

Qld NRM Data and Knowledge Hub Pilot Project

Northern Pilot Report (Phase 1)

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Executive Summary

The northern pilot of the Qld NRM Data and Knowledge Hub project sought to test and validate recommendations identified through a state-wide scoping study completed in May 2008. In particular, the northern pilot sought to gain a clearer understanding of the barriers and drivers, opportunities and challenges experienced in the sharing of data, information and knowledge relative to natural resource management across the north of Queensland.

The objective is to assist the further development of regional collaborative networks to improve NRM knowledge and information exchange. A broad range of stakeholders were consulted between April and August 2009 to identify requirements for effective NRM knowledge brokering across the northern NRM regions and identify mechanisms to deliver this function.

The resulting recommendations and proposed actions identified through both northern and southern pilots were delivered to a state-wide workshop for discussion and prioritisation. At conclusion of these deliberations three key areas of work were identified for further action.

1. The development of an independent state-wide steering committee that coordinates and communicates across existing networks and working groups to ensure NRM information/data/knowledge is better integrated and delivered.
2. Development of regional delivery models for knowledge brokers/mentors which foster cross stakeholder engagement and partnership agreements.
3. Future natural resource management and related projects need to adopt better records of metadata as part of funding requirements. An integrated system needs to be investigated which combines existing systems and databases for storing, cataloguing and accessing all forms of NRM information/knowledge/data.

The following report details the scope, undertaking and outcomes of the northern pilot. Along with outputs from the southern pilot the content of this report forms part of the state-wide report (see <http://www.rgc.org.au/collective-projects>) which will inform continued work and consultation. The long term target of this initiative is to ensure all regional natural resource management organisations assist local communities, including Indigenous, Landcare and Coastcare groups to access knowledge and skills in managing natural resources, including providing easily accessible, free information to groups and individuals.

The Australian and Queensland Governments have made available funding to continue this initiative. The Qld NRM Regional Groups Collective will manage the next phase to be undertaken between October 2009 and June 2010. Three part time regional facilitators and a part time state-wide coordinator will continue working with Queensland's 14 NRM regional bodies and their partners to action outcomes from the two pilots.

Introduction

Have you experienced the frustrations of not knowing where the information resides for making informed decisions? Many processes, tools and products have been established with databases, web portals, libraries, search engines, publications etc but still there remains the issue of people knowing that these exist; knowing how to use them and having the time to search out the information they need. Many of these things we have created are at risk of falling by the wayside if they are not used, championed and continually improved.

Do you or your organisation have the capacity to effectively consider the implications of the 'rights' of information; privacy, intellectual property, commercial? After negotiating access how often do you discover the information is not fit for your needs? How much does the competitive funding environment influence access and sharing? Issues surrounding the application of data and information products are one thing but what about specialised or on-country knowledge and sources of this? Who do you seek best advice from to confirm or add experience to this information?

That clause in the funding contract, the metadata standards, the Library Act and the Copyright Act are some of the 'tools' directing us to record and share information. However, which system, database or catalogue should you record this information in? Do the developers of search engines, catalogues etc really know what the end users and contributors need? Has this already been done and are we reinventing the wheel? What opportunities are there to develop a consistent coverage of baseline information, what is the desired baseline and how do we encourage collaborative investment to fill the gaps? What methods can best deliver equitable solutions to meet the needs of the different sectors and communities?

How do we best deliver quality peer reviewed data and information to the policy makers and enable funding providers to better measure the outcomes of the taxpayer's investment? How often do you resign yourself to 'we used the best info available'? Was it good enough? The information technology 'gold rush' appeared to be the answer and there are now numerous databases, search tools etc with continual advances in their interoperability. But what about the organic peripherals; the people... without human interest, interaction, interrogation and intelligence these tools serve little purpose.

There is an expectation that the management of our natural resources is underpinned by sound information, feeding greater knowledge which in turn enables wise decisions. This is at the heart of this project and will drive it forward as we strive to meet the objectives of sustainable and equitable use of our natural resources. It is not a question of should we be doing this but how should we be doing this. Here lies the major challenge and no one person or organisation can provide the answers.

Background

The NRM Data Hub scoping study commenced in December 2007 and was completed in May 2008. It was conducted under the auspices of the NRM Science Panel a partnership of regional natural resource management (NRM) bodies and State and Australian government agencies.

The objective of the study was to evaluate the business needs for data sharing (a two way process of knowledge exchange including data collection, data management and the availability of stakeholder data) between regional natural resource management groups, government agencies and industry stakeholders and to construct a business case for a project to improve data sharing.

Representatives of the following groups were interviewed to understand the cultures, priorities and methods used in sharing data: all Qld regional NRM groups; Qld Government NRM agencies (including system owners, information technology (IT) professionals, data providers and data users); the Local Government Association of Queensland (LGAQ); and the industry group GrowCom.

The final report of the project which was completed in May 2008 considered these interview responses together with a review of existing data sharing systems in Qld and elsewhere; as well as published and unpublished literature to analyse the observed behaviours and to recommend a solution.

The major finding of the study was that investment in additional IT based solutions would not materially improve data sharing in the short term. Rather, the report identifies that there is a functional gap missing in the management of natural resource management knowledge (including data and other information) in Queensland and that the skills required to perform these functions are those of a librarian/knowledge broker.

The report recommended the appointment of regionally based NRM Knowledge Brokers at locations throughout the State to facilitate knowledge transfer and exchange of data, information and knowledge between levels of government, industry and regional NRM groups.

The scoping report also recommended establishment of a high level forum where all stakeholders (regional NRM bodies, government agencies, local government and possibly other players such as industry bodies) are represented, to identify priorities, direct resources, set targets, monitor progress and respond to knowledge management issues.

Queensland NRM Data and Knowledge Project Phase 1

Following the NRM DataHub Scoping Project, funding was sourced to trial the recommendations through a pilot project. The NRM Data and Knowledge Project Phase 1 aimed to bring together natural resource management stakeholders to implement functions and structures to improve information and knowledge exchange for informed decision making. The project was funded by the Qld Department of Environment and Resource Management (DERM) (\$140 000) and the Qld Regional NRM Groups Collective (\$30 000).

Stakeholders involved in the project included state agencies, the Qld Regional NRM Groups Collective, interested regional NRM groups, industry groups and Aboriginal corporations.

The first phase of the NRM Data and Knowledge Hub Project conducted between March and August 2009 utilised two pilot areas and state-wide coordination to test the scoping project's recommendations. Two regional natural resource management groups were engaged to employ knowledge brokers, with the Qld Murray Darling Basin Committee (QMDC) coordinating in the south west of Queensland and Terrain NRM in northern Queensland.

The project was managed by the Qld Regional NRM Groups Collective (who represent regional natural resource management groups in Qld) in partnership with DERM who provided state-wide coordination for the project.

The objective of the project was to test the concept of introducing the dedicated function of Regional NRM Knowledge Brokers back into natural resource management activities in Qld and to devise, test and promote collaborative solutions through regional and state-wide forums.

The project had a number of key deliverables including:

- A dedicated regional knowledge broker in the North and South West areas of Queensland who developed cross regional collaborative networks to improve NRM knowledge sharing;
- A state coordinator position who supported regional projects and progressed issues and opportunities at a state level;
- A regional data catalogue for each pilot region to demonstrate the issues and gaps in collating all NRM related data, information and knowledge for a particular area of Queensland;
- A state steering committee established to further the outcomes of the project; and
- Regional knowledge sharing workshops and a state-wide forum to inform the future delivery of the project.

The project was not to devise a new information technology system but rather to reintroduce dedicated "Knowledge Broker" positions. Figure 1 below highlights the role of the Knowledge

Broker with the focus being on searching, brokering, transferring and exchanging data and information with stakeholders. This role will understand where different data and information sources can be found, what they consist of and how this can be used; and will communicate this to their stakeholders. Figure 1 also highlights the breadth of data, information and knowledge that brokers will need to be aware of including local and indigenous knowledge.

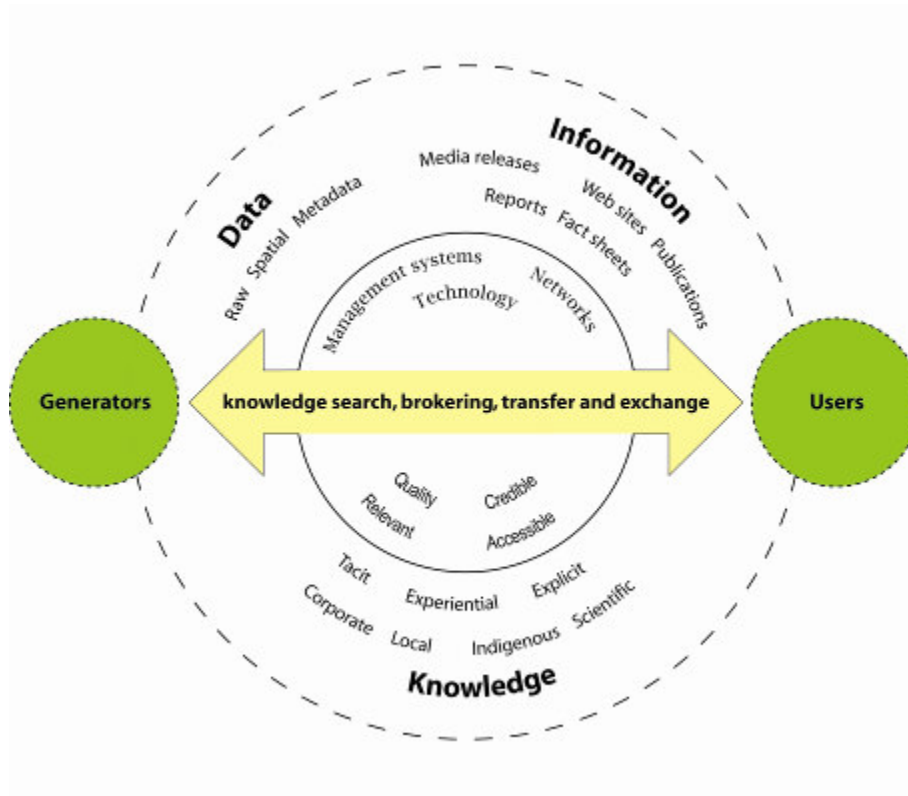


Figure 1: Knowledge brokering in natural resource management

Defining Information, Data and Knowledge

There are numerous and sometimes complex understandings to describe the separation between information, data and knowledge. For the purpose of this project it is helpful to define what we mean in the terms of Information, Data and Knowledge. *The below descriptions were sourced from the internet (Google/wiki) and edited to suit.*

Information refers to hardcopy and digital information products such as books, maps, publications and multi-media.

