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### Welcome

Welcome to the 1<sup>st</sup> edition of NAIFNEWS for 2007, a year in which water, and northern Australia, has been put directly in the spotlight through the Prime Minister's 10 point, 10 year, \$10 billion National Plan for Water Security.

This plan includes commitment to establish a Task Force, led by Senator Bill Heffernan, to explore future land and water development in northern Australia. The plan also notes that *"Future and ongoing development of northern Australia's land and water resources must take place in a strategic framework that is ecologically, culturally and economically sustainable ..."*.



Litchfield National Park, NT

The NAIF work involving development of a sustainability framework to support government and community debate and transparent decision making regarding irrigation in northern Australia is clearly timely, with current plans to have the prototype framework ready for testing by midyear. Each step in the development of the sustainability framework is developed in close cooperation with the NAIF Sub-Committee, which consists of representatives from the WA, NT and QLD governments. Their recent endorsement of the development to date and encouragement to continue on the current path noted that the sustainability framework *"...will improve accessibility to synthesised information and tools necessary for integrated water resource management in northern Australia"*.

Another milestone worth highlighting is that Bart Kellett, our first CRC IF funded PhD student, will be taking up a position with the National Water Commission (NWC) in Canberra as a Water Policy Officer. I know I speak for the NAIF team and for many others around the country in thanking Bart for his effort and many contributions to the NAIF project over the last 3 years, and in wishing him well in his new ventures. We are also looking forward to Bart putting the finishing touches on his PhD thesis in the near future as it will continue to make an important contribution to the NAIF project.

## NAIF project takes out CRC for Irrigation Futures Award

The NAIF Project Team received the Cooperative Research Centre for Irrigation Futures “Team Work and Collaboration” Award at the CRC IF Annual Research Forum held in Narrabri from 4 to 7 December 2006.

Keith Bristow, Jeff Camkin and Bart Kellett received the award on behalf of the NAIF project team.

“This award is fantastic recognition of the effort and success of the NAIF team in creating teamwork and collaboration across northern Australia and beyond, despite the challenging and complex nature of the project. Our aim is to continue to build on this foundation to help develop the knowledge, tools and processes that are needed to assist debate and decisions regarding northern water resources and what role irrigation may or may not play in northern Australia’s future” said Dr Keith Bristow, NAIF Project Leader.



**Peter Hayes presenting the Teamwork & Collaboration Award to Keith Bristow, Jeff Camkin & Bart Kellett**

NAIF Project Team members presented their research during the Annual Research Forum. On day one, which was dedicated to the Postgraduate Students, Steve Marchant spoke to the poster *Decision Making on Irrigation Development proposals in Northern Australia*, outlining his recently commenced PhD.

On day two, NAIF Sustainability Specialist Jeff Camkin spoke about *Northern Australia Irrigation Futures: Origin, Evolution and Future Directions for the Development of a Sustainability Framework* and CRC IF PhD Student Bart Kellett presented during the System Harmonisation session on *A Social-Ecological Systems Framework for Irrigation and Water Management*.

Delegates participated in the field trip on day three, which traveled to Mollee Weir to discuss river management, and then on-farm water management at the Australia Cotton Research Institute.

NAIF Project Leader Keith Bristow spoke more on the research being undertaken in the NAIF Project through his Tropical Zone presentation on the final day of the forum.

Planning for the 2007 CRC IF Annual Research Forum, to be held in Townsville during September, is currently underway.

## Water Experts Summit in Darwin

NAIF Project Team members Keith Bristow and Jeff Camkin were invited to participate in the Northern Australian Water Use Summit held in Darwin from 30 November to 2 December 2006.

Hosted by the Hon. Marion Scrymgour MLA, Minister for Natural Resources, Environment and Heritage, and the Government of Northern Territory, the Summit brought together over 50 experts on water management from around the country to focus on water use strategies across northern Australia.



One of the main objectives of the Summit was to combine the expertise of Senior Government officials, Indigenous people, researchers and general water users to devise strategies to contend with pressing water use issues across the wet and dry tropics.

Topics discussed during the two day workshop included:

- Balancing environmental, community, agricultural and community requirements for water in Northern Australia
- Indigenous management of water sources and sites for culture and livelihoods
- Sustainable use of aquifers in the deserts and coasts of Northern Australia
- Living rivers, wild rivers, healthy rivers and protecting water bodies from invasive species
- Equity issues, values and water pricing
- Changing Southern Australian perspectives on the use of northern rivers as a solution to water scarcity.

