

**NORTHERN AUSTRALIA IRRIGATION FUTURES:  
REPORT OF DARWIN WORKSHOP**

**by**

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## EXECUTIVE SUMMARY

1. The purpose of the workshop was for the Northern Australia Irrigation Futures (NAIF) project to engage with Australian governments associated with northern Australia irrigation (WA, NT, Qld and Commonwealth) in the presence of some of the key project stakeholders (the Land and Water Australia National Program for Sustainable Irrigation and CRC for Irrigation Futures).
2. The key outcome was that the four governments were positively engaged in the NAIF project and would be involved in further development of the project.
3. This successful engagement was in part due to benefits being identified by the respective governments that would be derived from the successful development of a sustainability framework for assessing the potential of irrigation in northern Australia. These benefits included transparency, data and information sharing, management of feedback and informing and assisting with future debates and decision making processes, including refining existing irrigation schemes.
4. A number of issues in relation to the development of the framework were identified that needed addressing. Some of these could be addressed by NAIF, it being recognised that NAIF was only one project and would be somewhat limited in its scope by its resourcing. Some of the key issues identified that NAIF would need to address were:
  - both independent groundwater systems and those interacting with rivers
  - specifying products that would emerge from the sustainability framework and the delivery systems that would be used
  - the different nature of engagement processes with indigenous communities
  - the differing needs of indigenous communities, investors, landholders, governments and regional and community groups
  - the interface between the biophysical aspects of a sustainability framework and the social, economic and institutional aspects
  - the importance of developing and / or maintaining communication and engagement processes with a range of stakeholders, including the management of expectations
  - not all State agencies were present at the workshop and further engagement with a wider range of agencies is needed
5. The needs of NAIF for its future development were identified in terms of a work plan that included the specific activities planned, skills required and resourcing. It was made clear that cash resources from the States and Territory were currently limited but that there were some prospects for cash availability if circumstances changed. However, opportunities for in-kind support from all four governments were identified and the potential for linking the NAIF project to associated programs and initiatives, either current or planned, are significant. This linking to other initiatives appeared a key part of future resourcing and would provide a channel for injection of skills required by the NAIF project.

6. The most important implications for the NAIF project are:
- the need to address independent groundwater systems as a key component in the biophysical component of the sustainability framework
  - the linking of NAIF to other initiatives to both extend the skills available to the project and to enhance its resourcing for meeting its objectives
  - to develop simple and definable products that will emerge from the sustainability framework so that the different stakeholders can appreciate the benefits that they may expect
  - the need to develop a communication strategy as part of the work plan and to ensure that the strategy addresses the management of expectations and the plan employs a common language with terms clearly defined
  - to design specific engagement processes for indigenous communities and to inject into the project skills some appreciation of indigenous views of landscape and the associated design of irrigation developments

7. Conclusions and recommendations are:

- i) There was a high level of support and strong indications of prospective involvement evident from all governments participating in the workshop. Given this strong support for developing the sustainability framework, it is appropriate for a work plan or business plan to be developed for Stage 2 of the NAIF project.

Recommendation: A work plan be developed for Stage 2 of the project that recognises the importance of linkages to existing and prospective State and Commonwealth initiatives.

Recommendation: NAIF needs to further engage with several specific agencies not represented at the workshop (eg. EPA and DPIF Queensland, Tropical Savannas CRC, etc).

- ii) The work plan needs to address issues raised at the workshop and identified in this report.

Recommendation: NAIF needs to specifically address in its Stage 2 work plan: a communications strategy, the linkages to other initiatives, and specific products and delivery systems.

- iii) It is evident that the Steering Committee for the NAIF project engages a wide range of key stakeholders.

Recommendation: In discussions with key contacts in each State/Territory that the Project Leader and Steering Committee ensure as far as possible that all agencies are well connected to the project through the key contacts in each State/Territory.

# **1. Introduction**

## ***1.1 Workshop Purpose and Objectives***

The purpose of the workshop was to engage government stakeholders to ensure the NAIF sustainability framework evolves to meet their needs in addressing future and existing irrigation developments in the north. This specific workshop was held in the context of other consultation processes taking place to engage with wider groups of stakeholders from across northern Australia.

The objectives of the Darwin Workshop were to:

1. introduce the Northern Australia Irrigation Futures project and the potential benefits of the intended sustainability framework
2. exchange information concerning current government initiatives regarding irrigation development in northern Australia
3. identify needs of different jurisdictions and the benefits that can accrue from developing a sustainability framework and which can evolve with time
4. identify key issues that need to be included in / addressed by the framework and preferred features of the framework
5. discuss staffing, funding and cost sharing arrangements for the development of the framework
6. identify and agree on a way forward from the workshop

## ***1.2 Participants***

Workshop participants included:

- Representatives of Australian government agencies associated with northern Australia irrigation (from Western Australia, the Northern Territory, Queensland and the Commonwealth)
- Representatives of key stakeholders associated with the project including those from the Land and Water Australia National Program for Sustainable Irrigation and the CRC for Irrigation Futures
- Representatives of the NAIF project team

A full list of workshop participants is provided in Appendix 1.

## ***1.3 Organisation***

The workshop was held in Darwin on the afternoon of 26<sup>th</sup> and morning of 27<sup>th</sup> May 2004. It included both informing and interactive activities with the latter occurring in open forum sessions. The workshop agenda is provided in Appendix 2. Peter Chudleigh and Sarah Simpson organised and facilitated the workshop on behalf of the NAIF project and Jim McColl provided independent comments and some concluding remarks (see Appendices 9 and 10). Keith Bristow also provided some concluding remarks (see Appendix 10).

The NT Department of Infrastructure, Planning & Environment assisted with administrative matters. The workshop was held at Berrimah Research Farm (Department of Business, Industry & Resource Development) near Darwin.

## 2. The NAIF Project - An Overview

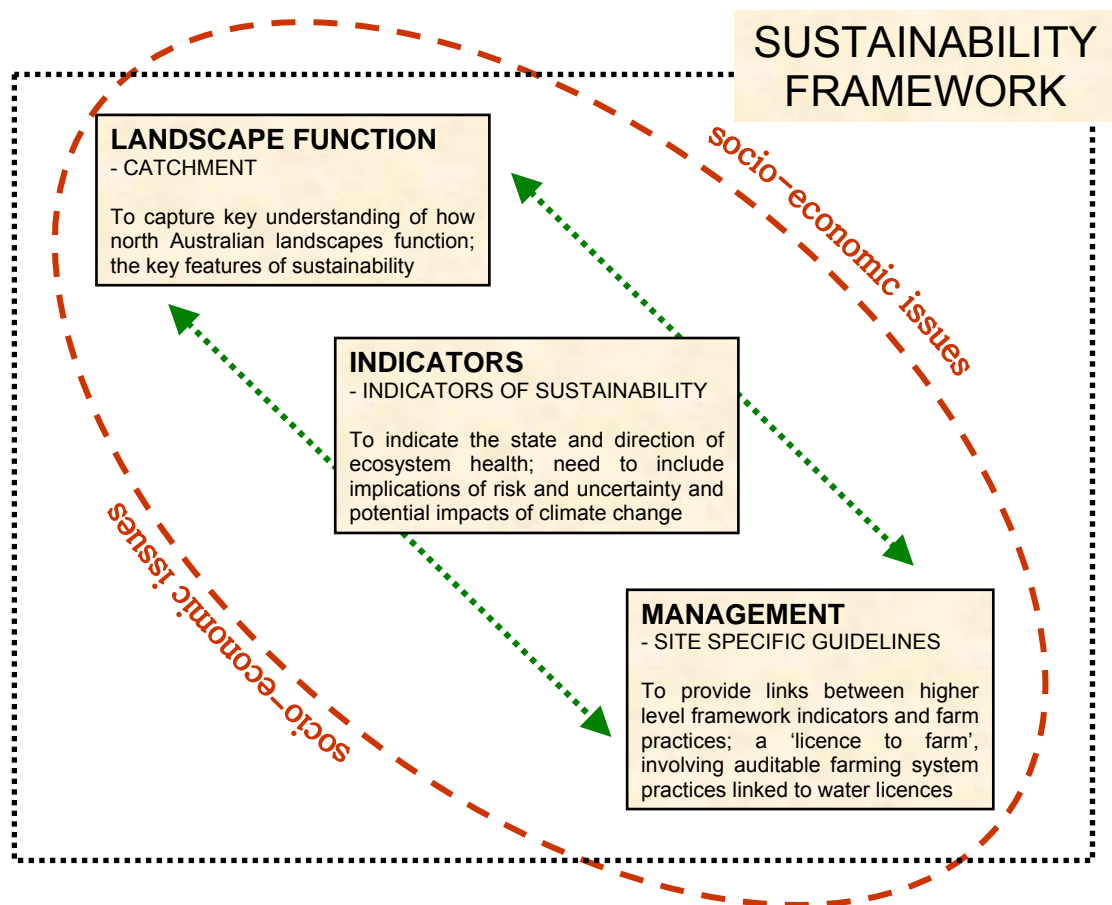
The Project Leader (Keith Bristow) provided a brief description of the project and its current status. The concept of a sustainability framework for irrigation development was explained. This included the background of not repeating the mistakes made in southern Australia where irrigation development had proceeded without due knowledge and consideration of the broader biophysical and landscape context. There was now the opportunity in the north of approaching irrigation development in a different manner by understanding northern Australian landscapes better.

A number of key features of the project and its development were stressed including:

- The importance of the project linking with other current and prospective initiatives
- The importance of communities being involved in determining the role for irrigation in their own community
- Ensuring the design of irrigation systems were more in harmony with the uniquely Australian environment
- The long time frame necessary to consider options (50+ years)
- Providing a sustainability framework in a form useful to guide thinking, facilitate discussion and debate, and support planning and decision making and management processes
- The stakeholder engagement and associated processes and mechanisms to guide the project
- The challenge to get stakeholder involvement working effectively through working with different stakeholders in groups or individually. This challenge includes the establishment of a Stakeholder Reference Group and its effective operation in the future
- The skills based Steering Committee that includes around ten members
- The different skills at different times likely to be required within and available to the project team
- The need for the project to recognize that different governments have different ways of operating and the associated need to build the framework with them and add value to their processes
- The understanding of bio-physical assets and landscape functioning across northern Australia, including the identification of regional data gaps, maps etc
- The recognition of what currently exists or what is planned formally or informally in terms of irrigation development
- The linking of biophysical information with socioeconomics, including spatial and temporal scale issues and their interactions
- The link with and use of potential case study sites as the framework is tested and applied; for example an existing irrigation scheme, an evolving development and an idea for future development
- A measure of success of the framework will be how well it can be applied to existing schemes to identify pressure points.

A key feature of the framework promoted during the description was the representation of the sustainability framework in Figure 2.1.

Figure 2.1: Northern Australia Irrigation Futures – Likely Features of a Sustainability Framework



Further information about the framework is available in Appendix 3, sent to participants before the workshop. The description includes the objectives of the project, its expected outputs and outcomes, and the general approach being undertaken. Appendix 4 contains the PowerPoint presentation used by Keith Bristow in describing the project at the workshop.

### 3. Government Irrigation Policies

A representative from each of the governments participating in the Workshop provided an overview of current processes and frameworks used for considering irrigation development in the north. The detail of these presentations is provided in Appendices 5 to 8.

A brief summary of some of the key aspects of these presentations is provided in Table 3.1.