Data refers to digital information that is tabulated i.e. information stored in a table/spreadsheet under a set of rules. Data can be measured and can be further broken down into two types of data; spatial data and non spatial data. **Spatial data** can be described as any information about the location and shape of, and relationships among, geographic features; a piece of data that can be referenced to a particular geographic location. This includes remotely sensed data as well as map data. **Non spatial data** refers to information stored in a database or dataset with no geographical reference. This term is often applied to statistical data.

Metadata is data that provides a description of other data. Typically known as a separate file or piece of information used to describe the origin, purpose, terms of use and accuracy of spatial and non-spatial data but also in a broader sense can refer to a synopsis or tag to any information type or source. This provides a publisher or author point of view or peer review of the quality or usefulness for any particular application of that information.

Knowledge is defined by the Oxford English Dictionary as (i) expertise, and skills acquired by a person through experience or education; the theoretical or practical understanding of a subject, (ii) what is known in a particular field or in total; facts and information or (iii) awareness or familiarity gained by experience of a fact or situation.

So for the purpose of this project, data and information are any material that can be digitised and knowledge is what is in people's heads that enables them to do things.

Northern Pilot

Regional area and stakeholders

Terrain NRM facilitated the pilot in the north of Queensland which includes the six NRM Regions of Torres Strait, Cape York, Northern Gulf, Southern Gulf, Wet Tropics and Northern Dry Tropics. NRM stakeholders are many and the geographic area of the northern pilot is extensive.

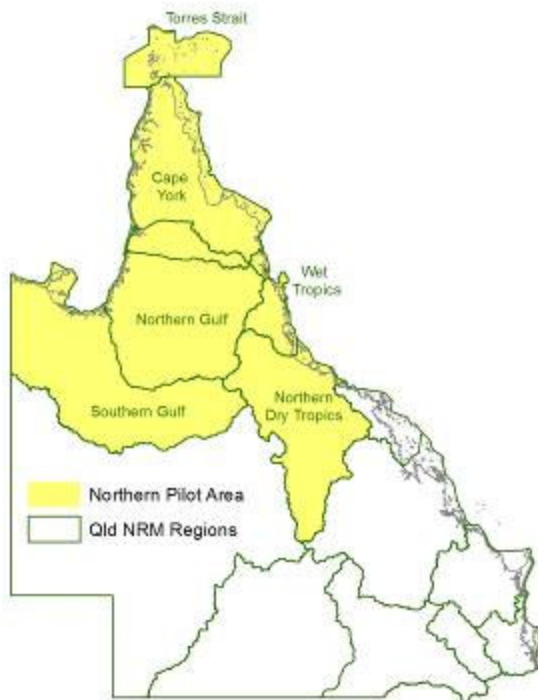


Figure 2: Northern Pilot Area

Land managers and owners, institutions, organisations and agencies who use or contribute data, information and knowledge relevant to natural resource management in Queensland could all be considered as key stakeholders.

It was discovered through the course of the project in the North that a number of stakeholders were simply restricted or unable to participate due to resource constraints and competing priorities of their staff. Misinterpretations of the project name “datahub” also caused some confusion.

These barriers were noted and will inform some of the recommendations during the next phase. The time frame for this first phase was short and it is acknowledged that continued consultation will be required as further stakeholders are engaged.

Northern Pilot Project Scope

Key Objectives of Northern Pilot

- investigate the further development of regional collaborative networks to improve knowledge and information exchange and,
- assist further development in the function of NRM knowledge brokering across the regions and identify the best mechanisms to do so.

In response to the 2008 Datahub scoping study the northern pilot sought to gain a clearer understanding of the barriers and drivers, opportunities and challenges experienced in the sharing of data, information and knowledge relative to natural resource management across the north of Queensland.

Defining the boundaries or scope of this project presented a significant challenge in itself. In the broadest sense all information or knowledge plays some role in underpinning decisions on how we manage our natural resources. A variety of information and knowledge is required to furnish the decision making needs of each stakeholder sector be they a farmer, town planner, Landcare group, infrastructure manager, Aboriginal corporation, mining company, government agency and so on.

These stakeholders have many different needs and responsibilities in regards to their use of the natural resources or impact upon them. The northern pilot sought to identify ways to improve the sharing, availability, access, quality and quantity of data, information and knowledge required to service these needs and responsibilities.

To include all information, data and knowledge sources applicable to NRM, presented a risk of the project becoming unmanageable. The original project plan for the regional pilots identified it would be easier to restrict the project scope to only a few key asset areas of the community based NRM agenda i.e. weeds, water and biodiversity. However, advice from stakeholders during the initial stages of the northern pilot emphasised that the broader approach was more desirable and the project plan was revised.

The northern pilot concentrated on how to support stakeholders interacting and using information tools, systems and processes.

This involved:

- Identifying ways to encourage the use of processes which allow for improved information sharing across northern Qld;
- Assisting the development of a cross-regional/cross-sectoral collaborative network to improve knowledge and information exchange; and
- Testing the validity of establishing cross regional and cross-sectoral data/librarian knowledge brokering positions and identify what functions these roles may provide.

As suggested in the scoping study findings the northern pilot concentrated on the human interactions with information sharing, systems and processes. Although the project sought to further identify what users really want from the many information tools available it did not attempt to develop a new IT system or replace existing networks. It simply attempts to improve how we use these tools and provide advice on how they could be improved.

Project Management Structure – Engagement, Consultation and Reporting

Project Team

Responsible for facilitating the pilot the project team consisted of staff from contract parties; RGC, DERM, QMDC and Terrain NRM

Statewide Steering Committee

The Statewide Steering Committee was established as a recommendation from the 2008 NRM DataHub Scoping Project that a high level committee be established to provide guidance to the project team in the delivery of the project.

See appendix

Northern Advisory Group

A cross regional/sectoral advisory group comprising of NRM stakeholders was invited to advise and assist the project officer in project tasks. *See appendix*

Project Officer

Terrain NRM employed a project officer to test the Knowledge Broker role, facilitate consultation with stakeholders and communications between steering committee and advisory group.

Project Plan

The original proposal was based on 12 months duration. The available funding reduced this to 5 months requiring reassessment of pilot activities and rewriting the project plan to suit.

see appendix for original proposal and project plan

Methodology/process

A northern cross-regional/sectoral advisory group comprising of NRM stakeholders was invited to advise and assist the project officer in project tasks. The project officer engaged with stakeholders to be a part of the advisory group through extensive engagement across the North. Key stakeholders initially identified are listed below. As the project progressed further stakeholders were engaged and included in advisory group communications.

Invitations to form a northern advisory group were sent to the following organisations.

Qld Regional NRM Groups Collective	Tropical Savannas CRC
Torres Strait Regional Authority	Carpentaria Land Council
Cape York NRM	Cape York Land Council
Northern Gulf Resource Management Group	North Qld Land Council
NQ Dry Tropics NRM	Reef and Rainforest Research Centre Ltd
Southern Gulf Catchments	Agforce (Agforward)
Cape York Sustainable Futures	Queensland Farmers Federation
Balkanu Cape York Development Corporation	Great Barrier Reef Marine Park Authority
Cape York NRM Working Group	Wet Tropics Management Authority
FNQ Regional Organisation of Councils	James Cook University
Gulf Savannah Development Inc	Qld Dept Environment & Resource Management
North Queensland Regional Organisation of Councils	Qld Dept Employment, Economic Development & Innovation
Regional Organisation of Councils of Cape York	CSIRO

Stakeholders were asked to provide a key contact determined by their respective organisations. In response to the initial invitation to participate 18 stakeholder organisations provided 28 representatives. As pilot progressed this grew to 38 representatives from 29 stakeholders (*see appendix for advisory group list*). Competing priorities and resourcing issues restricted the level of involvement from most stakeholders in varying degrees with approximately a quarter of these primarily interested in being kept informed of progress.

The Terms of Reference for the Northern NRM Data and Knowledge Hub Advisory Group were to:

- Represent their particular business groups/organisation and associated initiatives relevant to the Regional Data and Knowledge Hub Pilot Project.
- Provide advice to the Project Officer (Reuben Sinclair – Terrain NRM) in the implementation of the Regional Data and Knowledge Hub Pilot Project - Phase 1 (April-August 2009).
- Support the development of a regional workshop and attendance of representatives from their organisations.
- Provide recommendations to the Regional Data Hub implementation processes and outputs.

This group participated in the following activities:

Cataloguing data and knowledge sources and related initiatives

The catalogue was used to test the amount of data, information and knowledge systems that are already in existence and how this is currently accessible to end users.

