. This briefing was one in two days of presentations to the Taskforce from a range of CSIRO and other researchers, NT government and other stakeholders. A copy of the NAIF presentation to the Taskforce can be viewed at <http://www.clw.csiro.au/naif/publications.html>

The feedback on the NAIF presentation was very positive and project team members were invited and did remain for all other presentations, which was an opportunity to hear condensed, core messages from a range of stakeholders in an efficient way.

The feedback regarding the interaction the NAIF project team had with the Taskforce was also positive and included comments like "... we are really pleased to see there are people like you grappling with these issues ...", and "... probably the best presentation/discussion we had..."!

It was clear that these initial meetings were about making contact, finding out who is doing what, what the different views were, and the level, form and availability of information that exists about the north.

Further NAIF interaction with the Taskforce can be expected, including an invitation to participate in a consultation workshop to scope out the nature of the land and water assessment activities and methodology.

Progress on the NAIF sustainability prototype

As reported in the previous edition of NAIFnews, we have been asked to develop a sustainability framework for irrigation in northern Australia, a real challenge for anyone!!!

In the previous edition we described some of the early findings of our research into what a sustainability framework for irrigation in northern Australia might entail. Amongst other things, that research identified that:

- a generic set of sustainability indicators for northern Australia was insufficient
- it is not only what is taken into account in irrigation decisions that is important, but also the way decisions are made (transparency, comprehensiveness, inclusiveness) and the ability of communities to engage in and understand decisions
- there is opportunity to improve the use of existing knowledge, tools and processes by improving awareness and access
- there is opportunity to use emerging technologies and understanding of how communities and individuals learn and share information to improve awareness of and access to relevant knowledge, tools and processes.



State Government Workshop in Perth

Further research has identified two key issues for consideration in developing the sustainability framework prototype. Firstly, the need to manage the increasing complexity of irrigation decision making in an environment of uncertainty. Secondly, whether dealing with that complexity and uncertainty must result in increased regulation or, as it is often described, "more red tape".

Over the past couple of months we have been working with the NT, QLD and WA Governments to develop simple processes to help ensure that all relevant environmental, social, economic and governance factors are identified and prioritised when considering irrigation in northern Australia. These approaches are drawing from and building on the National ESD Reporting Frameworks developed for the Australian fisheries sector over the last few years, and which are now being adopted in some international fisheries. These frameworks are based on the development of generic “ESD component trees” which provide the starting point for a comprehensive, transparent and inclusive process of issues identification, risk assessment and prioritisation.

Having developed an initial set of ESD component trees for irrigation in northern Australia we will now be working with the QLD government and other stakeholders to trial their application as part of the development of a prototype framework for the Lower Burdekin catchment.

We have also been researching the potential future use of catchment based knowledge platforms and social networking technology (think You Tube) to support a sustainability framework for irrigation in northern Australia. Further updates will be provided in future editions of NAIFNEWS.

NAIF Workshops to be held in Queensland, Northern Territory and Western Australia

The NAIF Project is a collaboration between Queensland, Western Australian, Northern Territory and Australian governments, CRC for Irrigation Futures and the National Program for Sustainable Irrigation (NPSI) to:

- develop a Sustainability Framework to help ensure any irrigation in northern Australia is managed in an ecologically sustainable manner
- develop an improved understanding of water systems in the tropics, particularly tropical groundwater systems and likely risks to groundwater and connected surface water systems if used for irrigation
- develop an improved understanding of the advantages and disadvantages of irrigation mosaics (smaller discrete patches of irrigation dispersed across the landscape) compared with traditional large scale contiguous irrigation systems.



Initial funding for NAIF was provided through NPSI, a program of Land and Water Australia. Subsequent to that, the Australian, WA, NT and QLD Governments and the CRC for Irrigation Futures, as well as CSIRO, are making significant funding contributions to the project.

NAIF Project Team members, Lucy Reading, Steve Marchant and Jeff Camkin with Bill Lewis (centre) from South Burdekin Water Board

The NPSI component of NAIF will be completed by the end of 2007. Over the next two months a series of NAIF workshops will be held in QLD, NT and WA in which the project team will report and seek feedback on NAIF research activities, findings and future directions.

