Environmental Research Plan for 
Natural Resource Management Organisations and 
Regional Development Australia Boards in Northern Australia

Crowley, G.M., Dale, A., Banks, R., Barclay, S., Birch, P., Buchan, A., Cocco, R., Crase, J., 
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Supplementary document to

Environmental Research Plan for
Natural Resource Management Organisations and
Regional Development Australia Boards in Northern Australia

NERP TE Hub Project CF14

Crowley, G.M., Dale A., Banks, R., Barclay, S., Birch, P., Buchan, A., Cocco, R., Crase, J., Crawford, S.,
Ikin, N., Johnson, S., Mackay, G., Maher, E., May, K., Miley, D., Mitchell, C., Moller, M., Morris, S.,
Musgrove, R., Peake, K., Pearson, D., Pentz, D., Schultner, G., Sinclair, I., Standley, P.-M.,
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This report is available for download from the NERP Tropical Ecosystems Hub website: [http://www.nerptropical.edu.au/research](http://www.nerptropical.edu.au/research)

July 2014
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Abbreviations Used In This Appendix

ABS  Australian Bureau of Statistics
ANZECC  Australian and New Zealand Environment and Conservation Council
AG  Australian Government
AWC  Australian Wildlife Conservancy
BMRG  Burnett Mary Regional Group
BP  Best Practice management options
CC  Climate Change
CDU  Charles Darwin University
CRC  Cooperative Research Centre
CSIRO  Commonwealth Scientific and Industrial Research Organisation
CYNRM  Cape York Natural Resource Management
CYP  Cape York Peninsula
DAFF  Australian Department of Agriculture, Fisheries and Forestry
DOE  Department of Environment
FBA  Fitzroy Basin Association
FNQ-ROC  Far North Queensland Regional Organisation of Councils
FTE  Full Time Equivalent
GBR  Great Barrier Reef
GBRMPA  Great Barrier Reef Marine Park Authority
GIS  Geographic Information Systems
GQAL  Good Quality Agricultural Land
GRDC  Grains Research and Development Corporation
HAL  Horticulture Australia Limited
JCU  James Cook University
LGAs  Local Government Associations
MLA  Meat and Livestock Australia
MoU  Memorandum of Understanding
NERP  National Environmental Research Program
NERP NA  National Environmental Research Program – Northern Australia Hub
NERP TE  National Environmental Research Program – Tropical Ecosystem Hub
NGOs  Non-government organisations
NGRMRG  Northern Gulf Resource Management Group
NP  National Park
NQ  North Queensland
NT  North Queensland Dry Tropics
NRM  Natural Resource Management
NT  Northern Territory
PWCNT  Parks and Wildlife Commission Northern Territory
QDAFF  Queensland Department of Agriculture, Fisheries & Forestry
QDNRM  Queensland Department of Natural Resources & Mines
QG  Queensland Government
RC  Reef Catchments
RD&E  Research, Development and Extension
RDA  Regional Development Australia
RDA MIW  Regional Development Australia Mackay-Isaac-Whitsunday
**Acknowledgements**

This project would not have been possible without the direct involvement of the Natural Resource Management (NRM) organisations and Regional Development Australia (RDA) boards. We thank them for their support.

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We thank Katrina Keith, The Cairns Institute (TCI), James Cook University for proof-reading this document and, along with Jennifer McHugh and Maxine Goulston, TCI, and for assisting with the necessary processes and procedures that enabled us to undertake this project.

Peter Thompson, Cape York Sustainable Futures, is acknowledged for use of the photograph of smoke on the cover and the photograph on p 46; and Sally Witherspoon for the photograph on p 56. All other photographs are the property of Gabriel Crowley.
Executive summary

This report provides supplementary information describing the preparation of “An environmental research plan for Natural Resource Management organisations and Regional Development Australia boards across northern Australia”. The plan was compiled in collaboration with 11 Natural Resource Management (NRM) groups and seven Regional Development Australia (RDA) boards from northern Western Australia, the Northern Territory and northern Queensland.

This document provides a detailed description of the steps undertaken in the plan’s preparation. It covers the rationale for developing the plan; the contributors to the plan and the nature of their input; and the methods used for collecting and synthesising this input.

The plan was prepared to inform the next round of environmental research funding under the National Environmental Science Program (NESP). It also aimed to provide a platform from which all groups can progress their long term research agenda beyond NESP investment.

All NRM groups and RDAs across northern Australia were provided with a questionnaire to provide a framework for input to the plan. It covered research priorities; program organisation and design; stakeholder engagement; and the role of NRM groups and RDAs. Responses varied between organisations, with combinations of emails, face-to-face meetings and phone conversations. A draft document was prepared summarising this input, and identifying 12 initial research themes. These were refined and consolidated through feedback on the draft document and a workshop held in Cairns in June 2014, at which the research plan was finalised.