The original proposal sought to develop a catalogue and description of data sets and information across multiple Regional NRM bodies, state agencies, industry bodies etc. The intention was to select a NRM asset 'data' theme i.e. water, weeds or biodiversity etc that is identified through consensus of the working group to benefit all NRM regional participants.

Through advisory group feedback the project officer decided to look at one catchment in the north and identify how much data and information is available. However, after progressing with this idea there was seen to be a number of overlaps with broader systems and processes so a more holistic approach was taken to look at all NRM related data, information and knowledge sources relevant to the north. To test the role of a 'NRM Knowledge Broker' and inform future investment in this area we needed to get a better idea of what people are using and what other initiatives are underway or proposed.

Advisory Group members identified information sources and related initiatives relevant to their business activities. The next phase of the project will provide an opportunity to further identify strengths and weakness and synergies with initiatives that support or could be better supported by NRM stakeholders.

See appendix 'Catalogue' -Related Initiatives, Information Sources and Knowledge Networks

Questionnaire

An online survey was undertaken asking people who work in or who are involved in the natural resource management business about how they go about finding information they need to help do their jobs or business and how they think information discovery and sharing could be improved. There were only a dozen responses to the questionnaire, but this provided information for future engagement with these stakeholders and provided advice to inform the regional workshop from those who were unable to attend.

These are included in workshop output – see appendix

Regional Workshop 25 June 2009, Cairns

The Northern Data and Knowledge Hub Regional Workshop was an opportunity for stakeholders to come together to learn more about the objectives of the project and identify regional issues for future action. The workshop mapped the NRM data and knowledge landscape across Northern Queensland; identified areas of improvement and linkage; and developed recommendations for future work in NRM data and knowledge brokering.

Workshop Agenda and outputs – see appendix

What did we learn/outcomes

The following is a list of the learnings identified by the Northern Pilot Project Officer developed through the course of the pilot.

- **The advisory group identified a strong desire to provide information for informed decision making at the local level across a wide spectrum of uses, ownership and sectors, etc.**
 - They suggested that this is delivered in 'language' understood by those 'sectors' which *is important for engagement in NRM of non tech practitioners and for facilitators delivering to end users*. If this is achieved then all other needs 'up the ladder' would be catered for and well informed.
- **There are so many sources of data, information and knowledge; local, region, statewide, national and global.**
 - This does impact upon the time required by stakeholders to find the right information.
 - The knowledge of sources and their suitability is not well understood across sectors.
 - It is difficult for any one person to keep abreast of what's happening, needs to operate as part of a network.
 - When data and information is found, not enough of it at desired scale, accuracy and affordability to suit on ground planning or actions.
 - There is a bias towards biophysical information and is often harder to access socio-economic and cultural information.
 - All data and information needs to be spatially referenced and searchable.

- **Most NRM stakeholders are at various stages of addressing data and knowledge management.**
 - There are a number of initiatives relative to Northern Qld underway or proposed in information and knowledge management. However there is a perceived lack of coordination across sectors which need to be resolved.
 - There is a lack of clear direction for information generators to which system/library is 'the one' to enter information and data into and no clear understanding/confirmation that numerous existing or planned systems can or will talk to each other.
 - There is a lack of connectivity/collaboration with state and national library system which should be used more widely for better searching.
 - Further consultation needed in the North about what users require from information discovery systems and processes and how this can be addressed.

Recommendations

The Northern Advisory Group provided recommendations to the state wide steering committee and state workshop on the outcomes of the work undertaken. These are listed below. Please note that these recommendations are not listed in any order of priority and should not be viewed as being agreed to by all participants. It is also likely that the reader will interpret some of these in a different context to the persons who delivered the recommendation. Further information supporting these can be found in attached workshop notes and the author acknowledges that some will require further interrogation and explanation. In future phases of the Northern work it is hoped that some of these can be actioned. *See attached 'workshop outputs' for recommendations and actions proposed through northern workshop.*

1. Future NRM and related projects to improve metadata recording and ensure entry into a central repository. Write into policy as part of reporting and funding requirements.
2. Development of a Qld NRM data, information and knowledge communication plan, to ensure better communication across stakeholders about what other projects, systems and initiatives are in existence or being planned to assist collaboration and reduce duplication.
3. An integrated system which combines existing systems and databases which has processes for storing, cataloguing and accessing all forms of NRM information, knowledge and data.
4. Develop regional delivery models for knowledge brokers/mentors which foster cross stakeholder engagement and partnership agreements. Needs to include non NRM agencies/orgs to encourage shared and alternative delivery methods to better serve remote and regional communities.

5. Development of regional working groups and a state-wide steering committee that coordinates and communicates across existing networks and working groups to ensure NRM information, data and knowledge is better integrated and delivered.
6. Current and future database websites to be Google searchable.
7. Data download service is easy to search and download.
8. Unblock data blockages by creating a system of validating confidentiality and access levels.
9. Implement system of permanent URLs to be used by government agencies and funded programs when designing websites so if content is removed it can still be accessed.
10. All government funded data is free and freely useable.
11. Develop a consistent structure for data collection across stakeholders.
12. Establish a peak body to coordinate aggregated data.

Appendix

Scoping Study

Analysis of the Demand, Needs and Requirements for Data and Information sharing in Qld NRM
 - Download PDF from <https://www.enquire.net.au/portal/project/view.htm?id=3771&back=4>

Northern Pilot Project Plan

- Download PDF from <https://www.enquire.net.au/portal/project/view.htm?id=3771&back=4>

Original Proposal

- Download PDF from <https://www.enquire.net.au/portal/project/view.htm?id=3771&back=4>

Advisory Group

Northern NRM Data and Knowledge Hub Advisory Group			
Organisation	Unit/Branch	Position	Contact Name
Torres Strait Regional Authority	Land & Sea Management Unit	Strategic Regional Facilitator	Miya Isherwood
Cape York Sustainable Futures			David Hine

Cape York NRM Working Group -Cape York Marine Advisory Group -Cape York Landcare - South Cape York Catchments -Cape York Weeds and Feral Animals Program	South Cape York Catchments	Coordinator	Jason Carroll
Balkanu Cape York Development Corporation			Ellie Austin
Balkanu Cape York Development Corporation	Balkanu Caring for Country Unit	Technical Advisor	Chris Roberts
Northern Gulf Resource Management Group		Tablelands Mapping Coordinator	Trevor Parker
Terrain NRM (FNQ)		Monitoring and Evaluation Coordinator	Deb Harrison
Terrain NRM (FNQ)		GIS Planner	Sharlene Blakeney
Terrain NRM (FNQ)		Communications	Evelyne Lewiston
Southern Gulf Catchments		Programs Manager	Kate Masters
NQ Dry Tropics NRM		NRM Data Manager	Doug Willis
Qld Regional NRM Groups Collective	Spatial Services	Manager, Spatial Services	Lee Blacklock
Regional Organisation of Councils of Cape York & TI		Coordinator	Kym Jerome
FNQ Regional Organisation of Councils	Natural Asset Management Advisory Committee	Regional Natural Asset Management Coordinator	Travis Sydes
Tablelands Regional Council	Atherton Tablelands Geographic Information Services (ATGIS)	GIS Coordinator	Alistair Hart
AgForce	AgForce North (East)	Regional Manager	John Hardaker

James Cook University	School of Earth and Environmental Sciences	Technical Officer – Cartography	Adella Edwards
Tropical Savannas CRC		Biodiversity Information Officer	Dr Gabriel Crowley
Herbert Resource Information Centre		Centre Manager	Raymond De Lai
Carpentaria Land Council Aboriginal Corporation			David Hinchley
Girringun Aboriginal Corporation		Cultural Heritage and Spatial Information Manager	Rod Nielson
Reef and Rainforest Research Centre		Research and Spatial Systems Director	David Souter
CSIRO	Sustainable Ecosystems	Senior Research Scientist/ Planner	Dr Rosemary Hill
CSIRO	Sustainable Ecosystems	Spatial Analyst	Dr Petina Pert
CSIRO	Sustainable Ecosystems		Caroline Bruce
Queensland Treasury	Office of Economic and Statistical Research (FNQ)	Senior Statistician and Regional Liaison Officer	Liesl Harrold
Qld Dept Infrastructure & Planning	Local Govt - FNQ Region		Dano Myrteza
Qld Dept Infrastructure & Planning	Local Govt- NQ Region		Marie Claude-Browne
Qld Dept Infrastructure & Planning	Northern Region Division, Planning Group	Senior Planner	Felicity Adams
Qld Dept Infrastructure & Planning	Northern Region Division Planning Group	A/Manager	Tony Croke
Qld Dept Infrastructure & Planning	Infrastructure & Planning	Regional Manager	Manfred Boldy
Qld Dept Transport & Main Roads	Main Roads	Senior Spatial Scientist	Tony Martin

Qld Dept Environment & Resource Management	NRW	Regional Manager (North)	Ken Sherwood
Qld Dept Environment & Resource Management	NRW	Senior Spatial Information Officer	Lisa Newton
Qld Dept Environment & Resource Management	EPA		Gary Innes
Qld Dept Employment, Economic Development & Innovation	Mining Industry Liaison Unit - Northern Region	Manager	Oskar Kadletz
Qld Dept Employment, Economic Development & Innovation	Mining Industry Liaison Unit - Northern Region	Senior Spatial Information Officer	Greg Nelson-White
Queensland Fire and Rescue Service	Rural Operations, Far Northern Region	Area Director, Cairns/Peninsula	Bryan Cifuentes

Statewide Steering Committee

ROLES AND RESPONSIBILITIES OF STATE STEERING COMMITTEE MEMBERS

- Provide advice to the Project Team (DERM, RGC, QMDC and Terrain NRM) in the implementation of the Regional Data Hub Project Phase 1 (April- August 2009).
- Represent their particular business groups/organisation and associated initiatives relevant to the Regional Data Hub Project and communicate linkages to the steering committee.
- Support the development of a state wide workshop and attendance of representatives from their organisations to progress the recommendations from the Regional Data Hub Project Phase 1.
- Review and provide critical evaluation and recommendations to the Regional Data Hub implementation processes and outputs.
- Report back to respective organisations on the Regional Data Hub Project and gain support for the project.
- Identify future pathways for Regional Data Hub implementation and deliver recommendations and linkages into other senior level decision making forums within their organisations.