The recommendations arising from the Summit are to be presented to the Ministers responsible for water resources and the environment in the QLD, NT, WA and Australian Governments for consideration.



**Wetlands near Darwin**

including the capacity of communities to participate in water planning and management processes.

The day prior to the Summit, Keith Bristow and Jeff Camkin participated in the National Water Commission's Northern Rivers Workshop, also held in Darwin. The aim of this workshop was to better understand the key challenges encountered in implementing the National Water Initiative in Australia's north and to identify opportunities for coordinated action. A coordinated effort is expected to result in increased capacity to underpin water planning in the north for both surface water and groundwater systems,

Participation in this workshop provided the opportunity for Keith and Jeff to present the NAIF research and the contribution NAIF is making to the coordinated and collaborative effort across the north.

## NAIF Sustainability Framework Prototype under development

The NAIF Project team has been focusing efforts towards the development of the prototype of the Sustainability Framework. Under the guidance of the NAIF Steering Committee, the objectives of the framework are:

- *“to develop an overall framework that, through their involvement, is embraced by policy makers, regulators, investors and managers, to help ensure any irrigation is managed in a consistent, ecologically sustainable manner in northern Australia*
- *to use a number of linked case studies and stakeholder input to support and inform development and testing of the framework*
- *through provision of a robust framework, contribute tools and knowledge to support considered debate, decision making and long term strategic planning for northern Australia and Australia as a whole.”*

The sustainability framework concept draws from the National Strategy for Ecologically Sustainable Development (NSESD) definition of ecologically sustainable development (ESD), which has been adopted by all tiers of Government in Australia:

*“Using, conserving and enhancing the community’s resources so that ecological processes, on which life depends, are maintained, and the quality of life, now and in the future, can be increased” (National Strategy for ESD, 1997).*

Research into the idea of a sustainability framework to support decision making about irrigation in northern Australia has identified that:

- A set of generic sustainability indicators for northern Australia is insufficient
- Social and economic issues are not on the periphery of decision making, but central to it
- Economic activity (eg irrigation) is part of and takes place within the social system, which in turn is part of and takes place within the ecological system
- Understanding the control structures (legislation, plans, policies etc) that apply to catchments is critical to irrigation decision making at all levels
- Irrigation (or catchment) visioning, planning and assessment, and monitoring and reporting are non-linear and non-sequential processes, and are interrelated
- 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 those decisions
- There is opportunity to improve the use of existing knowledge, tools and processes through improved awareness and access by incorporating them into a single framework
- There is opportunity to use emerging technologies and understanding of how communities and individuals learn to improve awareness of and access to relevant knowledge, tools and processes



**Peanut crops in the Northern Territory**

- The development of a sustainability framework prototype will require good collaboration between a wide range of experts and stakeholders
- Ongoing application and evolution of the framework will also require strong, ongoing collaboration.

The NAIF Steering Committee has endorsed future directions for the development of the sustainability framework, based around an adaptation of the National Ecologically Sustainable Development Frameworks for wild fisheries and for aquaculture. An update on the NAIF sustainability framework will be provided in the next NAIFNEWS.

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## PhD students update

**Bart Kellet** is now finalising his research related to the NAIF Project. Bart's CRC IF studentship agreement finishes at the end of March 2007 and he is currently writing up his PhD thesis "*A social-ecological systems framework for irrigation and water management*".

Bart has secured a position with the National Water Commission in Canberra as a Water Policy Officer. Bart has been a great member of the NAIF Project Team and his research has delivered significantly into the Sustainability Framework and our improved understanding of northern social-ecological systems. We wish Bart well in his future career and hope that he will continue to play an important role in northern Australia.



**Steve Marchant** commenced his CRC IF studentship on 15 January 2007. Steve is based at CSIRO Davies Laboratory in Townsville and has initiated his research on "Decision-making on Irrigation Development Proposals: New ways to make better decisions". Steve's initial focus is on the lower Burdekin, but will also include other areas across northern Australia.

**Lucy Reading** commenced her PhD scholarship on 1 January 2007. Lucy is based at UQ in Brisbane and is helping improve our understanding of tropical groundwater systems with a focus on the lower Burdekin. Lucy is currently analyzing lower Burdekin groundwater nitrate and salinity data and has also been reviewing groundwater recharge estimation literature. Lucy has gained a better understanding of recharge estimation methods from this work and will now be determining the next steps required in investigating groundwater recharge and groundwater quality in the Lower Burdekin.