**Table 3.1 Summary of Some Key Aspects of Existing Government Frameworks**

<b>Jurisdiction</b>	<b>Key Aspect</b>
Western Australia	Department of Environment is the key water resource manager in Western Australia
	Allocation of water to the environment is their first priority, but need to recognize sharing of water between alternative uses
	Emphasis on balancing environmental, social and economic values
	Currently initiating use of water allocation plans, land use approvals, environmental impact assessments, use of an irrigation development assessment form, public objections
	In the past there has been development without detailed environmental impact reviews and limited community consultation
	More recently there have been renegotiation of water licences, the implementation of whole of Government water and land use planning, but still a reactive management style
	There is a need for a more proactive framework incorporating broader social planning issues including sustainability and greater recognition of community stakeholders including indigenous and heritage issues
	Adaptive management is central to moving forward and awaiting perfect information is not an option
Northern Territory	The NT has engaged completely with the whole of the water allocation planning procedures associated with COAG
	There are no well established extensive irrigation schemes in the NT and no government schemes; no extensive schemes are planned
	Current and future irrigation development in the NT are, and are likely to continue to be, small-scale private farmer developments based on groundwater and highly dispersed across the landscape
	Future plans are to allow natural systems to regenerate and recharge themselves. This automatically forces buffer and recharge zones around irrigation development and drives the separation of watered areas and management of natural recharge landscapes around them

	There are very few dam sites that offer any economic potential. Any surface water developments for irrigation are likely to be based on the ability to skim passing flows; suggestions are that 10% of the passing flows may be able to be extracted
	An environmental framework for the management of water continues to evolve and will limit the nature of water development in the NT
	Groundwater extraction must be licensed but exemptions can be made by the Minister. Current declared exemptions mean that only bores in excess of 15 litres per second require licensing. For irrigation purposes all extraction has to be licensed
	In southern areas (less frequent recharge) if there are no groundwater dependent ecosystems and no cultural constraints, the policy is to allow mining of the water resource for irrigation or public water supply. Permits allow mining of 80% of the available drawdown but this must be over a minimum of a 100 year timeframe
	Salinity assessments have been undertaken and hazards are, in general, low throughout the NT
Queensland	There are a number of water reform activities happening in North Queensland that will impact on the future of irrigation in the region
	Water Resource Plans are currently being developed for a number of river and catchment regions in the north; also, Resource Operation Plans to regulate operators and enable water trading are in the process of being developed
	Government is providing incentives for increased rural water use efficiency and sustainable irrigation practices are being promoted
	Metering of unregulated water and land and water management plans at the property level are being implemented
	Strictly limited and regulated water allocations will be made for water extraction from wild rivers including no on-stream storages
	Future irrigation development in Queensland will need to observe the triple bottom line through addressing such aspects as community and indigenous benefits, cultural heritage, no biophysical threatening processes and minimal downstream or off site impacts, the protection of biodiversity and retaining natural flow patterns
	Water resource plans set the framework for allocation of water over the next ten years; the plans include security aspects, performance indicators and monitoring processes
	It is hoped that the NAIF framework can be used to translate some desirable outcomes such as water use efficiency to northern Australia
	Queensland consider it essential that the irrigation industry be

	engaged to ensure best practice for sustainable irrigation futures translates to the end users
	NAIF will need to consider implications of recent amendments to the Vegetation Act
Commonwealth	The National Water Initiative (NWI) was agreed at COAG in August 2003 and will build on the 1994 COAG Water Reform Framework
	Key elements of the framework are the improvement of security of water access entitlements; the expansion of water markets; best practice water pricing; protection of environmental assets; measuring, monitoring and information; and urban water reform
	The protection of environmental assets includes agreeing on environmental objectives based on sound science and community consultation; the provision of environmental water through a range of measures including purchasing of water and strategic investment, and whole of catchment environmental water management
	The measuring monitoring and information element of the National Water Initiative includes environmental water accounting, improved coordination of data collection, metering and measuring and improved reporting
	Relevant complementary regional programs include the Natural Heritage Trust, the National Action Plan for Salinity and Water Quality, the Water Savings Project. and the Great Artesian Basin Sustainability Initiative

## **4. Potential Benefits of the Proposed Sustainability Framework**

A number of potential benefits were identified from use of the sustainability framework. Some of these benefits were contingent upon the form and shape of the framework once developed and delivered.

### Integrated management approach

A key benefit of the framework identified by several workshop participants was the opportunity to take an integrated approach to the management of water resources and the environment from the first stages of possible irrigation development, rather than trying to remedy problems at a later date. The framework also has the opportunity to assist with the development of monitoring, including identifying key performance criteria, research and feedback mechanisms that are vital in long-term sustainability and management of particular systems.

In the same vein, the framework may allow the proactive revisiting and retuning of existing irrigation schemes. The framework will provide the opportunity to look at the key inhibitors to existing schemes and identify some of the appropriate actions and behaviour policies that should be implemented in order to ensure sustainable management and a sustainable future. An example of where this use of the framework would be of benefit is the Lower Burdekin in Queensland.

In capturing these benefits, workshop participants also highlighted that the biophysical framework needs to be able to effectively interface with socioeconomic and institutional aspects of irrigation development.

### Transparency

The framework will allow improved transparency in planning and decision making regarding irrigation investment decisions in northern Australia. The investment decisions it may assist with include if and where to invest, and what conditions should be placed on enterprise performance. This transparency would benefit investors, communities, and governments. Provided a simpler process that is also more transparent than currently exists in most jurisdictions is produced from the framework, all of the above stakeholders would benefit.

### Informing the debate

It was recognized that in relation to socioeconomics and political decisions, the framework will have a key benefit in informing the debate using agreed data and definitions. It is hoped it will do this through illuminating various aspects needing attention.

### Decision support tools

Workshop participants did indicate that various decision support tools could provide a benefit in guiding aspects of future decision making. Key points raised included:

- How could the framework help in making decisions about scale of activity and the institutional arrangements that support a particular scale?

- Any decision support tools should distinguish between unregulated, non-scheme use of water and large regulated schemes eg Burdekin, Ord.

It was recognized by the participants that the framework will not act as a substitute for the decision making processes of sovereign governments and their communities. It will however provide information and possibly tools to support those decisions. In that way it will 'support' decision processes and not be the 'decision making' process itself.

#### Data sharing

A key benefit identified was improved data and data access relevant to northern irrigation. This would enhance data sharing and improve transparency of decision making.

#### Learning from other government processes

The sustainability framework was seen to be useful to guide thinking, facilitate discussion and debate and support planning, decision making and management processes. A key benefit of this will be the enhanced communication emanating from the NAIF project and consequent sustainability framework which will provide an opportunity for individual governments or regions to learn from others in northern Australia. For example, the project will allow sharing of information on programs (including irrigation developments) to assist communities to be less dependent on social welfare which can lead to associated health benefits and greater social cohesion.

Also, hindsight has provided some important lessons from irrigation development in southern Australia and the lessons can be captured within the framework. Northern Australia now has the opportunity to do things differently and learn from the past in order to meet triple bottom line objectives and put sustainable systems in place. In the past, irrigation development was often driven by resource exploitation and regional economic developments, was not couched in a broader long-term landscape context and did not consider the long term responses of the landscape.

## **5. Developing the Work Plan and Project Team**

### **5.1 Key Issues**

Key issues identified at the workshop that will need to be considered when developing the NAIF work plan are identified and described below.

#### **1. Meeting indigenous needs and taking account of indigenous knowledge**

It was recognized at the workshop that a majority of the land in Northern Australia is managed by indigenous people. There are often differences between indigenous communities and western communities with regards to how economic issues of development as well as landscape interactions are viewed. The framework should recognize that in some cases a somewhat different approach might be taken to indigenous irrigation investments in terms of greater public investment and/or support in order to capture social and health benefits from the use of water (in particular groundwater) for irrigation. The key is for this to be explicit and transparent.

#### **2. Institutional arrangements to address scale**

The sustainability framework should address the increasing need for NRM issues to be resolved at a catchment scale. Communities, regional NRM groups and catchment authorities are having an increasingly significant role in decision making and working through trade-offs with affected stakeholders. In addressing this there are a range of value systems operating in communities that need to be taken into account.

The framework should be of value to these groups in terms of an information base as well as possibly decision support tools that address particular biophysical and socioeconomic aspects as well as broader trade-off analyses. The framework should also be of value to these groups and communities through providing information on management systems, monitoring and indicators of performance and possible use conditions on licences.

#### **3. Focus on groundwater and conjunctive use**

The importance of groundwater to irrigation in northern Australia was highlighted at the workshop. It was repeatedly emphasized that groundwater driven developments are more likely than surface water developments, particularly in the Northern Territory.

Groundwater should be considered within the framework not only in terms of its use for irrigation, but also in terms of its interaction with surface water and the management implications of this interaction for all types of irrigation. This will also require understanding of groundwater dependent ecosystems.

#### **4. Irrigator Behaviour and Management**

The sustainability framework will be of value for assisting with the development of management guidelines for existing and future irrigation development. The sustainability of an irrigation enterprise is often dependent not only on the natural resource base, but also the management of irrigation within that resource base. In order to ensure sustainability the framework should provide information suitable for use in management guidelines. It may also have a role in providing information for

the possible development of use conditions for investors and irrigators, and in developing monitoring plans and ensuring irrigators meet any use conditions.

#### 5. COAG water reform framework

The project should take as a core reference point the COAG water reform framework so as not to duplicate work being undertaken within that process.

There has been a history of confusing terminology (eg allocation vs entitlement vs use) as well as inconsistent water entitlement arrangements between States. The NAIF project has an opportunity to ensure that clear definitions are established within its sustainability framework so as to avoid confusion among jurisdictions.

#### 6. Role of decision support tools and trade-off analysis

The NAIF project does not intend to provide a strict ‘decision support system’ in the sense of a large model where data about a potential irrigation site is fed into a computer and a yes or no answer is delivered.

It does however expect to deliver ‘decision support processes and tools’ which will be available to potential investors and natural resource managers at a range of scales to assist with their decision making and in making trade-offs between expected benefits and costs. There are various examples of these sorts of tools and the ‘Amoeba’ sustainability chart was included in the overview of the NAIF project as a specific example.

It was suggested that in developing the work plan for the project, it will be critical to interact further with the different jurisdictions in terms of their requirements for decision support tools, and how the products and decision tools likely to come out of the project should be packaged. A potential requirement is expected to be tools to assist handling multiple objectives and making trade-offs, both within the biophysical landscape, and between the biophysical, social, economic and political dimensions.

#### 7. Move to private investment environment (all states)

The framework will need to consider the various scales and types of irrigation investments expected to take place in the north over a long timeframe (eg 50+ years). The framework needs to be of relevance to all scales of irrigation including unregulated, independent small-scale irrigation systems as well as existing and possible future large regulated irrigation ‘schemes’ such as the Lower Burdekin or the Ord.

#### 8. Emphasis on biophysical (vs socioeconomic knowledge needs and gaps)

The sustainability framework recognizes the importance of biophysical, social, and economic aspects of sustainability in assessment, decision making and management. While all three of these aspects will be considered in the framework, within the NAIF project itself research and data collection will focus on biophysical aspects of the framework. The project will use its links to other initiatives, particularly within the CRC for Irrigation Futures, to access social and economic data and research of relevance to the framework. The project may also have opportunity to identify key gaps in social and economic knowledge associated with irrigation in the north, and encourage other organisations to fund or undertake research or data collection in these key areas.

## 9. Database Management

One aspect of the National Water Initiative is to link with various data bases from regional areas and provide some certainty about the quality of data within the distributed systems. These regional area databases are also more likely to include data at an appropriate scale to be used at a regional level.

It will be important to ensure that any databases created as part of the NAIF project have a future beyond the life of the project in terms of location and maintenance. The CRC for Irrigation Futures will provide an opportunity for this as it expects to employ a knowledge broker to ensure information developed in its projects are stored in appropriate locations in the long term.

## 10. Communication and delivery

A key challenge in developing the work plan will be to consider delivery mechanisms for project outputs early in the process.

In terms of communication it will be important to keep demonstrating progress on the ground to ensure relevant organisations and individuals continue to view the framework as valuable and therefore gaining their continued support.

The Steering Committee and Stakeholder Reference Group will be crucial in keeping communication channels open. Members of these groups will be at the top of a trickle-down consultation process within their governments, communities and organisations.

It is important to consider the most appropriate times as well as methods for going to relevant practitioners to demonstrate progress on the framework and assess if what is being developed resonates with those people and is considered workable. ***Having a number of case study sites to link with will be crucial in this process.***

The project team recognizes the above but also recognizes that resources available for these types of activities need to be managed carefully and innovative forms of communication to different regional communities may need to be considered.

## ***5.2 Skills Required***

It was recognized that the project team will require a core group of skills to be embedded within the project, and will need other skills that can move in and out of the project team as required. In addition the development of linkages to other projects will provide additional skills to the team.