Person	Position	Organisation
Fred Tromp (Chair)	Director, Regional NRM Programs	DERM

Phil Maher	Principal Project Officer	DERM
Andrew Drysdale	CEO	RGC
Michelle Hopgood	Regional Manager (Landscapes and Community Services)	DERM
Vicki Hall	Manager (State of Environment Reporting)	DERM
Steve Jones	Director (Environmental Information Systems Unit)	DERM
Richard Jefferies	Senior Advisor (GIS)	Main Roads
Alan Dale /Carol Sweatman	CEO /Business Manager	Terrain NRM
Geoff Penton	CEO	QMDC
Wayne Fry	Director	DERM
Greg Payne	Manager (Spatial and Scientific systems)	DERM
Phil Norman	Principal Scientist	DERM
Shane Marshall	Principal Advisor (Office of the Chief Information Officer)	DERM
Kirstin Kenyon (executive Support to the committee)	Principal Project Officer	DERM (NRW)

Related Initiatives, Information Sources and Knowledge Networks

Related Initiatives & Data, Information and Knowledge Sources As identified by advisory group

Other recent initiatives identified for development of linkages

Northern Australia Water Futures Assessment Knowledge Base (NAWFA) (*Aquatic Systems Health Branch Dept Environment, Water, Heritage and the Arts-DEWHA*)

The objective of the NAWFA is to provide an enduring Knowledge Base to inform development of northern Australia's water resources, so that development proceeds in an ecologically, culturally and economically sustainable manner. The Knowledge Base will provide easy access to information to assist in decision-making and planning of water resource development in Northern Australia.

<http://www.environment.gov.au/water/policy-programs/northern-australia/index.html>

North Australia Land Manager (NALM)- *Tropical Savannas CRC*

Currently under redevelopment including map-driven entry, NALM provides information for NRM in northern Australia. It contains over 20,000 articles, references and links, with at least

200,000 items accessed by NRM practitioners annually.

www.landmanager.org.au

e-Atlas- Australia's tropical land and seas

Under construction, the e-Atlas is a partnership between many research providers in order to develop a portal to information about Australia's tropical terrestrial and marine environments. By providing the means to share and access data, maps and information on topics relevant to the region, the ATLAS aims to promote collaboration and support the work of management agencies, researchers, reef-based industries and community groups. Decades of research have generated a large amount of data and information on the Great Barrier Reef and the terrestrial tropical ecosystems. Until now this information has generally been under-used.

<http://e-atlas.org.au>

Northern NRM Knowledge Management proposal as part of Northern Australia Integrating Project - *Northern NRM Alliance*

This project aims to significantly improve the structure, function, resilience and effectiveness of NRM information management systems in the north. It draws together existing information providers and managers to develop a consistent and efficient approach to NRM knowledge exchange. The proposal was unsuccessful in the latest round of CFOC funding.

Below link provides some background on drivers behind the proposal.

http://savanna.cdu.edu.au/publications/nrm_planning.html

Towards a National Science Communication Strategy – *Aust Govt Dept Innovation, Industry, Science and Research*

Australia has significant strengths in science communication but the broad science communication effort is fragmented and uneven across the country. This problem was identified in the 2003 Prime Minister's Science, Engineering and Innovation Council (PMSEIC) study into Science Engagement and Education that recommended a 'national framework-local action' approach. Australia is fortunate to have a range of quality organisations and individuals in the science communication 'ecosystem' and significant strengths to build upon. It is in Australia's interest to work towards a more coherent approach to fully utilise all national assets.

<http://www.asc.asn.au/2009/08/nscs-background/>

Regional Knowledge Resource Kit (RKRK) – *Land & Water Australia*

The RKRK is an online resource for learning and developing skills in managing information and knowledge for regional natural resource management. With the Australian Government winding up Land & Water Australia (LWA), the Regional Knowledge Resource Kit will shortly be moving to a new home with the Australian River Restoration Centre (ARRC) www.rrc.com.au.

www.rkrk.net.au

Environmental Information Initiatives Stocktake and Assessment project (*Dept Environment,*

Water, Heritage and the Arts-DEWHA)

This project is designed to inform the process of development of a National Environmental Information System (NEIS) as part of an inter-jurisdictional joint effort by the Environment Protection and Heritage Standing Committee and the National Resources Management Standing Committee to provide a nationally coordinated approach to collection, collation, access and analysis of environmental information.

[For further information: Angela Bradburn, GHD, 02 9239 7024; \[angela.bradburn@ghd.com.au\]\(mailto:angela.bradburn@ghd.com.au\)](#)

Atlas of Living Australia - (CSIRO et al)

The *Atlas of Living Australia* is a five-year project funded under the Australian Government's National Collaborative Research Infrastructure Strategy (NCRIS). Its mission is to develop a **biodiversity data management system** which will link Australia's biological knowledge with its scientific and agricultural reference collections and other custodians of biological information.

www.ala.org.au

Networks, Forums and Alliances

NRM Networking Groups - *Qld NRM Regional Groups Collective*

Queensland's Regional NRM Groups are particularly strong in working together across the state to increase efficiency and results. The network portals on the RGC website allow the state groups to strengthen their coordination through shared work spaces.

<http://www.rgc.org.au/>

NAILSMA – *North Australian Indigenous Land and Sea Management Alliance*

The North Australian Indigenous Land & Sea Management Alliance (NAILSMA) is an unincorporated bioregional forum for Indigenous land and sea managers across North Australia. It aims to support practical Indigenous land and sea management using strategic approaches to care for country with an emphasis on practical management by Traditional Owners across the whole of the North.

www.nailsma.org.au

Statistical Liaison Officers Network - *Office of Economic and Statistical Research in Queensland Treasury*

The Queensland Statistical Liaison Officer (SLO) Network has a pivotal role as the principal mechanism for the efficient dissemination, coordination and review of statistical matters. The SLO Network is maintained and managed by OESR, with support from the ABS. Membership is sourced primarily from Queensland State and Local Government agencies, but in the regional centres also includes academics and private organisations. The OESR Regional Liaison Officers provide a regional contact point for the provision and coordination of economic, social and demographic data.

[Far Northern RLO Contact; Liesl Harrold \(07\) 4039 8804, \[liesl.harrold@treasury.qld.gov.au\]\(mailto:liesl.harrold@treasury.qld.gov.au\)](#)

Worldwide spatial events calendar and more at www.xyz.au.com

The Spatial Industries Business Association (SIBA) maintains this website as a resource repository and portal to spatial information resources for members and others to bring together in one place those things that are important to spatial information businesses and their clients. The site includes archives of information and documentation prepared by SIBA in its work on behalf of spatial business in all areas. More information about SIBA is available at www.spatialbusiness.org.

Far North Qld GIS User Group Inc. (FUNGIS)

Fungis has championed the empowerment of community through promotion of spatial technologies for the past 21 years. The Fungis network offers a forum for members to exchange knowledge, ideas and experience on GIS (Geographic Information Systems) at a local level. It acts as a focal point for organisations and individuals to gain information about GIS from outside sources and provides a source of cross - organisational links for those with similar interests. Fungis members actively promote the use and awareness of GIS to the wider community and are contact points to gain information about GIS. It also provides a forum for discussion of policy issues in GIS and a body to represent the region in policy matters.

www.fungis.org

Datasmart - *Office of Economic and Statistical Research in Queensland Treasury*

Data Smart is a calendar of professional development events and newsletter subscription service for OESR clients. It was established by the Office of Economic and Statistical Research in Queensland Treasury to further promote high standards in data and information use. It also encourages partnerships that assist agencies and organisations to share data, information and knowledge. The development of Data Smart was sponsored by the Queensland Spatial Information Infrastructure Council (QSIIIC) as a whole of government initiative. If you coordinate and promote professional development events, newsletters or specialist networks that focus on data and information and or associated methodologies and standards, Data Smart is an online tool that can make your job easier.

<http://datasmart.oesr.qld.gov.au/>

Data, Information and Knowledge Sources

Tropical Rivers and Coastal Knowledge - TRaCK

TRaCK is a research hub under the Commonwealth Environmental Research Facilities scheme, managed by the Department of Environment, Water, Heritage and the Arts.

Providing the science and knowledge that governments, communities and industries need for the sustainable use and management of Australia's tropical rivers and estuaries. Contributing knowledge that can inform the National Water Initiative and be used as independent and objective advice by those making policy, planning and management decisions about northern Australia.

www.track.gov.au

Herbert Resource Information Centre (HRIC)

The HRIC is a non-profit catchment based Geographic Information System (GIS) facility that supports decision-makers in the Herbert River Catchment.