**Peta Dzidic** is investigating the social processes that surround decision making in natural resource management in Western Australia. Through a studentship from the CRC IF, Peta is extending her research design to include two diverse case studies which aid in the deconstruction of processes that operate in the South Eastern agricultural area of Western Australia and those in the Ord Irrigation Area. Peta has completed her Wheatbelt fieldwork and visited Kununurra in early March for the first of three visits planned for 2007. During the visit, Peta attended the shed meeting, toured the irrigation area and conducted 11 preliminary interviews.

## AGU Meetings in San Francisco

The American Geophysical Union (AGU) is one of the world's largest scientific societies with 23 research disciplines ranging from hydrology, to global climate change to magnetospheric physics etc. The AGU has in excess of 48,000 members worldwide and holds annual meetings in San Francisco, California.



Dr Keith Bristow, NAIF Project Leader, was invited to attend the AGU meetings last December. There were a total of 13,600 delegates who attended these meetings. Dr Bristow presented a paper entitled *Towards improved understanding of the linkage between irrigation and groundwater systems in tropical Australia* which drew on the research being undertaken by the NAIF Project team in the lower Burdekin and Katherine-Douglas-Daly areas. During the meetings Dr Bristow also attended sessions on climate change (including a fascinating presentation by Al Gore), salt water intrusion, Karst and fractured systems, and soil physics. Details on the meeting program can be found at <http://www.agu.org/meetings/fm06/>

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## Ord Catchment Reference Group

The National Action Plan for Salinity and Water Quality (NAPSWQ) is a joint commitment of \$1.4 billion over seven years by the Australian, State and Territory Governments to develop locally relevant solutions to salinity and water quality issues.



The Ord Catchment Reference Group is responsible for managing several NAPSWQ funded research projects within the Ord region of Western Australia.

**Ord Region, WA**

These projects include:

- Property and paddock scale management in the East Kimberley
- Delivery of best management practices to Ord catchment land managers
- Sediment survey of Lake Argyle
- Riparian condition assessment in the Ord catchment
- Weeds and waterways
- Key management actions for Lake Kununurra
- Biomass growth survey of irrigation network
- ORIA groundwater drainage and discharge evaluation
- Innovations in flood furrow irrigation systems in ORIA
- Water quality monitoring trial in the ORIA
- Demonstrating sustainable farming systems
- Pesticide risk in aquatic organisms
- The response of the Lower Ord and estuary to catchment flows and loads
- Ord Catchment NAP coordination and management

The group produces regular fact sheets on the progress of these projects. These can be obtained by contacting Liz Brown on (08) 9169 2610.

## Connected Water Website

Understanding the connectivity between surface water and groundwater is critical if Australia's water resources are to be sustainably managed. Connectivity



refers to flows between water resources located above ground (surface water) and below ground (groundwater). Assessing these interactions is difficult and complex but necessary in managing water scarcity, allocation and water quality in Australia.

The Connected Water website [www.connectedwater.gov.au](http://www.connectedwater.gov.au) has been developed to progress a coordinated approach to managing surface and groundwater resources in Australia. It is intended to provide an up-to-date resource on groundwater and surface water connectivity issues for policy makers, water managers and catchment groups.

The site presents an overview of the land and water issues involved in integrated water resource management. It also explains the nature and implications of interactions between surface water resources - such as rivers, lakes and streams - and groundwater resources.

This website is coordinated by the Bureau of Rural Sciences and developed and funded through the National Groundwater Committee, Australian, State and Territory Government agencies and the Natural Heritage Trust.

Log onto the Connected Water web site to find out:

- *How* does groundwater interact with surface water?
- *What* are the impacts of this connectivity?
- *Why* should groundwater and surface water be managed conjunctively?
- *What* tools are available to assess and manage connectivity?
- *What* are the policy implications for managing connected systems as one resource?

Key features of the website:

- Information on conjunctive water management policy
- Tools to assess connectivity
- Latest national and international case study reports
- Comprehensive glossary of groundwater and surface water terminology
- Access to additional groundwater/surface water web links
- Extensive reference database with over 1,500 entries to search through and download
- Colourful photo gallery to browse through

For more information please contact Peter Baker, Integrated Water Sciences, Bureau of Rural Sciences on 02 6272 5609 or email [peter.baker@brs.gov.au](mailto:peter.baker@brs.gov.au)

## NAIF CONTACTS

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