Skills identified by the workshop participants included:

- Irrigation science
- Social and regional planning
- Engineering
- Familiarity with government processes and legislative frameworks
- Socioeconomics
- Soil science
- Hydrogeology
- Habitat biology

- Aquatic biology
- Farming systems
- Project management
- Indigenous knowledge and consultation
- Communication/education
- Knowledge management
- Management and web delivery of databases and metadata and linkage to other database initiatives

Participants noted that care should be taken that the project does not become ‘boffin’ driven and that practical irrigators and practitioners on the ground should have a place in the project. For example, in the Northern Territory there is already farming systems work under way on irrigation farms and landholders on these farms may provide a useful link in regards to on-site impacts.

### ***5.3 Key Features of the Work Plan***

In developing the work plan for Stage 2 of NAIF, activities will need to be detailed and allowance made for changing these activities through time as the project evolves; this is deemed necessary in such a complex project and to ensure that the project is continually building on new knowledge and learning’s.

A logical framework is required linking activities through outputs and outcomes to the objectives of the project.

### ***5.4 Linking to Related Initiatives and Resourcing***

#### Other Initiatives

Because of limited time and resources, the project will need to be clear about what it can address and what others need to address. A key part of managing this issue will be awareness of and development of linkages with other activities and initiatives.

For example the NAIF project will not engage in social or economic research but will instead recognise other relevant R&D in other organisations and locations that can be drawn on and captured for development of the framework. There is the possibility also that the project can influence other projects in this regard. It will be important for the NAIF project and other initiatives to add value to each other wherever possible.

The Steering Committee has been selected specifically to include individuals with links to many of these initiatives in order that they can identify and progress opportunities and keep these linkages well oiled once developed.

Examples of relevant initiatives include:

- The National Water Initiative and COAG Water Reforms
- NRM planning processes including NAPSWQ and NHT
- Other projects within Land & Water Australia’s National Program for Sustainable Irrigation
- Land & Water Australia’s Tropical Rivers Initiative
- Australia's tropical rivers - an integrated data assessment and analysis (National Centre for Tropical Wetland Research)
- CRC for Irrigation Futures
- MDBC rapid assessment tools

- The program of the new eWater CRC combining catchment hydrology and freshwater ecology
- Water for a Healthy Country (CSIRO Flagship Program)
- Previous Ord-Bonaparte Program and continuing NAPSWQ investment in the tropics
- Planning and data collection processes of regional catchment groups and catchment authorities (Eg Southern and Northern Gulf Catchments, Qld)
- Queensland Gulf Water Resources Plan
- CRC Cotton and its likely replacement in the form of CRC for Cotton Catchment Communities
- CRC for Tropical Savannas
- Arafura Timor Sea Research Facility
- Australian Water Data Infrastructure
- MDBC Watermark Program
- National Land and Water Resources Audit

In regards to the Tropical Rivers initiative, it was specially noted that when project funding decisions are made for this program in early 2005, that any new projects do not duplicate, but rather complement, the work of NAIF where possible. This requirement places an imperative for the NAIF project to develop its work plan and priority activities as soon as possible.

#### Participation and Resourcing

Each of the government representatives provided a perspective on their prospective participation and resource contributions.

The NT would have difficulty in providing cash funds to the project but would be able to contribute significant in-kind support. This would include access to existing NT data. In addition, over time, DBIRD could possibly establish its own projects or programs to support NAIF as an in-kind contribution.

The NT would also be interested in having some of their farmers actively participating so that as tools, indicators or management guidelines emerge they could be trialled. Farmers are already engaged in the farming systems work carried out by the NT government so access to such resources could be facilitated.

In regards to Queensland, continuing engagement will need to take place with several government departments not represented at the workshop to discuss the likely level of support and ensure ongoing formal participation. For example the EPA has significant skills in wetland mapping etc. Other Departments of relevance in Queensland include State Development, Premiers and DPIF. It is important to note that the Departments vary in relation to centralization versus regionalization of activities so potential contributions may be of different types and levels. NRM&E is keen to work with the NAIF project especially in better understanding sustainability and refining management practices in the lower Burdekin.

Commonwealth programs such as NAPSWQ and other NRM programs may be able to fund on-ground projects that complement the activities of NAIF and this avenue of support should be given particular attention.

In addition, BRS may be able to provide some in-kind support through its current projects and in the future may be able to provide additional cash support depending on how the project progresses.

Western Australia currently has all of its cash resources devoted to other high priority issues, however if funding becomes available through the National Water Initiative these activities may complement and link with NAIF.

WA is currently carrying out an Irrigation Review under the State Water Strategy and this is due to report at the end of this year and may be of value to NAIF.

In addition, the NPSWQ is funding a project in the East Kimberley over the next three years to build on OBP activities and improve efficiency of Ord Stage 1 and to determine the interest of investors in Ord Stage 2. The Ord Irrigation Cooperative and Ord Land and Water have been contacted and are keen to build further interactions with NAIF.

An initial summary of how resourcing opportunities may be integrated into the NAIF project is provided in Table 5.1. The table shows the four components of the framework and examples of how resourcing may contribute for each potential source. This table is not complete and should be further developed as part of the Work Plan for the project.

**Table 5.1: Potential Resourcing Through Current and Prospective Initiatives**

Project Area	Specific Initiative	Cash	In-kind	Via NAIF orientated projects	Via existing and other projects
<b>LANDSCAPE FUNCTION</b>					
	Tropical Rivers initiative		X	X	X
	CSIRO Land and Water		X		X
	Queensland EPA expertise in wetlands		X		X
	BRS	X	X	X	X
<b>SUSTAINABILITY INDICATORS</b>					
	Aspects of Commonwealth NAP and NHT programs			X	X
	NT Farming systems initiative		X		
<b>MANAGEMENT GUIDELINES</b>					
	NT Farming systems initiative		X		
	Aspects of Commonwealth NAP and NHT programs			X	X
<b>SOCIOECONOMICS</b>					
	CRC IF socio-economics framework		X		X
	Social and Institutional Research Program (LWA)			X	

## **6. Key Implications for NAIF**

The key implications for NAIF emanating from the workshop can be grouped into content and process categories. A summary is:

### ***6.1 Content***

- The importance of independent groundwater systems in the future of irrigation development in northern Australia and as a key component in the biophysical component of the sustainability framework
- The importance of irrigation system design where indigenous communities are involved
- The development of more specific product definitions and delivery systems; this will be important to both develop cash resourcing opportunities as well as providing greater appreciation of benefits and confidence in the project by different stakeholders
- Clarification of whether the project will develop decision support systems and if so, the types of support systems envisaged
- Better definition is needed between the interface of the biophysical components with socioeconomics, or with social, economic and institutional components of the framework
- There are significant differences in northern Australia regarding the possible scale, shape and design of irrigation developments

### ***6.2 Process***

- Significant opportunities are present in linking with other State/Territory and Commonwealth initiatives to both extend the skills available to the project and to enhance its resourcing for meeting its objectives
- The project may need to focus on key issues should it be limited by cash resourcing and success with linking with other initiatives
- A strong communication strategy will need to be developed including the effective engagement with key stakeholders, development of a common language, and the management of expectations. As engagement and communication imperatives can be resource demanding, the resourcing of such communication requirements should be recognised and resources made available to the project
- The design of specific engagement processes for indigenous communities and the injection into project skills of some appreciation of the indigenous view of landscape and the associated design of irrigation developments
- Further clarification will be required in developing useful types of decision support tools and how far the framework extends to addressing the need for tradeoffs between environmental, social and economic benefits and costs across a range of spatial scales

## 7. Conclusions and Recommendations

1. There was a high level of support and strong indications of prospective involvement evident from all governments who participated in the workshop. Given the support for developing the sustainability framework evident at the workshop, it is appropriate for a work plan or business plan to be developed for Stage 2 of the NAIF project.

Recommendation: A work plan be developed for Stage 2 of the project that recognises the importance of linkages to existing and prospective State and Commonwealth initiatives.

Recommendation: NAIF needs to further engage with some specific agencies not represented at the workshop (eg, EPA and DPIF Queensland, Tropical Savannas CRC, etc).

2. The work plan needs to address issues raised at the workshop and identified in this report.

Recommendation: NAIF needs to specifically address in its Stage 2 work plan: a communications strategy, the linkages to other initiatives, and specific products and delivery systems.

3. It is evident that the Steering Committee for the NAIF project engages a wide range of key stakeholders.

Recommendation: In discussions with key contacts in each State/Territory that the Project Leader and Steering Committee ensure as far as possible that all agencies are well connected to the project through the key contacts in each State/Territory.

## Appendix 1

### Northern Australia Irrigation Futures (NAIF)

### A Sustainability Framework for Irrigation in Tropical Australia

Darwin Workshop 26/27<sup>th</sup> May 2004

#### Participant List

Name	Organisation
Peter Baker	Bureau of Rural Sciences
Keith Bristow	CSIRO Land & Water
Ross Brodie	Bureau of Rural Sciences
Murray Chapman	National Program for Sustainable Irrigation
Peter Chudleigh	Agtrans Research (Workshop facilitator)
Ross Dalton	Department of Agriculture, Fisheries & Forestry (Commonwealth)
Niranjan Dasari	Department of Business, Industry and Resource Development, NT
Matthew Durack	CRC for Irrigation Futures
Brendan Edgar	Land & Water Australia
Max Finlayson	The Environmental Institute of the Supervising Scientist, (Commonwealth)
Peter Gilbey	Department of Natural Resources, Mines and Energy, Qld
Phil Hausler	Department of Business, Industry and Resource Development, NT
Peter Jolly	Department of Infrastructure, Planning and Environment, NT
Bart Kellett	CSIRO Land & Water
Jim McColl	CSIRO Land & Water
Don McFarlane	Department of Environment, WA
Wayne Mollah	Department of Business, Industry and Resource Development, NT
Fergal O’Gara	Department of Business, Industry and Resource Development, NT
Ian Prosser	Land & Water Australia
Bruce Sawyer	Department of Business, Industry and Resource Development, NT
Joe Sherrard	Department of Agriculture, WA
Sarah Simpson	Agtrans Research (Workshop recorder)
Ian Smith	Department of Infrastructure, Planning & Environment, NT
Rick VanDam	The Environmental Institute of the Supervising Scientist (Commonwealth)

## **Appendix 2**

### **Northern Australia Irrigation Futures (NAIF)**

### **A Sustainability Framework for Irrigation in Tropical Australia**

**Darwin Workshop 26/27<sup>th</sup> May 2004**

#### **AGENDA**

**Location:**

Conference Room, Ground Floor,  
John England Building,  
Berrimah Research Farm,  
Department of Business, Industry and Resource Development,  
Makagon Road,  
Berrimah, NT  
(through main gate and take first turn left – John England building is on the left).

**Starting Time:**

2.30 pm Wednesday 26<sup>th</sup> May 2004

**Finishing Time:**

12 noon Thursday 27<sup>th</sup> May 2004

**Wednesday 26<sup>th</sup> May**

2.30 pm. Self Introductions

2.35 pm. Welcome

Ian Smith, Northern Territory Department of Infrastructure, Planning and Environment and  
Keith Bristow, NAIF Project Leader

2.45 pm. Objectives and Structure of the Workshop

Peter Chudleigh, Facilitator

2.55 pm. The NAIF Project- Overview of Current Status

Keith Bristow, Project Leader

3.25 pm. Current Government Decision Making, Legislative Frameworks and Water /  
Irrigation initiatives in the four jurisdictions (Commonwealth, NT, QLD and WA)

- Ian Smith, Northern Territory
- Ross Dalton, Commonwealth
- Peter Gilbey, Queensland
- Don McFarlane, Western Australia

4.15 pm. Afternoon Tea

4.30 pm. The Rationale for and Benefits of a Sustainability Framework: Discussion  
Introduction by: Jim McColl, Visiting Fellow, CSIRO

5.30 pm. Key Issues to be Addressed: Discussion

6.00pm. Close

**Thursday 27<sup>th</sup> May**

8.30 am. Revise previous day findings and introduction to the objectives of the second part of the workshop.