The HRIC is an unincorporated joint venture between Hinchinbrook Shire Council, CSR Sugar (Herbert) Pty Ltd., Herbert Cane Productivity Service Ltd (HCPSL), CANEGROWERS, BSES Ltd and FNQ NRM (Terrain NRM).

www.hric.org.au

Atherton Tablelands Geographic Information Services (ATGIS) *is a business unit of the Tablelands Regional Council.*

ATGIS provides a wide range of GIS services for the Tablelands Regional Council and provides spatial information and mapping services in support of industry, government, educational and community projects.

www.atgis.com.au

NQWMP - Northern Queensland Wildfire Mitigation Project

NQWMP is a collaborative interagency mapping exercise managed by ATGIS and funded by all three levels of government through the DOTARS Natural Disaster Mitigation Programme.

Download fire-related GIS datasets and information relating to wildfire management.

The Rural Fire Brigade Resource Mapping strand of this project has produced 90+ fire district maps in A0 and A3 size. PDF's and JPG's of these maps are available for download.

Use the Create Maps feature of this website to create and print custom maps.

Submit updates directly to the data warehouse using the file exchange facility.

Create new spatial data sets by digitizing them directly online. Information that you digitize can be saved for your own use, or published, for sharing with other stakeholders.

<http://wildfire.atgis.com.au/>

NAFI – Northern Australia Fire Information

The NAFI site has been developed by the Tropical Savannas Cooperative Research Centre and north Australian fire managers. It sources relevant fire management data, such as hotspots (locations of recently burning fires as sensed by satellites) and fire scars (maps of recently burnt country as sensed by satellites) and presents them on maps that are useful to north Australian fire managers. Hotspots are sourced from Langate Western Australia (from NOAA and NASA satellites) and Geoscience Australia (from NASA satellites). Firescars are sourced from Bushfires NT (for NT and northern WA fire scars) and Cape York Peninsula Sustainable Futures (for Queensland).

www.firenorth.org.au

enQuire – SEQ Catchments for whole of Qld NRM

enQuire is a web based application, delivering an integrated state-wide system that assists the

Queensland state government and Queensland Regional NRM Bodies in improving the quality of NRM activities by facilitating improved collaboration, coordination, management and reporting. enQUIRE was funded and developed under the Natural Heritage Trust 2 and has been operational since January 2006

www.enquire.net.au

State Library of Queensland

The State Library of Queensland is Australia's leading library of Queensland's documentary heritage, major reference and research collections, and an advocate for, and partner with public libraries across Queensland.

<http://www.slq.qld.gov.au/>

IQ and QGIS– Information Queensland

Information Queensland (IQ) is providing a smarter way for people to access information about the government and the state – especially information about the physical, environmental, economic and social characteristics of Queensland. The Queensland Government Information Service is a new way to discover and access a range of free or saleable government geospatial and associated data. Data can be ordered for download or delivered on DVD.

www.information.qld.gov.au <http://gis.qld.gov.au/iqed/map/>

OnePlan – Blueprint for the Bush (Qld Govt)

OnePlan is part of the Queensland Government's Blueprint for the Bush, a 10-year initiative to build a sustainable, liveable and prosperous rural Queensland. By providing guidelines, resources and access to information, the aim of the new Oneplan framework is to simplify the preparation of property-level management plans currently required by government.

<http://www.nrw.qld.gov.au/oneplan/index.html>

Agforward – Agforce Qld

AgForward has the tools and information to assist Queensland primary producers and land owners manage their property resources and infrastructure.

www.agforward.org.au

SOE Online - State of the Environment Online (DERM)

State of the Environment Online (SoE Online) provides access to the most recent data and information available on a range of indicators that inform the understanding and management of Queensland's environment. Data has been compiled by Queensland Government agencies from state, commonwealth and local government sources, as well as Regional Bodies, and are updated on an at least annual basis. Links to further information and key contacts are provided.

http://www.epa.qld.gov.au/environmental_management/state_of_the_environment/soe_online/

Datahub and QRSIS- Office of Economic and Statistical Research in Queensland Treasury

Data Hub is a data sharing site on GovNet managed by OESR. Queensland Government and

Queensland Local Government users accessing this tool via Data Hub on GovNet can access more records. The publically available version of QRSIS displays a limited amount of data series.

The Queensland Regional Statistical Information System (QRSIS) is a regional database developed by Queensland Treasury's Office of Economic and Statistical Research. QRSIS provides access to a wide range of time series regional data.

GOVT Users> <http://datahub.govnet.qld.gov.au/> **PUBLIC Users**> <http://qrsis.oesr.qld.gov.au>

Wetland Info – EPA/DERM

The Environmental Protection Agency, in partnership with the Australian Government (via the Queensland Wetlands Programme), has developed WetlandInfo Queensland (WetlandInfo), your first-stop shop for Queensland wetland information.

<http://www.epa.qld.gov.au/wetlandinfo/site/index.html>

FarmPlus – InfoRM Knowledge Ltd/Hort Aust Ltd (HAL)

InfoRM Knowledge Ltd, has developed FarmPlus, an agricultural specific search engine designed to access all key agricultural information in the fastest and easiest way to facilitate farmer and market access to industry research and knowledge.

www.farmplus.net.au

NRM Navigator – Land and Water Australia

The NRM Navigator is a set of online tools and databases that make it easier for NRM professionals to find and share information. Components of the NRM Navigator; NRM Search Engine, Decision support tools database, E-networks, Events, Professional bodies, Knowledge Needs database.

<http://nrmnavigator.net.au>

AANRO - Australian Agriculture and Natural Resources Online – Land and Water Australia

AANRO is an integrated knowledge discovery tool for agriculture and natural resources. It is a joint initiative of the Primary Industries Standing Committee (PISC), Natural Resource Management Standing Committee (NRMSC) and the rural Research and Development Corporations (RDCs). This new website confirms the strong support among the AANRO Participants for a national single entry point to agriculture and natural resource management research information.

www.aanro.net

ANRDL – Australian Natural Resource Data Library (Dept Agriculture Fisheries and Forestry, Bureau of Rural Science)

Search and display metadata records and download datasets held at the Bureau of Rural Sciences. The BRS is the scientific bureau within the Department of Agriculture, Fisheries and Forestry. At the interface between science and policy, BRS is an essential part of the Government's capacity for integrated evidence-based policy development. BRS provides scientific advice to government in support of more profitable, competitive and

sustainable Australian agricultural, food, fisheries and forestry industries and enhancing the natural resource base to achieve greater national wealth and stronger rural and regional communities.

http://adl.brs.gov.au/anrdl/php/basic_search.php

ASDD - Australian Spatial Data Directory (ANZLIC/Geoscience Aust)

Discover geospatial dataset descriptions (metadata) throughout Australia.

The Australian Spatial Data Directory (ASDD) is a national initiative supported by all governments under the auspices of ANZLIC - the Spatial Information Council. The ASDD aims to improve access to Australian spatial data for industry, government, education and the general community through effective documentation, advertisement and distribution. The directory comprises government and commercial nodes in each State/Territory and spatial data agencies within the Australian Government.

<http://asdd.ga.gov.au>

ERIN – Environmental Resource Information Network - Dept Environment, Water, Heritage and the Arts

The Environmental Resources Information Network (ERIN) is a unit within the Department of the Environment, Water, Heritage and the Arts, specialising in online data and information management, and spatial data integration and analysis. ERIN aims to improve environmental outcomes by developing and managing a comprehensive, accurate and accessible information base for environmental decisions. Information is drawn from many sources and includes maps, species distributions, documents and satellite imagery, and covers environmental themes ranging from endangered species to drought and pollution.

www.environment.gov.au/erin/

Libraries Australia - National Library of Australia

Libraries Australia is a resource sharing service coordinated by the National Library of Australia for Australian libraries and their users. It is used for reference, collection development, cataloguing and interlibrary lending. The heart of Libraries Australia is the Australian National Bibliographic Database (ANBD), which records the location details of over 42 million items held in most Australian academic, research, national, state, public and special libraries. The Libraries Australia service replaces earlier systems, Kinetica and the Australian Bibliographic Network (ABN) - which was created in 1981 to foster resource sharing by Australian libraries.

<http://www.nla.gov.au/librariesaustralia/>

Bureau of Meteorology

The Bureau of Meteorology provides several thousand products in a variety of formats using several delivery media. Most products are freely available; however some of the more specialised ones attract a cost recovery charge.

<http://www.bom.gov.au/>

Auscam – *Australian Council Museums*

Museums Australia is the national organisation for the museums sector, committed to the conservation, continuation and communication of Australia's heritage.

www.museumsaustralia.org.au

AVH – *Australian Virtual Herbarium (council of heads of herbaria)*

Australia's Virtual Herbarium (AVH) is an on-line botanical information resource accessible via the web. It provides immediate access to the wealth of data associated with scientific plant specimens in each Australian herbarium. Six million specimen records, of particular value in displaying geographic distribution, will be enhanced by images, descriptive text and identification tools. The AVH is a collaborative project of the State, Commonwealth and Territory herbaria. It is being developed under the auspices of the Council of Heads of Australian Herbaria (CHAH), representing the major Australian collections.

<http://www.chah.gov.au/avh/avh.html>

PDS – *Property Data Solutions*

The Property Data Solutions group is Australian owned and encompasses everything in 'property', from individual property research for property professionals to custom property mapping applications for large corporate's and government departments. Property Data Solutions Pty Ltd is one of the fastest growing property information providers in Australia offering one of the widest ranges of property information on every one of the 10.2 million properties in the country.

www.propertydatasolutions.com.au

GADDS – *Geophysical Archive Data Delivery System*

This system provides magnetic, radiometric, gravity and digital elevation data from Australian National, State and Territory Government geophysical data archives.