Workshops on the NAIF Project have been scheduled as follows:

Brisbane – 7 September
Ayr – 14 September
Darwin – 24 September
Kununurra – 25 September
Perth – 28 September

Invitations to these forums have been issued through the WA, QLD and NT representatives on the NAIF Steering Committee who will be hosting the workshops in their relevant state/territory. If you have not received an invitation and would like to consider attending, please contact Di Popham on (07) 4753 8597 or email Di.Popham@csiro.au.

NAIF Project Team tours the Burdekin Dam and region

Gaining a better understanding of the workings of the Burdekin Dam, the Burdekin Haughton Water Supply Scheme (BHWSS) and the North and South Burdekin Water Boards (NBWB, SBWB) was the objective of a recent field trip undertaken by NAIF Team members Keith Bristow, Jeff Camkin, Lucy Reading and Steve Marchant.



Burdekin Falls Dam – 4 July 2007

The trip was conducted by SunWater Northern Projects Director and NAIF Steering Committee member Mr Kevin Devlin. Other participants included North Burdekin Water Board Manager Andrew Kelly, South Burdekin Water Board Manager Bill Lewis and several SunWater staff.



The trip involved visiting Queensland's largest dam, the Burdekin Falls dam, inspecting various aspects of the water distribution infrastructure on the lower Burdekin floodplain, and visiting an irrigated sugarcane farm to learn more about farm and paddock scale issues regarding irrigation in the lower Burdekin.

Tour Party

The full report highlighting key environmental and operational issues regarding irrigation in the BHWSS and the North and South Burdekin Water Boards is available via the NAIF web page at

<http://www.clw.csiro.au/naif/documents/2007/ReportBurdekinDamFieldTrip04-07-07.pdf>

The report provides particular insights into the Burdekin Falls Dam, the Clair Weir, the Tom Fenwick Pump Station, and recharge pits.

For more information on the Burdekin Dam or the Lower Burdekin irrigation area contact Steve Marchant on (07) 4753 8605 or Steve.Marchant@csiro.au or Keith Bristow on (07) 4753 8596 or Keith.Bristow@csiro.au

10th International Riversymposium and Environmental Flows Conference

The International Riversymposium is a leading international forum for sharing experience, expertise and knowledge on the world's river systems. Riversymposium is part of Brisbane's annual 10 day Riverfestival, which celebrates the indelible mark the Brisbane river and its tributaries have made on the culture of Brisbane.

The 10th International Riversymposium on 3rd to 6th September 2007 is for the first time, being delivered in partnership with one of the leading environmental organizations, The Nature Conservancy.



The NAIF project will again be prominent at **Litchfield National Park, NT Riversymposium** in 2007.

Dr Freeman Cook will be presenting a paper entitled "*Advantages and disadvantages of irrigation mosaics as an alternative to traditional forms of irrigation in northern Australia*".



Jeff Camkin presenting at Riversymposium 2006

Dr Keith Bristow will be presenting a paper entitled "*The future of northern Australia's unique ecosystems: Reflections on the findings, challenges and opportunities arising from the Northern Australia Irrigation Futures project*".

Drawing from his NAIF and Churchill Fellowship experiences, Jeff Camkin will be presenting in a session on integrated water resource management and the challenges of big rivers and political boundaries.

More information on Riversymposium is available at www.riversymposium.com/index.php?page=Symposium2007

Australian National Committee on Irrigation and Drainage Annual Conference



Each year, the Annual Conference of the Australian National Committee on Irrigation and Drainage (ANCID) attracts between 350 and 400 national and international delegates ranging from irrigators, landowners, scientists, water agencies, government, natural resource managers, prominent politicians, media, and industry and community groups.

Keith Bristow presenting at the NPSI Funders Forum Bundaberg in Queensland hosted the 2007 conference between 19th to 22nd August, supported by both pre and post conference tours. This year the conference focused on “Sharing the water; food, fibre, people and environment – working together there is a way”.

As was the case in 2006, the NAIF project was well represented. A feature of the conference was a panel session on northern Australia which included brief presentations from the Hon Bill Heffernan, Chair of the Northern Australia Land and Water Taskforce, the NAIF project team, and a range of speakers with industry, research and environmental perspectives.

Keith Bristow and Jeff Camkin were asked to set the scene by describing some of the activities and findings of the NAIF project, which encouraged a lively audience and panel discussion. Feedback from delegates on the discussion session was extremely positive.