Peter Chudleigh, Facilitator

8.40 am. Developing the Framework I: Draft specifications, skills required, engagement / communication strategies: Discussion

10.00 am. Morning Tea

10.20 am. Developing the Framework II: Participation, Approach and Funding: Discussion

11.00 am. An Agreed Way Forward: Discussion

11.45 am. Concluding Remarks

Jim McColl, Visiting Fellow, CSIRO

11.55 am. Conclusion

Peter Chudleigh

Keith Bristow

12.00 pm. Close

## **Appendix 3**

### **Northern Australia Irrigation Futures (NAIF)**

#### **A Sustainability Framework for Irrigation in Tropical Australia**

**Darwin Workshop 26/27<sup>th</sup> May 2004**

#### **Background**

##### **Introduction**

This project will deliver a framework for use by Government (policy makers, regulators), Community, land and water managers, and investors to ensure irrigation is developed and managed in a sustainable manner across northern Australia.

The project will use past experience and new knowledge to build an understanding of key landscape attributes (including soil and water resources, climate, vegetation, rivers, near shore marine environments) relevant to sustainable irrigation in tropical systems. This knowledge will be used to deliver a framework based on sustainability indicators and management criteria at a range of scales (field, farm, district, scheme, and catchment) to support planning, decision making, design, implementation and management of new schemes, and if necessary, modification of existing schemes across northern Australia.

##### **Objectives**

1. Delineate key landscape attributes (including soil and water resources, climate, vegetation, rivers, near shore marine environments, and where appropriate links to people, industries, markets) relevant to sustainable irrigation development across northern Australia.
2. Use key landscape attributes to develop sustainability indicators and associated management criteria covering a range of scales (field, farm, district, irrigation scheme, catchment) for northern Australia.
3. Develop an overall framework that, through their involvement, is embraced by Government (policy makers, regulators), Community, land and water managers, and investors to ensure irrigation is planned, developed and managed in a consistent and sustainable manner across northern Australia.
4. Use a number of linked case studies to support and inform development and enable testing of the framework.
5. Through provision of a robust framework, contribute tools and knowledge to support considered debate and long-term strategic planning for northern Australia and Australia as a whole.

## **Approach**

This project will involve two key Stages with a stop/go decision point at the end of Stage I.

Stage I will initiate development of the full project team, key client, stakeholder, and collaborative networks, and a draft work plan and budget for Stage II. It will be critical during Stage I to gain support of key end users and a broad range of stakeholders. Having the ability to identify and interact with key agencies and players, and establish effective partnerships will be critical.

Stage II will carry out the work plan, which will reflect outcomes and new knowledge gathered through Stage I, and deliver the required framework. Being able to define the key biophysical functioning of northern Australia critical to sustainable irrigation, and maintaining and strengthening the key partnerships with those who will apply the framework will be critical to the successful delivery of a robust and user friendly framework.

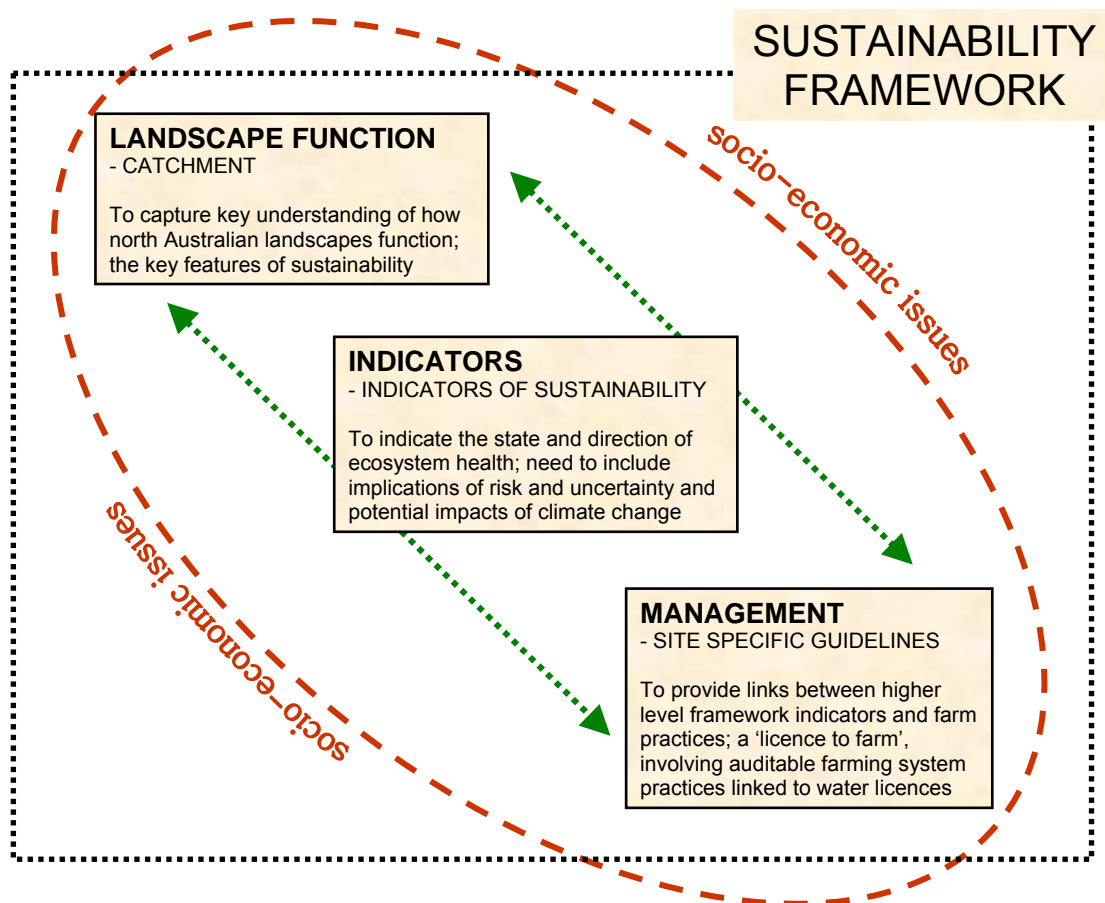
## **Outputs**

1. A comprehensive biophysical framework for analysing the suitability of particular locations for developing irrigation schemes, and for use in guiding the planning, decision making, design, implementation and management of new developments and where necessary modification of existing schemes to ensure sustainable irrigation systems in northern Australia.
2. An understanding of key biophysical features which could impact on the sustainability of irrigation schemes in northern Australia captured as a hierarchical set of sustainability indicators and management guidelines.
3. A comprehensive set of publications describing the nature and spatial distribution of the key landscape attributes across northern Australia, highlighting in particular those features of importance in siting and managing sustainable irrigation schemes.

## **Outcomes**

1. A more informed and knowledgeable community and irrigation industry able to capture advantage of key biophysical and socio-economic features when designing and implementing irrigation developments in northern Australia.
2. Whole of system irrigation management practices that meet catchment goals thereby safeguarding the health and services of surface and groundwater systems, wetlands, estuaries and marine environments.
3. Regional adoption of new State policies that support development and management of sustainable irrigation schemes and practices.
4. A sustainable irrigation industry in northern Australia that delivers a wide range of economic and social benefits whilst minimising environmental impacts.

Figure 1: Northern Australia Irrigation Futures – Likely Features of a Sustainability Framework



### Workshop Objectives

The specific objectives of the Darwin Workshop are

1. to introduce the Northern Australia Irrigation Futures project and the potential benefits of the intended sustainability framework
2. to exchange information concerning current government initiatives regarding irrigation development in northern Australia
3. to identify needs of different jurisdictions and the benefits that can accrue from developing a sustainability framework and which can evolve with time
4. to identify key issues that need to be included in / addressed by the framework and preferred features of the framework
5. to discuss staffing, funding and cost sharing arrangements for the development of the framework
6. to identify and agree on a way forward from the workshop

## **Appendix 4**

### **Northern Australia Irrigation Futures (NAIF)**

#### **A Sustainability Framework for Irrigation in Tropical Australia**

**Darwin Workshop 26/27<sup>th</sup> May 2004**

##### **Presentation by Keith Bristow: CSIRO Land and Water and CRC IF**

In addition to the overheads presented, Keith Bristow made the following comments:

- All Australians are dependent on irrigation in some way – it affects all Australians and is fundamental to the economy and the world's economy
- The Southern part of the country can be characterised by degraded systems while north of the tropics there is the opportunity to do things differently and learn from the past to meet TBL objectives and put sustainable systems in place
- In hindsight there are some important lessons. The past was driven by socio-economics, for example land clearing and soldier settlements. Decisions were made socio-economically and degradation has come about because development was not couched in a broader landscape context and did not consider how activities impact on the landscape. Salinity in the south is evidence of how we have misread the landscape in the past
- Decisions driven by socio-economics led to short term benefits of improved production on land (wheat yields, beef etc) and improved socioeconomics through wealth of enterprises. Decisions didn't take into account likely long-term response of landscapes
- This project is about avoiding that and letting us look long-term into the future
- Need to make sure the framework fits within other activities and initiatives - eg the National Water Initiative, NRM processes, regionalisation, Tropical Rivers Initiative, etc
- Big picture – about us trying to help the north in determining what role it wants irrigation to play in its future
- Want systems to be designed to be in harmony with the uniquely Australian environment
- Project – about North Australia and its water and landscapes and how they function; about biophysical functioning and sustainability - capturing information and linking back with people and socioeconomic systems – linkage is critical
- Taking a strategic view involving long time frames – 50+ years
- Providing a sustainability framework in a form useful to guide thinking, facilitate discussion and debate; support planning and decision making and management processes
- The project is not about particular interest groups or about particular decisions. The project cannot make the decisions –decisions are made by communities and government
- The project can provide tools to help facilitate and guide but does not make the decisions
- Setting up stakeholder engagement and processes and mechanisms to run the project
- Some stakeholders are intimately involved and some less involved. It is a challenge to work out a way to get stakeholder involvement working effectively. A process is underway involving trips through the north and working with different stakeholders in groups or individually

- The Steering Committee is skills based and includes nine members (Ian Prosser, Murray Chapman, Jos Mensink, Ross Dalton, Alan Dale, Ian Smith, Mathew Durack, Kevin Devlin, Andrew Kelly plus the SRG Chair)
- Skill areas include project management and governance; knowing about resources and ability to attract resources; communication and engagement strategies; understanding northern landscapes and river systems
- Establishing the Stakeholder Reference Group (SRG) is the next challenge and will include 10-15 people representing Government, Industry, Community, Environment, NRM regional, Agriculture, Other industries, Science and research, Media, and others
- It is important the SRG operates effectively to avoid high transaction costs and ensure good knowledge of groups and individuals with an interest in the future and how they want to be involved
- Stakeholders have offered other ways of engaging – telephone, email, website, do want to see project team but recognize won't be every month
- The project team will evolve – different skills required at different times
- The project is trying to pull together an understanding of current processes and mechanisms for irrigation decision making
- Different governments have diff ways of operating and need to make sure project value adds to those processes
- Also building an understanding physical assets across north - what is planned, what exists formally and what is ad hoc and doesn't appear on formal systems at present
- Maybe use satellite imagery to pick up these things, for example the project has been told there is no irrigation in some areas when there is actually quite a bit
- Collect and pull together natural resource data as required and understand key features of landscape and what one needs when considering systems and what drives the system in a catchment context
- What data is available and what data gaps exist particularly at regional levels
- Look for synergies with other data bases and information systems
- Link to and capture what is needed eg NLWRA
- A lot of data is constrained in time and need most recent data possible
- Maps to identify activities in different catchments
- A lot of info is 1999 or 2000 which is a bit old
- What is framework going to look like - can't be prescriptive – as build team and links with government there will be things others want to see in it and need to capture that and build it into the framework
- Linking biophysics and socioeconomics – spatial and temporal scale issues – socioeconomic tends to be quick response where as natural systems have space and time lags a lot longer than socioeconomics
- Interaction between different space and time scales and lags (responses) which have often been omitted in past – need to try and address this
- Link with and use potential case study sites as framework is tested and applied, for example Lower Burdekin – old and a few rough edges – problems we don't want to see developed further – established system
- Katherine-Daly -underway but early and still evolving – potential and opportunities
- West-Kimberley – just an idea at this point
- These may or may not become case study sites but they represent different stages of development and would be useful tangible linkages for the project
- Will also look at inhibitors to making best use of what we currently have. A measure of success of the framework will be how well it can be applied to existing schemes to identify pressure points and fine tune the system to enhance longer term sustainability

# Northern Australia Irrigation Futures

Building a basis for developing sustainable irrigation  
across northern Australia

Keith L. Bristow, Philip Charlesworth, Bart Kellett  
CSIRO Land and Water / CRC IF