<http://www.geoscience.gov.au/bin/mapserv36?map=/public/http/www/geoportal/gadds/gadds.map&mode=browse>

GeoNetwork – *Food and Agriculture Organization of the United Nations*

GeoNetwork's purpose is to improve access to and integrated use of spatial data and information, support decision making, promote multidisciplinary approaches to sustainable development, enhance understanding of the benefits of geographic information GeoNetwork opensource allows to easily share geographically referenced thematic information between different organizations.

www.fao.org/geonetwork

GEOSS – *Global Earth Observation System of Systems*

The Group on Earth Observations (or GEO) is coordinating international efforts to build a Global Earth Observation System of Systems (GEOSS). This emerging public infrastructure is interconnecting a diverse and growing array of instruments and systems for monitoring and forecasting changes in the global environment. This "system of systems" supports

policymakers, resource managers, science researchers and many other experts and decision-makers. GEO was launched in response to calls for action by the 2002 World Summit on Sustainable Development and by the G8 (Group of Eight) leading industrialized countries. These high-level meetings recognized that international collaboration is essential for exploiting the growing potential of Earth observations to support decision making in an increasingly complex and environmentally stressed world.

www.earthobservations.org

NBII Metadata Clearinghouse - National (USA) Biological Information Infrastructure

The NBII International Program participates in worldwide biological informatics activities that promote information sharing and infrastructure development across borders.

www.nbii.gov

[http://www.nbii.gov/portal/community/Communities/Geographic Perspectives/International Activities/](http://www.nbii.gov/portal/community/Communities/Geographic_Perspectives/International_Activities/)

DataBasin – Conservation Biology Institute USA (Creating incentives for people to share public GIS data)

Data Basin is an innovative web tool that connects users with conservation datasets, tools, and expertise. Individuals and organization can explore and download a vast library of conservation datasets, upload their own data, and produce customized maps and charts (coming soon) that can be easily shared.

<http://www.databasin.org/>

Workshop outputs and questionnaire responses

Qld Regional NRM Data and Knowledge Hub workshop Cairns 25 June 2009

Workshop Outputs and Questionnaire Responses

Objectives:

- Map the NRM data and knowledge landscape across Northern Queensland and identify areas of improvement and linkage; and
- Develop recommendations for future work in NRM data and knowledge brokering.

Time	Item	Detail
9:45am	Registration	Tea & Coffee
10:00am	Welcome	
SESSION ONE	Why are we here? What do we know?	
10:05am	Introduce NRM Data and Knowledge Hub project	Common language for the day Workshop process
10:25am	Introductions	Who is here today and why?

10:50am	Morning Tea	
11:15am	What do we know about NRM information in Northern Queensland?	Who knows it? Where does it live? What do we use it for? Why?
12:00noon	What are the issues surrounding accessing, sharing, and using NRM data, information and knowledge?	
12:45pm	LUNCH	
SESSION TWO	Develop recommendations for future work in NRM knowledge brokering across Northern Queensland	
1:30pm	What do users require from information discovery systems and processes?	What do you think the ideal situation would be like?
2:15pm	Review and discuss scoping study recommendations	Regional NRM Stakeholder Network/s Data Librarians/Knowledge Brokers
3:00pm	Afternoon tea	
3:15pm	Develop recommendations to inform State-wide Workshop 17 July	
4:45	Wrap-up	
5:00pm	Finish - refreshments	Venue cafe/veranda bar.

Workshop Output

SESSION ONE	Why are we here? What do we know?
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After brief revision of project background and objectives each delegate introduced themselves and gave a brief insight of their satisfactions and frustrations with the existing situation. These were noted and project officer has attempted to separate into three broad themes. An online questionnaire was utilised by some who were unable to attend the workshop. These responses are also included here (identified by *).

Greatest Satisfactions	Key
<i>LEADERSHIP, POLICY and FUNDING</i>	Lpf
<i>TECHNOLOGY, DATA STRUCTURE and LOCATION</i>	Tdsl
<i>OWNERSHIP, CULTURE, PEOPLE and NETWORKS</i>	Ocpn
There could be a people based solution, not a computer solution	Lpf
Developing products that are useful	Lpf
Generating new knowledge	Lpf
Greater regional collaboration through Regional Organisation of Councils	Lpf
Willingness to share	Lpf

Seeing groundswell of support to release and share data	Lpf
People are motivated to make it work	Lpf
There is a focus on solving the problems/issues	Lpf
Finding data	Tdsl
Finding new systems like data download sites	Tdsl
Finding data in DERM and providing it	Tdsl
Converting information into something useable/findable	Tdsl
Found ERIN reporting tool great in relation to <i>Environment Protection and Biodiversity Conservation Act</i>	Tdsl
Finding and disseminating data	Tdsl
Finding relevant sites with good information	Tdsl
Finding good datasets, especially searchable websites	Tdsl
When networks work	Ocpn
Individuals willing to share	Ocpn
Changes already happening in data and info sharing	Ocpn
Being able to help others to find data and solutions	Ocpn
Seeing a real change in peoples commitment	Ocpn
Finding a person who is willing to share data without forms and agreements	Ocpn
Developed a good personal network	Ocpn
Increasing awareness that there are different ways of looking at data	Ocpn
Enjoy networking as a way of getting data	Ocpn
Willingness to share/open up information channels	Ocpn
Being able to give data to people	Ocpn
Positive feedback from users	Ocpn
Cooperation and sharing culture	Ocpn
Supplying data	Ocpn

Frustrations	
Info that is lost is huge – due to funding streams to crc's etc ceasing	Lpf
Spatial people get tasked with solving all the info problems	Lpf
'Knowledge is power syndrome' – public info is public	Lpf
Needs to be fit for purpose	Lpf
Silos. Lack of corporate knowledge and lack of capacity to do this better	Lpf
Consistency of data used	Lpf
Lack of info relevant to NW Qld	Lpf
Lack of info relevant for use in Monitoring & Evaluation	Lpf
Don't have any info management professionals in the region	Lpf
Lack of time – amounts of info via email then having to disseminate this	Lpf
Good intentions to share but no resources/time to do this	Lpf
Commercialising of taxpayer funded information by Govt's affecting equity in access by land managers/owners	Lpf
Legalities which often prevent/hinder data sharing.*	Lpf

Search tool poor	Tdsl
Data management in organisations doing the same wrong things	Tdsl
Accessing data outside of LG an issue	Tdsl
Internally not knowing where data is	Tdsl
Time lost searching for data	Tdsl
Functionality of databases and sharing	Tdsl
Hidden data – don't know what's out there	Tdsl
Not knowing what data is available and not being able to access it	Tdsl
Spatial data not included	Tdsl
Language of the data – need to think about images etc	Tdsl
Knowing where to get data	Tdsl
Frustrated that people don't know where to go	Tdsl
Lack of consistency (around the language) of what we collect	Tdsl
Only in the rare event that the data I need is held by another organisation, and cannot be accessed immediately over the internet.*	Tdsl
Sorry - nothing specific, except to say that the Information Queensland Service seems to be a bit dysfunctional, and the GovInfo spatial data clearinghouse seems to accommodate a lot of out of date information.*	Tdsl
It's all over the place, I have several bookmarks to the things I need..... Most frustrating. Now that we have DERM, it will be even harder to find the right thing through the right "subagency" so it is really time to streamline. I usually start with ASDD search so that I am not limited by the navigation on a particular agency website.*	Tdsl
Intellectual property issues	Ocpn
People don't listen to what people are asking	Ocpn
Not knowing what others are doing	Ocpn
Keeping knowledge to self	Ocpn
People who want to build the perfect system then end with a duplication of effort	Ocpn
NRW/DERM seen as the enemy	Ocpn
Intellectual property a blockage - \$	Ocpn
People see traditional (indigenous) knowledge as not accessible when a lot is	Ocpn
Neglect of people on the ground/on country	Ocpn
- Need to know where the info lives	
- Need for a searchable data base	
Datasets not well known	Ocpn
When arriving not knowing who is who	Ocpn
Paying for data then finding out you didn't have to	Ocpn
Loss of knowledge when people leave	Ocpn
Staff don't completely understand or have knowledge of data that is produced/available from their own organisation. getting better but still has a long way to go.	Ocpn

What do we know about NRM information in Northern Queensland?

Northern pilot project officer, Reuben Sinclair gave a brief summary on how the project has progressed so far and identified a number of related initiatives that require some form of linkage with Datahub project. Workshop participants further identified initiatives for linkage and discussed the existing environment surrounding the cataloguing of data, information and knowledge relevant to NRM across Northern Queensland.

Northern Pilot findings so far
numerous sources; local/region, statewide, national and global
a number of initiatives relative to Northern Qld underway or proposed
many stakeholders at various stages of addressing both data and knowledge management
And not enough of it at desired scale, accuracy and affordability
No clear direction for information generators to which system/library is 'the one' to enter info on info.
Or as is the current situation, no clear understanding/confirmation that numerous existing or planned systems can or will to talk to each other.
Some good examples of non web delivery but not consistent across regions or sectors. Important for non tech practitioners.

What are the issues surrounding accessing, sharing, and using NRM data, information and knowledge?

Workshop participants were asked to provide advice on what they see as barriers/obstacles and drivers/opportunities. These were noted and stuck to the wall and then attempted to file into dominant themes for discussion.