Other current and past members of the NAIF Steering Committee featured throughout the ANCID program, including Kevin Devlin and Matthew Durack.



Coinciding with the ANCID Conference the NAIF Steering Committee met in Bundaberg on 18 and 19 August and the NAIF project participated in the NPSI Funders’ Forum on 19 August.

NAIF Steering Committee Chair, Ian Lancaster with Project Leader Keith Bristow

Irrigation mosaics

Irrigation mosaics are smaller discrete patches of irrigated land dispersed across the landscape, offering an alternative to more traditional large-scale contiguous irrigation systems.

NAIF Project team members Zahra Paydar, Freeman Cook, Emmanuel Xevi and Keith Bristow have been researching irrigation mosaics to identify potential impacts and benefits of these types of systems. The research has recognised the need to

include work on social and economic issues, but has focussed initially on biophysical features and potential longer-term impacts of mosaics on tropical ecosystems.

Existing knowledge on irrigation mosaics and the implications for sustainable irrigation is very limited. There are, however, some lessons that can be drawn from studies of other systems that deal with spatial patterns in the landscape to improve analysis and understanding of irrigation mosaics. While ecological and hydrological research has provided tools for studying landscape spatial patterns, careful study and adaptation of these to irrigation mosaics will be required.



Furrow Irrigation at the Ord

Our research is showing that irrigation mosaics could have both negative (more recharge, salinisation, greater evapotranspiration, increased operational losses) and positive (filtering surplus nutrients, enhanced biodiversity, preventing erosion) effects on the environment. These potential impacts need to be understood, and design criteria in terms of size, shape, density, connectivity and spatial arrangement for improved harmony with the landscape need to be established. This work may also provide insights into how existing irrigation systems could be modified to achieve some of the benefits of irrigation mosaics.

Making informed decisions about the future of irrigation in the north will require greater understanding of tropical systems and whether irrigation can be designed and managed in a way that is more in harmony with the natural ecosystems.

New publications from the Bureau of Rural Sciences

The Bureau of Rural Sciences has recently published the following three reports:

Connected Water brochure - providing information on an adaptive management framework for connected groundwater and surface water resources, tools to assess connectivity and management options.

Mapping potential stream-aquifer connectivity - describing a new method for mapping the potential stream-aquifer connectivity in a catchment.

Q-Lag: a new hydrographic approach to understanding stream-aquifer connectivity - describing a new method of analysing available streamflow and rainfall monitoring to gain insights into the groundwater contribution to streams.

A copy of the reports can be downloaded at
<http://www.connectedwater.gov.au/resources/Downloads.html>

New irrigation industry information portal launched

On 25 July a new Irrigation Industry Information Portal was launched.

Sponsored by the Australian Government through the National Landcare Programme's Sustainable Industry Initiatives Partnerships, the portal aims to provide a vital source of information about irrigation in Australia. It currently links to more than 250 relevant websites and as many as 1000 useful web pages.

The portal will make it easier to find basic and detailed information about a wide array of topics. For example, there are links to facts and figures about irrigation in Australia, irrigation best practice, innovation and technology, case studies, resources, availability, water trading, water policy, standards, regulations, research, education, training, publications, events and even weather forecasts. Over time there will be a comprehensive directory of irrigation stakeholders in this country.



Irrigated sugarcane - Burdekin QLD

The new portal will help address issues identified by the NAIF project in its research into the development of a sustainability framework for irrigation in northern Australia. Invitations to the launch of the Portal noted that:

“While a mass of information and data is available on various aspects of irrigation and irrigation management, it is often scattered across industries or locations or websites and is difficult to access. This limits the audience which can benefit from these resources. Critically, this lack of accessible, centralised information leads to inappropriate management practices or duplication of research and resources. What is needed is a means of access to information that is linkable, searchable and interactive; and which provides breadth and balance in the information provided.”

The NAIF team is continuing its research into the potential use of catchment based knowledge platforms and social networking technology (think You Tube) to increase the utilisation of existing knowledge, much of which is not written down, for enhancing irrigation decision making.

The Irrigation Australia Information Portal can be accessed at <http://www.irrigate.net.au/>.

NAIF CONTACTS

Project Team	Project Partners
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