The research plan identified 48 potential projects to address 39 priority research needs organised under five research themes

1. Governance, policy and influence
2. Sustainable livelihood and agricultural options
3. Water resource planning and water quality improvement
4. Landscape planning for land use and management
5. Biodiversity and wetlands management

The plan also described the governance arrangements required to ensure research programs meet these knowledge needs.
Introduction

As part of the NERP TE Contestable Funds Project CF14 Ongoing integration of NERP TE science into regional planning, Natural Resource Management (NRM) groups and Regional Development Australia (RDA) boards were invited to participate in the preparation of an environmental research program for northern Australia. This plan aimed to meet their knowledge needs for planning, decision making and on-ground management to improve environmental conditions and livelihoods across northern Australia. This appendix reports on the processes used to obtain the initial responses; compile responses into a consultation paper, which was circulated among participants for feedback; and finalise the research plan through a workshop and further feedback.

Methodology

This project involved direct communication with 11 NRM groups and seven RDAs from across northern Australia (Table 1) to determine their research priorities and their views on the governance processes required to address them. To guide discussions with these groups, a structured response framework was compiled designed as a survey form and covering research priorities and program delivery (Figure 1).

Responses from groups were obtained through the following processes:

- An initial email request for participation, explaining context, and providing a response framework
- Meetings held with NRM and RDA organisations individually or collectively
- Follow-up discussions and email correspondence

All groups provided responses, which are presented in full in this appendix, and then synthesised to draw out key points and commonalities. An interim report was prepared summarising the responses from NRM groups and RDAs, which was circulated to all participating organisations and individuals. This report included a description of the aims and methods; the responses as raw data; and the response synthesis, including profiles of twelve research themes. Feedback from the groups was incorporated into the synthesis as presented in this appendix. This was followed with a workshop where the plan structure was finalised and populated. A copy of this draft plan was then circulated among contributors and feedback incorporated before finalising the plan as presented in this report.
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<th>Name</th>
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<td>Shaun Barclay</td>
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Future environmental research for northern NRM and RDAs

Purpose of Questionnaire

This questionnaire provides a framework for capturing the environmental research priorities of Natural Resource Management and Regional Development groups in northern Australia.

Please use the questions to guide in-house conversations on this topic. Allan Dale and I will also be using this questionnaire as a guide for our discussions with NRM groups and RDAs. We will then invite you to a workshop to produce a report on northern NRM/RDA research priorities.

The framework covers the design of National Environmental Research Programs, including:
- Research priorities
- Program organisation and design
- Stakeholder engagement
- Role of NRM/RDA groups

Please let me know if there are other areas you wish to cover, by contacting me at any time at gabriel.crowley@icu.edu.au

1. If you wish to submit your responses using this form, please complete these contact details:

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<td>Contact person or email</td>
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Figure 1: Copy of questionnaire used to structure input into research plan
Environmental Research Priorities for Northern Australia

2. What are your priorities for research to improve the program delivery of your organisation?

3. The following list attempts to provide a spectrum for prioritising environmental research investment across a spectrum from pure to more applied research. Please use this to indicate the emphasis you think should be placed on research investment.

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<th>Low</th>
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<tr>
<td>Understanding environmental function and threats</td>
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<td>Cultural knowledge, values and livelihoods</td>
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<td>Identifying sustainable livelihood options</td>
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<td>Identifying sustainable industry practices</td>
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<td>Identifying other environmental management and rehabilitation options</td>
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<td>Influencing practice change and adoption</td>
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<td>Understanding socio-ecological networks and building resilience</td>
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<td>Improving program governance, engagement and delivery</td>
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Notes and additional comments:

*Figure 2 (continued):* Copy of questionnaire used to structure input into research plan
4. Please list three to five research areas that you think should be progressed over the next five years

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5. What factors do you think should be considered in deciding how research funding should be spent?

---

**Engagement and integration**

6. Please provide any comments you have on how future research programs should engage and communicate with stakeholders

---

7. What role(s) would you like your organisation to have in a National Environmental Research program to address NRM/RDA needs?

---

**Figure 2 (continued):** Copy of questionnaire used to structure input into research plan
8. Please provide comment on the processes that you think would most improve the integration of research findings into your business

9. If research is to be organized around cluster groups, what other stakeholder groups would be good to include in your cluster? This can include NRM groups, RDAs, Indigenous groups, or other groups

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Notes:

Is there anything we have missed?

Figure 2 (continued): Copy of questionnaire used to structure input into research plan
Responses

Environmental research priorities for northern Australia

Q2. What are your priorities for research to improve the program delivery of your organisation?