LEADERSHIP, POLICY and FUNDING TECHNOLOGY, DATA STRUCTURE and LOCATION OWNERSHIP, CULTURE, PEOPLE and NETWORKS

LEADERSHIP, POLICY and FUNDING	
Cost	Barrier
Funders not wanting to fund things that are not onground/physical	Barrier
Accountability for creating/developing appropriate data/info	Barrier
Funding to address gaps	Barrier
Governance/corporate will to drive process	Barrier
No collaborative input into prioritisation	Barrier
National Focus for NRM	Driver
Accountability of distribution system to broader stakeholders	Driver
CfoC priorities and targets	Driver

Reporting	Driver
Policy funding directions	Driver
Availability of funding/tech support to enable relevant info to be generated and accessed	Driver
Demonstrate value from investment and change to the resource	Driver
Gap identification and prioritisation for better decision making	Driver
Public expectation that for \$160m spent on NRM activities that we should have decent NRM info	Driver
Structural change of organisations	Driver
New drivers like 'climate change'	Driver
Saving money, lack of funding drives need to work smarter	Driver
Economy of scale, opportunities to share info capture costs	Driver
Needs based planning – people demanding info	Driver
TECHNOLOGY, DATA STRUCTURE & LOCATION	
Ever changing technology leads to redundancy	Barrier
Software version problems (and file types) – incompatibility	Barrier
Knowledge silos	Barrier
Qld privacy legislation	Barrier
Confidentiality at small data level	Barrier
Funding to address gaps	Barrier
No collaborative input into prioritisation	Barrier
Time to identify relevance of data sets	Barrier
Authorisation levels prohibiting access	Barrier
Lack of culture that fosters appropriate storage, archiving and dissemination	Barrier
Difficulty coming up with appropriate metadatasets (due to changing Govt priorities)	Barrier
Bias towards biophysical info, harder to access socio-economic and cultural data	Barrier
Continual changes to locations of info on web	Barrier
Loss of program memory and mechanisms for capturing verbal knowledge	Barrier
Lack of appropriate frameworks/systems for internally managing datasets	Barrier
Consistency of data/captured to different standards	Barrier
Government secret stuff	Barrier
Lack of URL permanency	Barrier

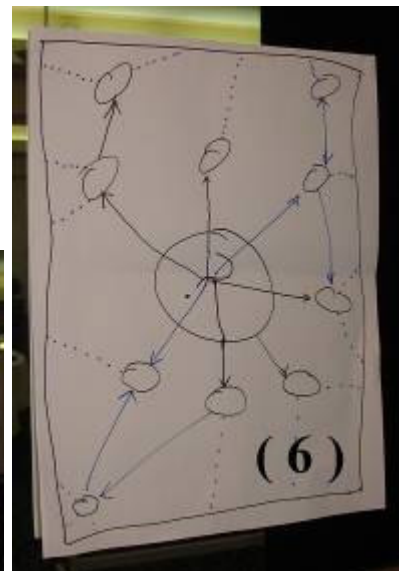
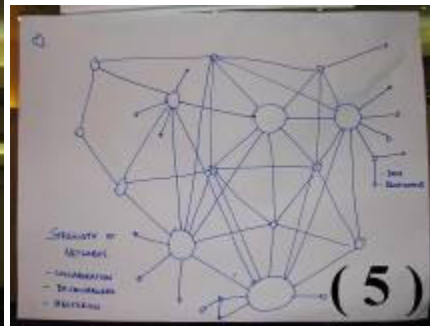
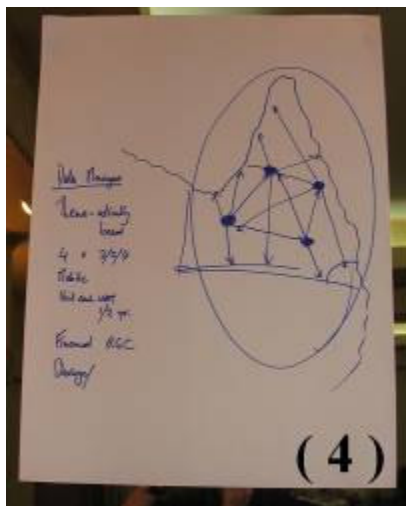
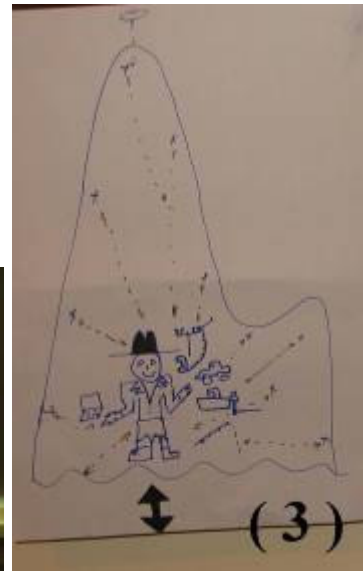
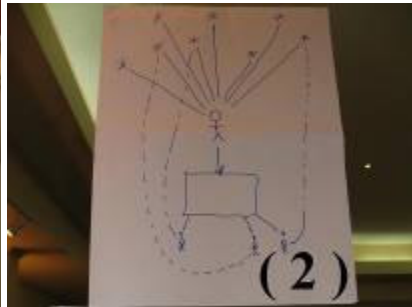
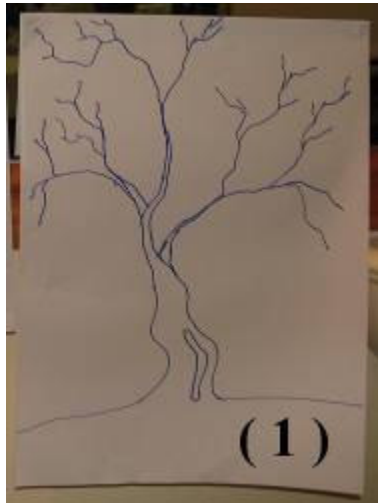
Data must feed quadruple bottom line – land use decisions by land holders – therefore ‘language of data’ is important	Driver
Geo – referenced visual data is relevant	Driver
Suitability of communication of info – appropriate language/formats	Driver
Needs based planning	Driver
Right to information (legislative)	Driver
Collective approach for user and supplier interface	Driver
Data download service	Driver
Friendly systems to all users	Driver
OWNERSHIP, CULTURE, PEOPLE and NETWORKS	
Perceived need - political	Barrier
Lack of allocated time to develop and implement at once	Barrier
Confidentiality at small data level	Barrier
Ownership – who paid	Barrier
IP restrictions	Barrier
Lack of IM pros in region dedicated to facilitate access to agency info	Barrier
Lack of framework/system for internally managing info	Barrier
No one taking ownership over the problem	Barrier
Project based activities have data and information in stovepipes with no interconnectivity or linkages	Barrier
Time to do management of data, info and knowledge	Barrier
Agencies not aware of own data	Barrier
Indigenous land management facilitators are pretty thin on the ground	Barrier
Understanding the role of knowledge and where and why should be used is generally lacking	Barrier
Capacity varies region to region – systems, funding, people, technology	Barrier
Funding for data librarian, software upgrades, people knowledge capacity, training, social capacity	Barrier
Partnerships with a variety of organisations	Driver
Data share agreements developed over regions at a higher level of management	Driver
Local communities requesting assistance in making decisions about future land use	Driver

Champions driving the process across sectors	Driver
Everyone is a contributor, not just librarian	Driver
Political/policy drivers	Driver
Research organisation networks determining research priorities for region in consultation with end users	Driver
Maslow's hierarchy of needs prevails – must be healthy and “happy” to do NRM	Driver

SESSION TWO	Develop recommendations for future work in NRM knowledge brokering across Northern Queensland
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Workshop participants, in small groups, were asked to draw a picture of what they would consider the ideal situation. Each of these was presented and explained to the meeting with keywords recorded.

Ideal Situation Key Words		
Centralised	Thematically based	Scale
Broker	Knowledge brokers	Living dynamic
Stakeholder	Mobile/roving	Indigenous
Land Managers	NRM groups	Mentors
Decentralised	System	Access training info
Connections between people	RGC leadership	Communicate with Govt
Relationships – value	Funding	Talk to right people
Custodians	Face to Face	Relationship – trust
Librarians	Continual improvement	Filtering both ways
Everyday users	Two way info flow	Info back to providers
Storage system	Whole process	Laptop, phone, 4WD, boat
Feeding into	Part of a system	Leader
By-passing	Organic nature; cultural, data, structure	Metamorphosis



Delegates were asked to provide; One 'thing' that would make a difference to their involvement in accessing, sharing and using NRM information, knowledge and data. An online questionnaire was utilised by some who were unable to attend the workshop. These responses are also included here.

One 'thing' that would make a difference
Increased awareness that NRM info sharing is an issue of importance
Ability to integrate/aggregate data
Synopsis of data pieces to assist in deciding relevance
Permanent URLs
Web Server- data available, who the custodian is, downloadable

A fast and efficient web and image server
Datasets are on Google
More reliable broadband in remote areas
One stop shop
Key, accessible central contact for identifying and obtaining information i.e. outsourcing of process to permit, metadata and store data/knowledge
Implementation of an appropriate, manageable and enforced structure which encourages the valuing of existing and old datasets within and across all organisations. Hence appropriate mechanisms for; data description (metadata), storage/archiving, metadata searchability, dissemination processes and simplified IP/access
Appropriate amount of funding to specifically document what information and knowledge already exists
Knowing I know everything that exists
Efficient access to a repository of current data and information
Data needs to conform with the research agenda, which in turn needs to service users and be strategic.
A person or people that can assist with finding information ie can do a search on request and perhaps conduct some type of review of sources and develop a synopsis, rather than starting a new depository for information. These people can add to and support existing things such as landmanager.
I am so used to the existing systems that they are not a barrier. I figure a google search interface with a map based return would be nice though. SDE architecture is so outmoded, is slow and picky about your web browser. How easy to just add a .kml file to the metadata record that brings up the dataset outline so you can confirm extent, coarseness of the data and location. ASDD isn't too bad, but it looks and feels old and clunky now.*
Where is AANRO at? From what I heard this was going to be very helpful*
These need to be maintained as links are often broken.*
In general: immediate access to data, and more intuitive and comprehensive linking between related data sets so you can have confidence that you have the most recent / most applicable data source for a given problem.*

The delegates worked in small groups to develop recommendations to guide further work in accessing, sharing and using NRM information, knowledge and data.