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## Northern Australia Irrigation Futures

- The big picture
- What the projects about
- What the projects not about
- Where we are up to

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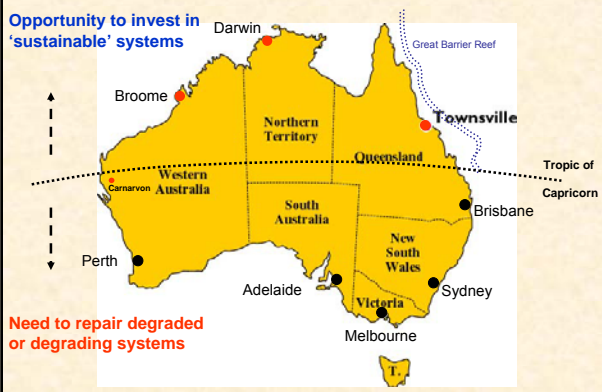
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## Northern Australia - unique features, opportunities, challenges



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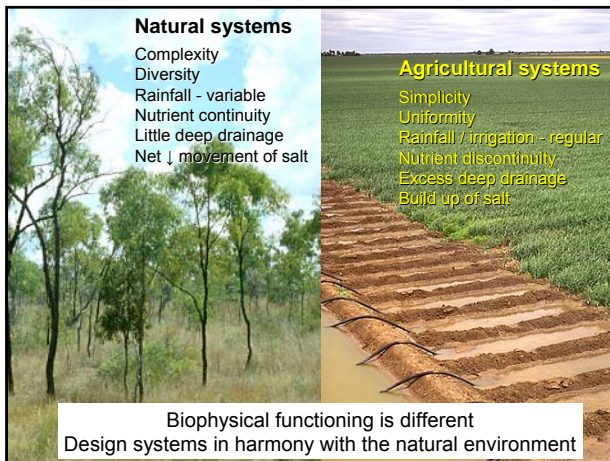
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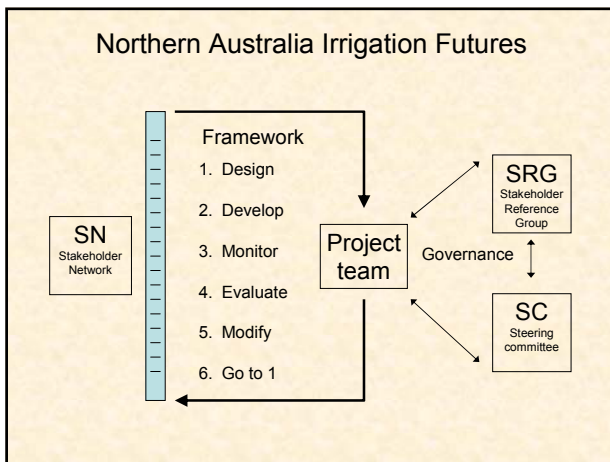
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**Northern Australia Irrigation Futures**

Key sectors needing representation on the SRG

- Government
- Indigenous Communities
- Community
- Environment
- NRM Regional Bodies
- Agricultural Industries / Agribusiness
- Other Industries
- Science / Research
- Media
- ...

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## Northern Australia Irrigation Futures

### Northern Inventory

- Current processes / mechanisms for irrigation planning and decision making ...
- Physical assets – what's planned, what exists formally, what 'ad hoc systems / developments' exist ...
- Knowledge of groups / individuals with an interest in the future of northern Australia – and how they would like to be involved ...

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## Northern Australia Irrigation Futures

### Northern Inventory / Data

- Natural resource data required (eg. soils, hydrogeology, water, flora and fauna, ...)
- Data availability and data gaps - regional level
- Synergies in data frameworks (eg. initially work with NLWRA framework)

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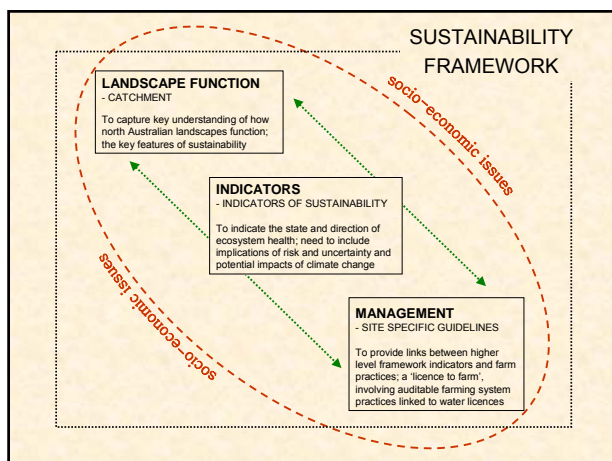
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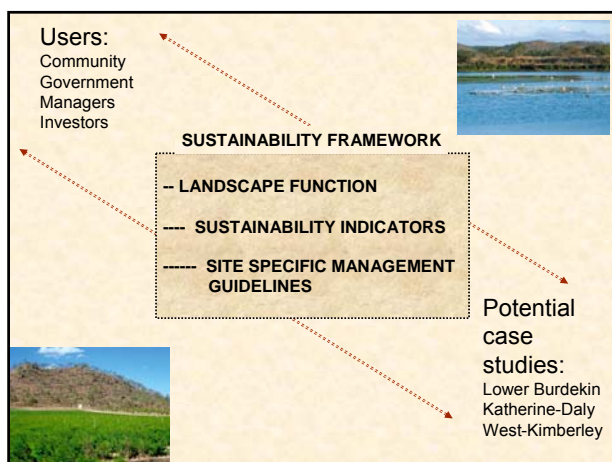
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### Sustainability indicators

What is an indicator ?

- It is a parameter (eg. pH)
- Has a range of values (eg. 1-14)
- Gauges an aspect of a system (eg. water quality of a river)
- Signals a condition (eg. healthy/not healthy)
- Or signals a trend (eg. becoming less healthy/becoming more healthy)

Indicators are used at different scales

Field, Farm and Catchment

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### Frameworks

What is a framework ?

A way of structuring information about a system

Framework examples:

1. Table
2. Diagram
3. Guidelines
4. Program
5. Model
6. Combination

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## Frameworks

What can a framework be used for ?

- Define
- Design
- Advise Management
- Monitor
- Evaluate
- Modify Design / Management

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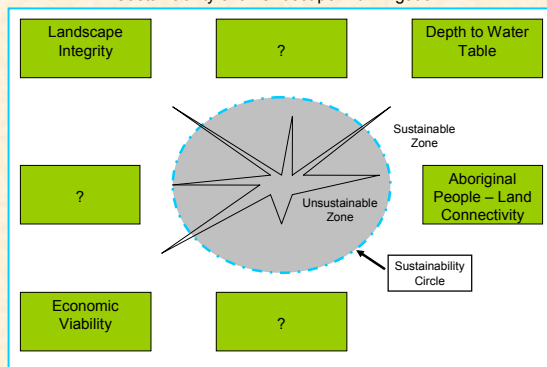
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## SUSTAINABILITY CHART

Sustainability of a Landscape with Irrigation



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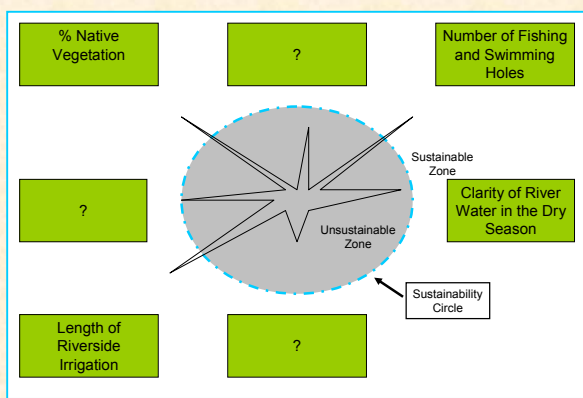
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## LANDSCAPE INTEGRITY



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## Bayesian Belief Networks

- Cause and effect diagrams
- Represent variables as boxes
- Represent flow of cause and effect with arrows
- Variables have states (eg. good/bad, high/medium/low)
- Variable states have a probability of occurrence

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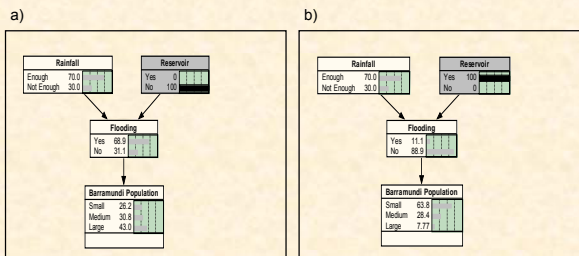
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## Bayesian Belief Networks




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## Northern Australia Irrigation Futures

### Summary:

- The project will deliver a "Framework" to support sustainable irrigation in northern Australia
- Key users of the "Framework" will include Government (policy makers, regulators), community, managers and investors
- The project will be linked with key initiatives such as the Tropical Rivers Initiative, Water for a Healthy Country, North Australia Program etc
- The project will contribute to renewed efforts to support sustainable development / management of northern Australia

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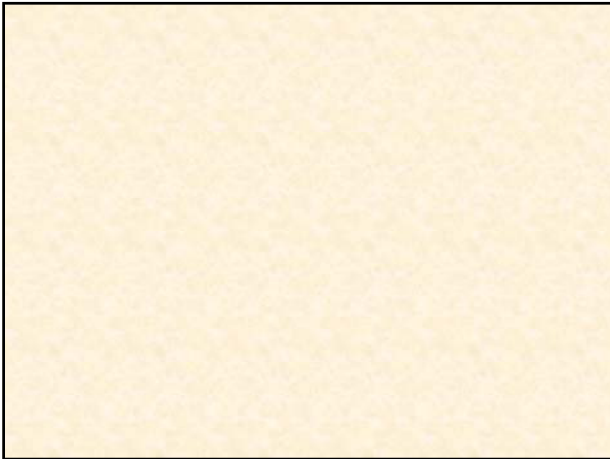
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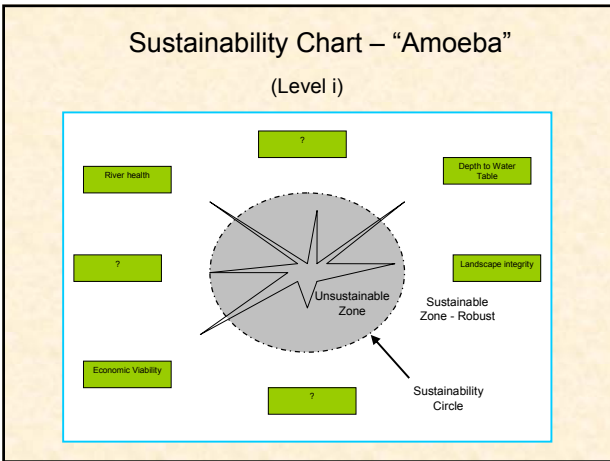
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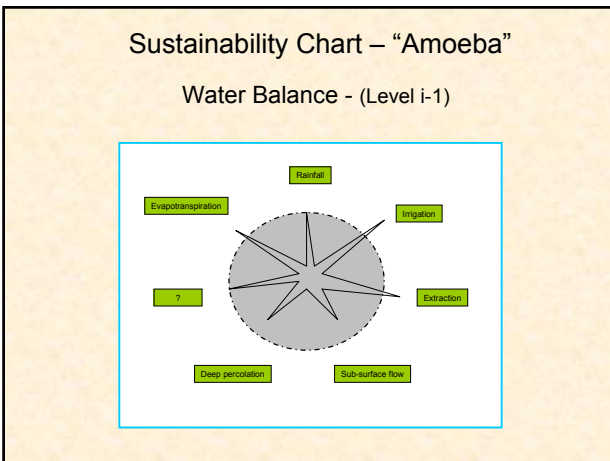
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## **Appendix 5**

### **Northern Australia Irrigation Futures (NAIF)**

#### **A Sustainability Framework for Irrigation in Tropical Australia**

**Darwin Workshop 26/27<sup>th</sup> May 2004**

#### **Presentation by Don McFarlane: Western Australia Government**

In addition to the overheads presented, Don McFarlane made the following comments:

- In the last few years most of the WA focus has been on climate change and is being dominated by the 50% reduction in run-off in the SW of the State
- Therefore the Ord and Fitzroy have been 'off the agenda' for a while with this focus on the SW of WA
- NLWRA estimated WA use in the past and in the future – there are about 800 GL being used for irrigation at present – most is self-supplied with only 4 large schemes
- Irrigation water use is expected to reach 1600 GL over the next twenty years and 600 of that will be for the Ord; this is for all water and not just surface water
- 40% of licensed supply is currently going to irrigation
- Would like a framework (eg for west Kimberley) rather than a reactive approach as currently exists

## Overview of Western Australian Decision-Making Framework for Irrigation Development

Dr Don McFarlane  
Director, Resource Management  
Department of Environment  
Western Australia

Acknowledgements: Andy McCrea, Leith Bowyer, Ian Loh

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## Structure of the Water Industry and the Role of the Department of Environment

### Water Industry Structure in WA:

- Department of Environment (DoE) - water resource manager
- Water Corporation - WA's main water service provider
- Office of Water Policy - water service provider policy body
- Economic Regulatory Authority - issues water service provider licenses, regulates prices and sets conditions after consultation

### DoE's role is to manage and protect the State's water resources for long term benefit:

- Balance environmental, social and economic values
- Allocate water to the environment as the first priority
- Sharing water resources between competing uses
- Reserve water for future public water supply and State Agreements

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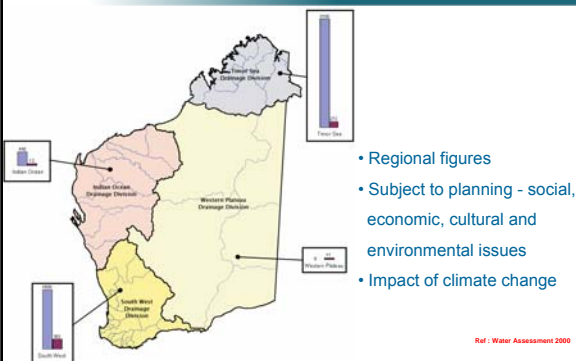
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## Surface Water Resources of WA




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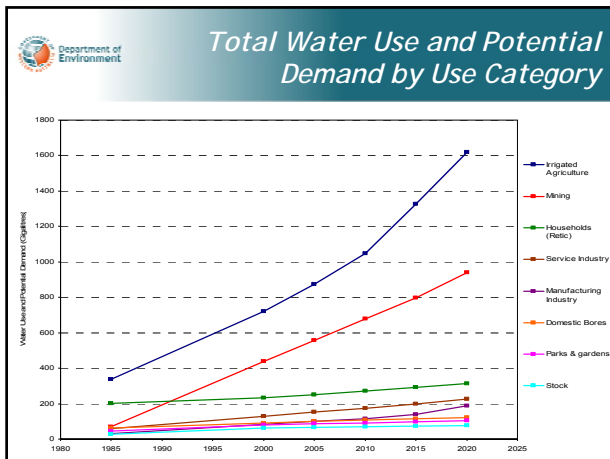
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Department of Environment

### DoE Current Irrigation Development Assessment Process

- Similar to all purposes of water use, allocation of water resources (licensing) is subject to:
  - availability of water resources - defined by the allocation limit for the water resource management area developed through water allocation plans;
  - other land use approvals eg, local government planning, land clearing, flora and fauna - rare species
  - environmental impact - Environmental Protection Policy wetlands, Wild Rivers - EPA assessment
  - public objections from advertising proposed licence (all surface water, >100ML groundwater)
- Specific for irrigation developments - use of an Irrigation Development Assessment Form

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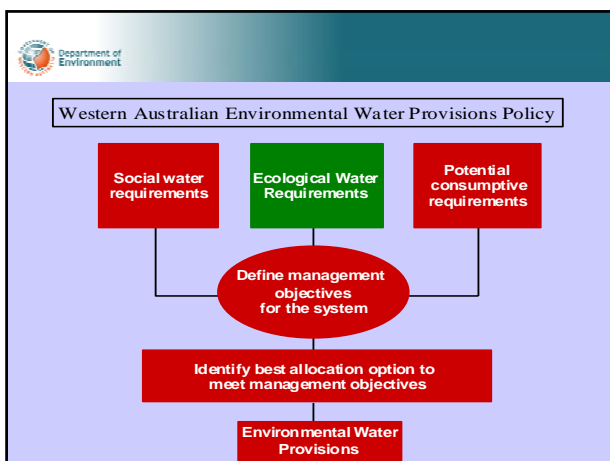
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## DoE Water Resource Management - Irrigation

### PAST:

- development without detailed environmental impact review
- limited community consultation
- State Agreements - eg, Ord Stage 1

### PRESENT:

- change from Govt to private (Coop) run irrigation districts
- renegotiation of water licence - COAG impact - EWR's/ EWP's
- implementing 'whole of Govt' water and land use planning
- reactive management - WAI, Camballin

### FUTURE:

- proactive framework needed incorporating broader planning/social issues (sustainability - indigenous view)
- will enable greater influence on the final outcome

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## Northern Australia - Pressures for Irrigation Development in WA

- Ord Stages 1 and 2
- West Kimberley (WAI)
- Camballin / Liveringa
- Others

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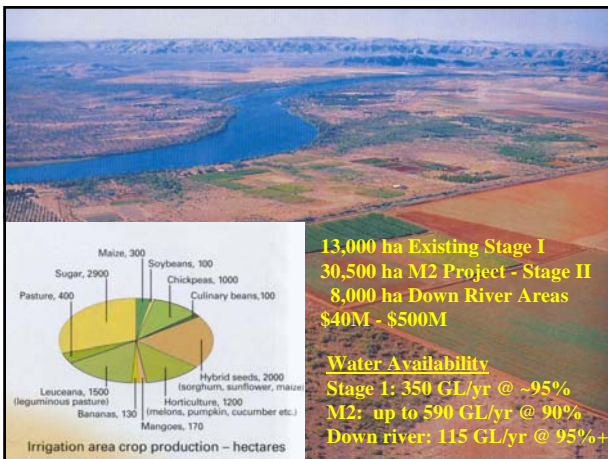
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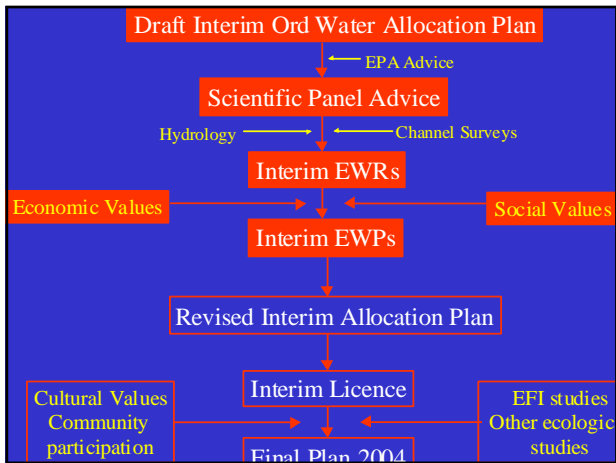
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### Water Resource Development - Kimberley

- Has been gap in understanding of agreed direction
- Past - Government development framework narrow
- Now broadening scope - social, environmental, economic consequences - stakeholder recognition
- Increased need to consider social impacts and benefits long-term for the Kimberley people
- Government beginning to react to these pressures - how best to deliver social benefits - negotiations with Land Councils
- Government environmental agencies - greater recognition of indigenous and heritage issues

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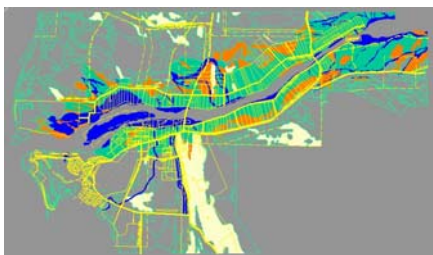
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### Carnarvon Horticultural Area (Shown in green)




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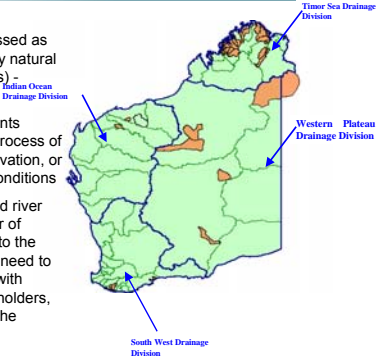
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## High Conservation Value: Wild Rivers

- Forty eight rivers were assessed as being near pristine or relatively natural (the two highest classifications) - concentration in North
- Mixture of tenure arrangements means that it is not a simple process of reserving the rivers for conservation, or developing one set of lease conditions
- Long-term protection of a wild river may only result from a number of different strategies that apply to the different lease conditions and need to be developed in consultation with stakeholders, land and lease holders, indigenous communities and the community generally



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## High Conservation Value: Wild Rivers



- Condition of Wild Rivers to be managed at current level of impact
- Future irrigation development should not cause detrimental change

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## Water Resource Management Planning

- Water resource plans defining realistic water allocation limits are lacking for many northern water resources
- Only Ord, Broome, Exmouth and Carnarvon currently completed or substantially progressed
- Due to timeframe and funding required for development of plans, approaches such as environmental risk assessment may become a more common interim process.

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## Managing All Sectors

- Irrigated agriculture

Increasing opportunity and pressure to be more efficient. Eg, Ord River required to implement improvements that:

- (a) increase distribution efficiency from <70% to 80%,
- (b) reduce water and nutrient discharge by 50% over 5 yrs of interim licence.

- Mining

Mostly dewatering and hypersaline, high levels of re-use now.

Pressure to be efficient through licence conditions and influencing project planning.

- Industrial use

Eg, facilitating industry change at Kwinana from groundwater or scheme water to wastewater reuse. Initially 1.6 GL, possibly 8.0 GL in the medium term, long term up to 45 GL of wastewater available.

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## Summary of the DoE Position

- Many uncertainties, but awaiting perfect information is not an option
- Solving the water issue is about balance, not simplistic solutions
  - Balancing supply and demand
    - Every new source comes at economic, social and environmental cost
    - Being efficient can reduce those costs
  - Not lessening our quality of life
    - Sustainable water use can maintain our quality of life and future generations
  - Paying a fair price for responsible use
    - Many options available to discourage irresponsible water use
    - Adaptive management is the key

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## Irrigation Development Assessment Form

- Developed and primarily used in the South West regions
  - where land-use and nutrient controls often apply
- Don't have an assessment form applicable Statewide
- Currently revising IDA to incorporate Water Conservation Plans
- Will become an approved Statewide assessment process for irrigation

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## Water Conservation Plans

- Recommended in WA State Water Strategy
- All licenses to include a WCP establishing objectives for increased efficiencies in water use
- Licence conditions will require implementation of WCPs to an agreed schedule
- Irrigation developments to comply with Best Management Practice
- BMPs not yet completed for all commodity groups, need Regional detail

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## Managing Water Resources

- Holistic approach
  - whole system - surface/groundwater/land/vegetation/people
  - address all water users/uses
  - manage current demand and supply
- Dealing with uncertainty
  - many complexities in water cycle
  - knowledge gaps - facts/interpretations - understanding risks
  - climate variations
  - aquifer and environmental response to pumping
  - future demand and supply - future generations
- Adaptive management
  - flexible management systems - risk management
  - who pays if we get it wrong?
  - precautionary approach

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## Sustainability - a Dynamic Concept

- Sustainability is a dynamic concept that will continue to be refined.
- The challenge is to turn the principles of sustainability into achievable policies.
- The move from principle to practice is not easy.
- Science alone cannot choose the correct interpretations for society.
- But, any interpretation must be based on a sound understanding of water resources and community involvement in decision-making.