LEADERSHIP, POLICY and FUNDING could be considered as the enabler for the other two themes of TECHNOLOGY, DATA STRUCTURE & LOCATION and OWNERSHIP, CULTURE, PEOPLE and NETWORKS.

TECHNOLOGY, DATA STRUCTURE & LOCATION
Recommendation 1. Requirements in reporting and funding to record metadata in a central repository.

1. How? Projects delivered through CFOC to include reporting requirements; write into Govt policy, table in enQuire, 'librarian' to identify other data sources and translate metadata.
Recommendation 2. Advertising of intended projects to assist collaboration.
2. How? Through networks, enQuire and other systems – Developing knowledge base – better search engine in enQuire.
Recommendation 3. Database websites to be Google searchable.
3. How? Need for champion e.g. IQ – need to identify databases and work with database custodians.
Recommendation 4. Data download service.
4. How? Easy access to search and download; eliminate middle person
Recommendation 5. Data blockages unblocked – system of validating confidentiality and access levels.
5. How? Ultimate situation = similar standard of access across agencies. Use network.
Recommendation 6. System of permanent URL's for Govt agencies + archived if removed from web.
6. How? Technology and training of web developers. Increase awareness of issue.
Recommendation 7. Using generic formats in systems rather than customised.
7. How? National standards, protocols and classifications promoted and used.
OWNERSHIP, CULTURE, PEOPLE and NETWORKS.
Main Issues - Ownership
1. Restricted access - IP and limited use
Ideal Situation: Data searchable even if access restricted
2. Restricted access - compliance
Ideal Situation: Capacity to negotiate what is possible/available.
3. Restricted access - Cost
Ideal Situation: Free if data is Govt funded
4. Lack of coordination for aggregate data
Ideal Situation: Peak body coordination
Ownership Recommendations
1. All Government funded data is free and freely useable
2. A consistent structure for data collection
3. Peak body for coordination of aggregate data
4. Explore existing structures/institutions to fulfill the role of the peak body.
5. 'Data broker' feeds in to peak body
6. 'Data mentor' is the contact who keeps up with and advises on standards
7. Communication plan; to create a cultural change to recognise information and knowledge is core business – to win the hearts and minds of all...
Main barriers - Networks
1. Time
2. Culture
3. Capacity

Driving forces – Networks
1. Culture – sharing and responsibility/leaders/mentors across sectors
2. Collective – data sharing agreements, promotion
3. Community demand - fitness of knowledge/data
Network Recommendations
State – wide project steering team with subordinate working groups for knowledge management.
Working groups based on existing NRM working groups (communities of practice?)
<ul style="list-style-type: none"> - Monitoring and evaluation - Spatial data - Communications – publications/journals - Governance and policy - Technology

Online questionnaire responses

We are asking people who work in or who are involved with the natural resource management (NRM) business how they go about finding information they need to help do their jobs or business and how they think information discovery and sharing could be improved. Your answers will help identify where further work on the flow of NRM information is needed.

Please identify which of the below Northern Queensland NRM Regions that your work relates to

Responses received from

TS x 1

NG x 3

SG x 3

FNQ x 7

NQ x 2

All x 2

What types of NRM info have you recently looked for?

GIS data or remote sensing-satellite or aerial orthophotos,	7
maps or spatial analysis report	6
Statistical data, social, economic, health, environmental	6
Research information; programs, reports/output	4

Policies, planning strategies, legislation, corporate	3
Information products like books, factsheets or websites/tools	4
Other	indigenous engagement projects

Which of the below activities was the information required for?

Onground activity; production, conservation, social/community, rehabilitation	4
Research/Analysis/Modelling	5
Planning; policy, development, construction, strategy etc	6
Education/Training	2
Administration/Reporting	3
Other	The above (admin) with a focus on local governance

How did you intend to use this information in your activity?

To create maps for property planning and for scoping study.
producing an investment prioritisation tool and Indigenous engagement typology
In a wide variety of ways, by a variety of users, across the organisation
to help answer research questions, in modelling and for map outputs
Compile several sources of data, regress them against each other and our own datasets to identify relationships and trends, use the results to inform models, and use the original data as map backgrounds to present model results.
Base data for research and modelling

Where did you first go looking for that information?

Ask someone within your workplace	2
User group/network – i.e industry/interest email group, user forum, workshop, conference	1
Call a friend or someone you know who you think may know where it is what you're looking for	2

Internet – search engine, industry website, online library	4
Intranet – search internal computer database/system	1

Did you find the information?

All except one respondent made several or many attempts finding the info they were looking for.

Once found how did you access the information?

It was stored within my organisation	4
download/or view via internet	2
It was mailed to me	4
The advice I sought was provided over the phone, via email or at a meeting	1
I physically went to the library/info kiosk/or customer service centre	2
OTHER	information sourced was not able to be found. either not kept or nobody knew where it was or what it was.

Was it easy to access the info after you found it?

YES	6
NO	3

Was it what you wanted when you got it?

YES	2
NO	1
SORT OF	6
Most datasets are very good, but some, like the basic cadastre, lack elements we would like to have such as Land Tenure. There is no privacy consideration in releasing tenure, but it is removed and we have lot / plan only. This means I sometimes have to get the cadastre from another source to suit my purpose.	
Generally, yes it was. In the instances it was not, this reflected the absence of information available at a suitable scale.	
The data was in hard copy format and needed to be converted into digital format.	

Based on the above description do you think a Regional NRM Data Librarian/Knowledge Broker could help you in your work?

YES	6
NO	-
Maybe	3
How do you think this service would help you?	
A single point of truth, with a facilitator who is outside the GIS priesthood and understands metadata as a bibliographic record would be a breath of fresh air.	
A service of providing knowledge of data available and access to this data would be useful.	
keeping the information and data organised	
it will only work if all organisations are open to sharing. Old data may never be available because it's been lost/misplaced etc.	
As a data custodian myself, it might be useful to have a data broker to field inquiries for information, who provides a consistent resource for assessment of data availability. Additionally, a broker of this type would relieve us of the burden of fielding inane requests that frequently consume resources without making a meaningful contribution to the organisation. Finally, the availability of such a data broker might allow more fruitful searches to be conducted to locate information relevant to our internal operations. The cost of such a data brokering service would probably have an impact on the likelihood of our organisation actively engaging with it.	
Help in providing listing of specific available datasets, their location and other metadata relating to the datasets. If such a resource existed which was comprehensive and continually updated, it would save a lot of time for many in our organisation (CSIRO), both technical/GIS staff and scientists.	
Providing certainty that I have the latest and most appropriate data set for a given question.	

Are there any particular improvements you would like to see in existing onlinesearch systems or other types of discovery tools and services?

(name system/tool/service and describe what could be improved or is missing)

I am so used to the existing systems that they are not a barrier. I figure a google search interface with a map based return would be nice though. SDE architecture is so outmoded, is slow and picky about your web browser. How easy to just add a .kml file to the metadata record that brings up the dataset outline so you can confirm extent, coarseness of the data and location. ASDD isn't too bad, but it looks and feels old and clunky now.
Where is AANRO at? From what I heard this was going to be very helpful
These need to be maintained as links are often broken.
Sorry - nothing specific, except to say that the Information Queensland Service seems to be a bit dysfunctional, and the GovInfo spatial data clearinghouse seems to accommodate a lot of out of date information.
In general: immediate access to data, and more intuitive and comprehensive linking between related data sets so you can have confidence that you have the most recent / most applicable

data source for a given problem.

Do you have any particular issues or concerns about the existing NRM information sharing environment in Queensland and Australia?

It's all over the place, I have several bookmarks to the things I need. There isn't a good index with actually shows and names the 50k and 25k mapsheets, they are all visually referenced to the 100k sheet. Most frustrating. Now that we have DERM, it will be even harder to find the right thing through the right "subagency" so it is really time to streamline.
I usually start with ASDD search so that I am not limited by the navigation on a particular agency website.
biased towards biophysical, social and cultural data much harder to access
getting better but still has a long way to go. Staff don't completely understand or have knowledge of data that is produced/available from their own organisation.
Legalities which often prevent/hinder data sharing.
Sorry - nothing specific, except to say that the Information Queensland Service seems to be a bit dysfunctional, and the GovInfo spatial data clearinghouse seems to accommodate a lot of out of date information.
Only in the rare event that the data I need is held by another organisation, and cannot be accessed immediately over the internet.

Apart from this survey are you involved in any projects or part of a network which aim to improve the flow of information that relate to your day to day work?

RGC spatial information project has provided access to many useful datasets.
lots of various networks
Fungis! CSIRO internal GIS email listing
NO
Statistical Liaison Officers network - Tablelands - contact Liesl Harrold, OESR Far North Qld GIS Users Group Inc - www.fungis.org Northern Queensland Wildfire Mitigation Project - http://wildfire.atgis.com.au Tablelands Regional Council address/lotplan search service - http://maps.trc.qld.gov.au
I am part of the team centralising spatial data at JCU. As cartographer I lead the spatial end of it. The IT part of the team was surprised when I suggested we needed a librarian. Having you go in the same direction is great, it shows that my recommendation is not so unusual.
I have been part of the Spatial Innovations Queensland working group, contributed to Queensland's Foundation Spatial Information Priorities Workshop, was part of a working group

to develop the ANZLIC metadata set, served with Standards Australia on the committee to develop ISO standard field for the new ANZLIC metadata.

All of these projects aim to improve knowledge of, and access to spatial data.