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## **Appendix 6**

### **Northern Australia Irrigation Futures (NAIF)**

#### **A Sustainability Framework for Irrigation in Tropical Australia**

**Darwin Workshop 26/27<sup>th</sup> May 2004**

##### **Presentation by Ian Smith – Northern Territory Government**

The main points covered in Ian Smith's address were:

- Irrigation in itself is not a fundamental driver in the Northern Territory (NT)
- The broader vision is about planning for sustainable use of resources across the Territory
- The NT has locked into and has engaged completely with the whole of the water allocation planning procedures associated with COAG and it is embraced at all levels including individual decisions made on individual licence approvals
- There has not been a great deal of impact from the COAG framework as the NT has no well established extensive irrigation schemes and no government schemes
- The notion of an 'irrigation scheme' in NT even into the future is not on the agenda. This is with the exception of the Ord Scheme which is really a border issue
- Irrigation in the NT in the future is foreseen as an extension of what it looks like now and that is small-scale private farmer developments based on groundwater and which are highly dispersed across the landscape
- The vision for irrigation development would see the majority of the landscape preserved in terms of impact of irrigation and at certain times of the year small green patches with landscape preserved in between
- The NT interprets the allocation and planning framework of the COAG reform agenda in a sustainability context and with regard to variability and seasonality of climate regimes
- The NT plans so that natural systems can regenerate and recharge themselves. This automatically forces buffer and recharge zones around irrigation developments and drives the separation of watered areas and maintenance of natural recharge landscape around them
- Katherine-Daly is an example of NT irrigation that is a highly dispersed, isolated farming development; however it is a mixed farming development and not all dependent on irrigation; developments in the Top End will be similar
- There are very few dam sites that offer any real economic potential and very few that could be justified on an economic scale argument at this stage
- Groundwater management is a controlled licensed use of aquifer systems in an overall allocation planning sense to ensure environmental sustainability
- Climate and stream flows are extremely variable; for example 90% of the flow of the Daly River runs through the river system in 3 months of the wet season
- Any surface water development can be based on the ability to skim passing flood flows
- Through consultative process and scientific panels it has been suggested that at best we might be able to take 10% of passing flow
- An environmental framework for management of water continues to evolve but will limit and constrain the nature of water development in the NT
- The southern region of the NT is different in that there is no potential for surface water irrigation

- The arid zone will require different groundwater management compared to the Top End as there will be a limit on extraction based on a rechargeable framework
- In southern areas where there is far less frequent recharge and if we can confirm no groundwater dependent ecosystems and find there are no cultural constraints, then policy is to allow mining of the water resource for irrigation or public water supply. Permits allow mining of 80% of the available drawdown but must be over a minimum of a 100 year timeframe
- All surface water extraction must be licensed. All irrigation development is subject to licensing considerations and we undertake livestock applications in a regional planning framework approach
- Groundwater legislation requires all extraction to be licensed but the Minister can make exemptions. Current declared exemptions mean that only bores in excess of 15 litres per second require licensing. Those exemptions can be revisited. For irrigation purposes all groundwater extraction has to be licensed
- Licences include an irrigation managing control framework formulated around the specific crop being grown. The licence stipulates an irrigation schedule
- Salinity assessments have been done and hazards are, in general, low throughout the NT

## **Appendix 7**

### **Northern Australia Irrigation Futures (NAIF)**

#### **A Sustainability Framework for Irrigation in Tropical Australia**

**Darwin Workshop 26/27<sup>th</sup> May 2004**

#### **Presentation by Peter Gilbey: Queensland Government**

In addition to the overheads presented, Peter Gilbey made the following comments:

- In regards to irrigation development Queensland is undergoing a revolutionary change. The perspective presented by NT is also what is guiding Queensland in its approach to NRM and will impact on where Queensland would like to see NAIF go
- Most Water Reform Activities are focused on getting water resource plans right (eg Burdekin, Gulf, Mitchell river)
- Water resource plans are intended to be in place for 10 years and sets the framework for allocation of water over that period. They address what is required in order to maintain natural ecosystems and set environmental flow objectives
- The plans look at existing water use and allocates it on a security basis commensurate with the level of need – high, medium and low security water (urban, industrial and mining are all high security)
- The plans also prescribe performance indicators and set up monitoring requirements to ensure plans are delivering on their objectives
- A resource operation plan involves working with various providers of water around the state to identify how they actually go about delivering water so environmental flow objectives and security of water is provided. This includes drought strategies to make sure the commerciality of water doesn't override good practice in terms of making sure there is water there for next season if a failure in wet season occurs
- The outcomes of the Resource Operation Plans are water allocations and resource operations licences for major water providers which determines how to operate infrastructure for best environmental outcomes and the actual arrangements for supply of water to the end users
- The recently released report on the Gulf and Mitchell catchments gives an idea of the current issues in northern Australia
- All gulf catchments have been assessed in terms of land and water availability within their catchment
- It is hoped the NAIF framework can be used to translate some desirable outcomes (eg, Water Use Efficiency) to the use of water in wider Northern Australia

## NORTHERN AUSTRALIA IRRIGATION FUTURES

THE QUEENSLAND GOVERNMENT PERSPECTIVE

PRESENTED BY

PETER GILBEY

REGIONAL MANAGER  
DEPARTMENT OF NATURAL RESOURCES, MINES AND ENERGY  
North Region

DARWIN SYMPOSIUM  
MAY 2004

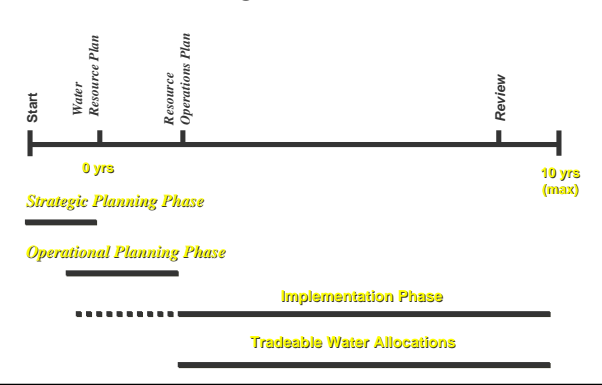
### Outline of Presentation

- Water Reform
- Wild Rivers
- Vegetation Management
- Sustainable Approach to Northern Development
- Community Based NRM

### Water Reform

- There are a number of key water reform activities happening in North Queensland that will impact on the future of irrigation in the region.
- **Water Resource Plans – to determine sustainable take – currently in the:**
  - Burdekin Basin
  - Gulf catchments
  - Mitchell River
- **Resource Operation Plan – to regulate operators and enable water trading beginning with the:**
  - Barron River

Water Planning Process



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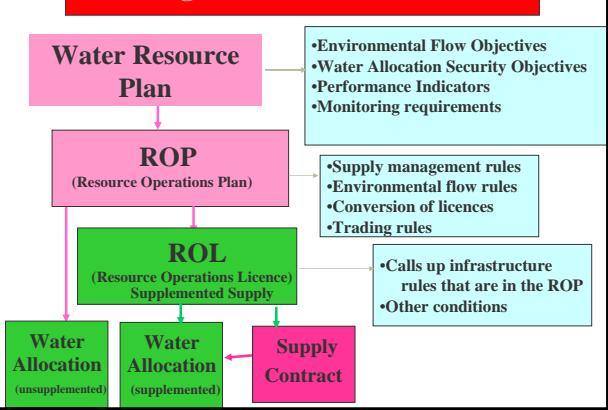
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Planning and Allocation Overview



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## Water Reform – cont'd

- In addition the Queensland government is providing incentives for increased Rural Water Use Efficiency
- Implementing the metering of unregulated water
- Progressing property level – Land and Water Management Plans
- Working with CSIRO and others to promote sustainable irrigation practices.

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## Wild Rivers Policy

- Allowing limited agricultural, urban and industrial development, eg small scale "eco-friendly" tourism development would be encouraged
- Strictly limited and regulated water allocations or water extractions from wild rivers
- No new dams or weirs permitted on a wild river or its main tributaries.
- Flow control activities such as stream alignment, desnagging (other than for safety reasons) and levee banks will not be permitted
- Further developments on floodplains must not restrict floodplain flows
- Protection of associated wetlands
- No stocking of wild rivers with non-endemic species
- No use of exotic plant species in ponded pastures
- New off-stream storages to be limited in capacity, for example for stock and domestic purposes
- No new in-stream mining activities. Any out-of-stream mining in the region will be subject to Environmental Impact Assessments

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## Vegetation Management

- Phase out broad scale clearing of remnant vegetation by 2006.
- \$150 million package for landholders, unless the Federal Government honours its \$75 million promise.
- A transitional clearing cap of 500,000 ha.
- Immediate protection for of concern vegetation on freehold land.
- New legislation. The first bill introduced to State Parliament in 2004.
- Permitting most clearing of regrowth.
- A policy on thinning that will balance the conservation of natural values with the needs of agriculture.
- Existing exemptions will continue.

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## Sustainable Approach

- Future Irrigation Development in Queensland will need to observe the Triple Bottom Line through addressing such things as:
- Social Outcomes through ensuring future development advantages the community especially indigenous Australians.
- Protection of Cultural Heritage – both indigenous and non indigenous
- Ensuring no threatening processes due to Salinity, Weeds, Pesticides etc
- This includes Downstream and Offsite Impacts
- Protecting biodiversity
- Retaining natural flow patterns

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## Community Based NRM

- To achieve healthy regional arrangements in Queensland, a network of regional NRM bodies are being established. These bodies are funded under the NAP & NHT2 programs. The Queensland NRM bodies coordinate the views of regional communities and are responsible for preparing regional NRM plans. These plans must incorporate existing natural resource plans (eg water, vegetation, coastal) and fill planning and management gaps. The plans must contain targets for managing the condition of natural resources.  
<http://www.regionalnrm.qld.gov.au>

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## **Appendix 8**

### **Northern Australia Irrigation Futures (NAIF)**

#### **A Sustainability Framework for Irrigation in Tropical Australia**

**Darwin Workshop 26/27<sup>th</sup> May 2004**

#### **Presentation by Ross Dalton: Commonwealth Government**

In addition to the overheads presented, Ross Dalton made the following comments:

- The Commonwealth is involved because at a national level water is a scarce, variable and precious resource
- There is a clear understanding between governments as to who has primary responsibility for management and allocation. As we've seen there are a set of national principles which try to provide integration to the way things are developed between and among jurisdictions. This allows for differences dependent upon circumstances
- The National Water Initiative picks up on the 1994 COAG process
- The main elements are an improved security (property rights) entitlement framework with respect to southern parts in particular – including the capacity of water markets by size, volume and scope across jurisdictions
- Also water pricing and the issue of externality pricing are key elements
- Enhancement of environmental values and improved measurement, monitoring and information is about obtaining an improved understanding of total movement through the water cycle and also an improved information base for operation of markets and resource management. This also involves urban water
- The real challenge for the nation is not about definition of biophysical aspects or socioeconomics but did we achieve what we said we were going to achieve? Some of the technology and thinking around monitoring and management and reporting will be useful for jurisdictions with the challenges of NRM
- There are complementary regional delivery programs eg (NHT, NAPSWQ)

# NORTHERN AUSTRALIA IRRIGATION FUTURES

**Ross Dalton**, General Manager, Water and Murray Darling Basin, Australian Government Department of Agriculture, Fisheries and Forestry

Australian Government  
Department of Agriculture, Fisheries and Forestry

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## Australian Government perspective

- Scarce, variable and precious resource across most of Australia
- Water is about social, economic and environmental factors
- Constitution is important
- Constructive and integrated approach

Australian Government  
Department of Agriculture, Fisheries and Forestry

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## Distribution of Australia's surface water runoff

Land - 0.4% irrigated returning: \$7 billion, 25% gross value of agriculture

North and North-East Coast - 64.7%

Murray-Darling Basin - 6.1%

Murray Darling Basin

- 14% of Australia's land area and 6% of the water, but accounts for approx 2/3 of all irrigated agriculture (\$4.2 billion)

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## National Water Initiative

- Agreed at COAG August 03 – to build on the 1994 COAG Water Reform Framework.
- Key Elements
  - improve security of water access entitlements
  - expansion of water markets
  - best practice water pricing
  - protection of environmental assets
  - measuring, monitoring and information
  - urban water reform

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## Improved security of water access entitlements

- Perpetual or open-ended share of the consumptive pool of a specified water resource, as determined by the relevant water plan.
- Key Characteristics
  - Reliable
  - Exclusive
  - Transferable
  - Tradable
  - Mortgageable
  - Enforceable
  - Transparent
  - Specified responsibilities and obligations

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## Expansion of water markets

Compatible systems for registering entitlements and trades including:

- integration of water accounting systems
- accurate and timely data transfer
- accurate information for evaluating and reporting against outcomes and impacts of trade.

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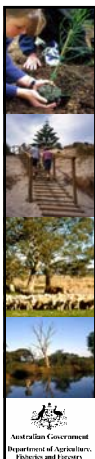
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## Expansion of water markets

To facilitate water markets we need to consider:

- common principles for trading rules
- trading zones
- a range of products
- consistent pricing policies
- a system of exchange rates to facilitate trade
- Tagged entitlements
- barriers to trade

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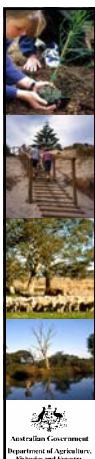
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## Best practice water pricing

- Covers
  - water storage and delivery, urban/rural, cost recovery for planning and management
- Incorporates
  - consumption based pricing, cost recovery, transparency/consistency
  - policies to address stranded assets
  - independent pricing bodies
  - environmental externalities

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## Protection of environmental assets

- agreement on environmental objectives based on sound science/community consultation
- provision of environmental water through a range of measures including purchasing water and strategic investment
- whole of basin/catchment environmental water managers

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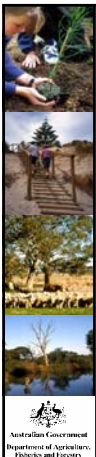
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## Measuring, monitoring and information

- National benchmarking of water accounting systems
- Consolidated water accounts
  - Water balance covering all significant water use
  - Reconciled annually
- Environmental water accounting
- Improved coordination of data collection
- Metering and measuring
- Reporting
  - Metered water use; trade outcomes; environmental water releases and management actions; availability of water access entitlements.

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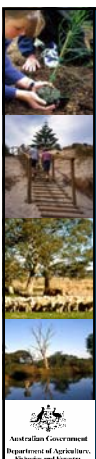
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## Urban water reform

- Improvements in:
  - water use efficiency
  - demand management
  - Water reuse and stormwater management

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## Complementary regional programs

- Natural Heritage Trust (NHT)
- National Action Plan for Salinity and Water Quality (NAPSWQ)
- Murray Darling Basin Commission
  - \$500 million funding to address overallocation in the Basin
- Water Savings Project
- Joint Government Enterprise
- Great Artesian Basin Sustainability Initiative

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## NHT and NAPSWQ

- Regional scale
- Strategic partnership
- Community based action, planning and targets
- Targeted investment in outcomes

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## Knowledge and information

- Australian Government base funding to CSIRO, CRCIF, LWA, other CRCs
- Additional funding to NPSI – importance of sustainable irrigation
- Northern Australia Irrigation Futures

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## National Land & Water Resources Audit

- Development and maintenance of accurate, cost-effective, contemporary, accessible and timely data and information on the nation's natural resources.
- Themes: water, vegetation, soils, biodiversity, land use, social and economic information
- Water: Australian Water Data Infrastructure project

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## Funding to address over-allocation in the MDB

- Recognises the declining health of the River Murray system
- New funding of \$500 million over five years
- Addresses water over allocation in the MDB
- 40% of funding will be contributed by the Australian Government
- 60% by NSW, VIC, SA and ACT

Australian Government  
Department of Agriculture,  
Fisheries and Forestry

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## Joint Government Enterprise

- Established December 2003
- Commonwealth, NSW and VIC (SA option to join)
- Environmental flows in Snowy river and River Murray
- "Water for Rivers" launched
- Targets reached by 2012
- Community participation

Australian Government  
Department of Agriculture,  
Fisheries and Forestry

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## Water Savings Project

- National project announced by Minister Truss 2003
- Ideas generated through public involvement
- Infrastructure investment in regional water savings
- Partnership with States
- Additional national projects
- Targeted outcomes
- To date \$930 000 spent

Australian Government  
Department of Agriculture,  
Fisheries and Forestry

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## National Program for Sustainable Irrigation

- NPSI important, ensuring sustainable irrigation important
- Capacity building
- Furthering understanding
- Australian Government contribution to date \$375,000, plus \$140,000 directed at social perceptions research

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## **Appendix 9**

### **Northern Australia Irrigation Futures (NAIF)**

#### **A Sustainability Framework for Irrigation in Tropical Australia**

**Darwin Workshop 26/27<sup>th</sup> May 2004**

#### **Introductory Comments: Jim McColl**

##### **Rationale for and Benefits from a Sustainability Framework**

A brief historical review of the development of the South Eastern Irrigation areas provides some insights into the public decision processes during the last century. This was the period of the development of and expansion of agricultures' contribution to the overall development of Australia's economy.

##### **The Developing Water Economy**

The rationale for most of the period (at least for the first 70 years or so) for the utilisation of water resources was – the development for productive purposes of water resources that otherwise would go to waste, for attempting to even out the impact of the wide variation in seasonal conditions on agricultural output, and generally for supporting the regional economic development of inland SE Australia. Included in this development was the expansion of irrigation as a means of resettling returned servicemen from WWs 1 and 2, and subsequent closer settlement schemes.

What were some of the characteristics of this irrigation development ?

- Water resources were deemed to be underutilised and the development was essentially an engineering exercise – storages, weirs, available water for use, determining suitability of land for irrigation etc. Regulated and unregulated streams. Surface water and groundwater managed separately.
- Water licenses were fairly readily granted, many remained unused in part or wholly for a considerable time, the price of water was substantially subsidised and was mainly provided by government owned and operated supply systems.
- The focus was on development of irrigation farms – supply channels, mainly surface irrigation methods (wild flooding, contour irrigation, border check, furrow) – getting the water onto the land with little, if any, consideration of supply or application efficiency or of drainage systems.
- Environmental needs and the protection of environmental assets received little attention. There was no real consideration of biophysical relationships and very little research or monitoring into this area.

- The economics of water resource development was largely focussed on the engineering concept of least cost construction (storage and delivery) given the decision to implement, rather than on any assessment of the relationship between benefits and costs.

### **The Mature Water Economy**

The gradual realisation in the late 60s that in some areas, water was becoming scarce and there were competing uses. Public capital resources were not unlimited and also involved competing interests. This led to the increasing use of benefit cost analysis in evaluating water resource development proposals, at least, in the Commonwealth Treasury. However, the political process for some time frequently continued to ignore such assessments. Environmental aspects still received little attention (eg Billy Goat Bend, Mitchell River, Victoria).

Environmental issues, particularly salinity, began to get attention from the early 70s and into the 80s. First major comprehensive report on salinity in the River Murray was undertaken by GHD around 1970 following periods of exceedingly high river salinity in the lower Murray affecting mainly citrus crops. SA commenced rehabilitation program for the Government Highland Irrigation Area in the Riverland. The River Murray Commission was given a wider charter to be responsible for managing water quality as well as water quantity. The realisation that managing both water quantity and quality required a Basin-wide approach led to the establishment of the Murray-Darling Basin Commission in late 80s with increasing cooperation and coordination between the States and the Commonwealth governments in addressing the range of problems and challenges.

What challenges have we now to address? Some are as follows:

- Inconsistent water entitlement arrangement between States (plethora of different descriptions, confusing terminology etc.) acting as a barrier to efficient trading.
- Serious over allocation in a number of catchment systems and concern about environmental aspects (river health) and a consequent thrust for restoring environmental flows etc.
- Confusion about and cumbersome administrative processes for handling environmental externalities associated with irrigation water use, and difficulties in implementing full cost pricing.
- Inadequate (although improving) understanding of biophysical relationships necessary for supporting integrated water resource management (surface and groundwater, land use changes, reduced return flows, environmental flows and management of environmental assets etc.)

## **Rationale for, and Benefits from a Sustainability Framework**

Having been through this development process in South Eastern Australia, what are some of the lessons we can learn? How can we avoid some of the above problems emerging?

There are three key areas of interest:

Biophysical relationships;

Socio-economic; and

Institutions.

With regard to **institutional aspects**, in relation to Northern rivers, there are four jurisdictions involved (Western Australia, Northern Territory, Queensland and the Commonwealth). Some of the proposed developments will cross jurisdictional boundaries. There will be real advantages in achieving a consistent approach to water resource management legislation and administrative processes. One example - a consistent approach to defining water entitlements, allocations and use obligations (National Water Initiative).

**Socio-economic issues** cover the interests of existing communities, including indigenous, as well as developing common approaches to benefit cost analysis etc. including the difficult area of the valuation of environmental assets.

A good understanding of the **biophysical relationships** is fundamental to a sustainable approach to development. It will support incorporation of integrated management of the water resources and of the environment right from the start of the development process.

## **Sustainability Framework**

The development of a Sustainability Framework being considered at this workshop, while focusing mainly on biophysical relationships for river/catchments, will need to be able to effectively interface with both the socio-economic and institutional aspects.

In summary, a Sustainability Framework has the potential to provide for a common approach, with resulting benefits particularly for managing “shared” resources across jurisdictions, for decisions on inter-governmental funding for development projects, and for consistent and fair treatment of indigenous interests.

## **Appendix 10**

### **Northern Australia Irrigation Futures (NAIF)**

#### **A Sustainability Framework for Irrigation in Tropical Australia**

**Darwin Workshop 26/27<sup>th</sup> May 2004**

#### **Concluding Remarks**

**Jim McColl** was invited to provide some concluding remarks summing up the key messages from the workshop:

- On the benefits side of the framework there has been a general acceptance that it is worthwhile proceeding from here on. Answers to a number of questions raised can only be developed as the process moves forward
- From the States, Territory and Commonwealth point of view there seems to be general agreement that there are real advantages in coordination and involvement
- There are real advantages in common language and understanding. This includes common approaches to policy, legislation development, terminology, issues of allocation and sharing between environment and consumptive use etc. Also, sharing of important information will be possible
- States and Territories are closest to the ground and have the most established linkages to communities
- In developing the project and sustainability framework, continuous consideration needs to be given to actual and effective implementation. For example, what are the administrative requirements; and the cost of implementation if the framework is a key input to adaptive management in the long term to maintain sustainability. Who will bear those costs?
- It is worthwhile thinking about what the framework is going to be used for and not move to a level of complexity that might be interesting to boffins but not good for practical use and implementation
- There is a need for effective communication and marketing and to work political connections
- There is a need to maintain credibility as seen by communities and stakeholders, those groups involved in implementation and affected by it. They should be involved in the whole process otherwise one can get a complete breakdown in the credibility of the final product. Interactive reporting back processes should be well developed.
- The stakeholders need to be involved in setting the research agenda so they are committed to the outcomes of that research
- The South has not always performed well on this and now need to build back credibility of research and science particularly relating to environmental and biophysical requirements of systems
- It is unclear whether the framework will include independent groundwater systems used for irrigation but indications at the workshop were that they should be included
- It was recognised at the workshop that developments will be substantially private sector
- From a private investors point of view they would have already looked at the marketing, transport, crops and products etc and would be then looking at suitable locations and resources to draw upon to establish operations. Therefore what does an investor need to know about the biophysical realities of various locations? Not only the amount of water

available but also the requirements of long-term sustainable management of that system. What conditions have to be fulfilled and assumptions built into business plans and costs and what such conditions may mean in terms of future adaptive management changes that might be made? What is the nature of the product you need for any potential investor to effectively understand and interact in that process?

- Indigenous irrigation developments have been talked about – a somewhat different approach might be taken to those as an investment with greater public investment or support. Economically there are differences in the view of development between indigenous and western communities. There are also differences in biophysical views
- Southern developments didn't take full account of biophysical issues and therefore issues of river health and winding back systems are now on the table. This involves institutional changes in policy, administration etc and therefore socioeconomic issues. These issues will need to be resolved at catchment level with communities. Catchment authorities will need to have a more significant role in working through tradeoffs with affected stakeholders
- There are a range of value systems operating in communities which means that there is no 'right' answer however the issues can be resolved through a continuous adaptive decision making process with feed back from information systems, monitoring indicators, performance of irrigators against use conditions on licenses etc.
- As a result of this workshop the biophysical sustainability framework is better understood as is its role as part of a larger decision making framework

**Keith Bristow**, as project leader, also provided concluding remarks:

- The project team appreciates the time and frank contributions of workshop participants
- The project team is feeling comfortable with support for taking the project forward and the feedback has been encouraging
- There is a large task ahead including the immediate challenges in developing the work plan, ensuring all key issues are defined and addressing delivery mechanisms right up front
- It is important to keep showing progress on the ground so people know the framework is valuable and worth engaging with and contributing to
- It is a high risk project and activity but a real opportunity to make a difference and add value to other processes