Torres Strait Regional Authority

See Q4

Cape York NRM

Overview

- Scoping out priority ecosystem services opportunities identified in a recent CYP study
- Identification of alternative sustainable industries to improve resilience, focusing on innovative solutions to seemingly intractable problems (e.g. instead of continually battling weeds as a threat, find a production use for them)
- Prioritisation of wetlands for conservation and protection from sea-level rise in terms of connectivity, carbon abatement opportunities etc.
- Traditional knowledge and fire management
- Wetlands role in soil carbon storage and abatement opportunities from reducing feral pig damage
- Springs
- Emergent weed threats, especially relative to new arrivals (e.g. through hay and climate change impacts on current sleeper weeds). Also, strategies to minimise weed arrival and spread (e.g. growing own hay)
- Sensible clearance strategies that take soil types, rarity and other environmental values and issues into account. Also, what are the alternatives to clearance?
- Quolls

Desired improvements and knowledge outcomes from Regional Investment Strategy

General

- Research that enhances capacity of Indigenous communities and land managers to conserve and protect natural resources

Fire

- Develop capacities to aggregate carbon trading
- Adapt savanna burning methodology linked to climate, Indigenous Knowledge and specific ecosystem burning needs
- Identify and build case studies of tangible benefits of fire management across different land uses

Water

- Systematic understanding of water resources/ecosystems and their sustainable use
- Improved western and Indigenous knowledge and management of aquatic ecosystems
- Landholders implement property management plans that consider impacts on water resources and incorporate innovative ideas
- Improved monitoring and planning for water resources, including groundwater
- Improved mapping and protection of threatened ecological communities
- Increased understanding of Cape York aquatic resources, how they are management and international best practice
- Improved understanding of issues, opportunities and environmental impacts, including water capture methods
- Collaborate with others for funding to research, monitor and record climate change impacts and sea levels and subsequent impacts on species and ecosystems
- Investigating and supporting the development of alternative economies which support sustainable use of water in a changing climate
Monitoring and analysis of aquatic areas (fresh and salt for threatened species and ecosystems, including turtles, ghost nets, riparian habitats, wetland, birds, aquatic flora and fauna
Identify needs and opportunities for workshops and skills development for rangers and agencies implementing NRM on Country, particularly for fresh and salt water turtles and wetlands
Support research which respond to issues of significance, knowledge gaps, emerging issues, and opportunities, such as mapping of springs, cultural and biological diversity of wetlands, blue carbon, water capture

Soil
Far-reaching understanding of the fragility of Cape York soils and how to implement best practices that protect natural systems, while maintaining livelihoods
Greater understanding of landholders, businesses, industries, visitors and residents of Cape York of the fragility of CYP soils, and how to care for soils while sustaining livelihoods
Support research and projects that improve overall knowledge of soil quality and reduce erosion and flood plumes
Support innovation and development of alternative economies such as soil carbon, minimum tillage and composting

Livelihoods
A carbon economy is understood, explored and developed where appropriate including blue carbon
Improve opportunities for communities to participate in the carbon economy
Sustainable livelihoods are developed across Cape York which allow for local aspirations, skill development, environmental sustainability, career paths and personal and community wealth which enable people to stay in Cape York
Develop environmental offsets from industrial development based around Indigenous stewardship
Sector roundtables on livelihoods

Integrated Pest Management
Support research innovation in integrated pest management including new control methods, and potential alternative livelihoods through ecosystem products (e.g. pharmaceutical uses of weeds)

Country and Biodiversity
Improved biodiversity monitoring and country planning
Improved mapping and protection of threatened ecological communities
Increased understanding of Cape York biodiversity and improved management effectiveness

**Southern Gulf Catchments**
- Climate variability
- Control of woody weeds (e.g. prickle bushes)
- Water allocation, availability and storage
  - Off river storage
  - Impacts on pests and weeds
  - Longer term impact on community

**Northern Gulf Resource Management Group**
Region wide
- What are the condition and trends of the natural resources and community of the Northern Gulf NRM Region?
- Effective baseline monitoring, especially in the ‘refugia’ habitats
- Develop water quality standards consistent with the natural habitats of the gulf (ANZECC are not)
- How do we prioritise natural resources for management, considering thresholds and greatest potential impact?
- What drives people’s decision making in natural resource management, including an understanding of socio-ecological networks? How do we measure and understand social trends?
- What does an adaptive planning and management look like and how does it work?
- What are the economic values of the regional landscapes and natural resources – economic valuation of ecosystem services, and how do we measure trade-offs?
• Local Science Capacity – working with NGRMG to define research questions and approach research together

**Water**
• What is the best mix of management practices to achieve agreed water quality improvements (pesticide, sediment and nutrients) that can be undertaken by individual land use sectors (e.g. parks as well as agriculture)?
• Flood risk mapping (sea-level rise and periodic inundation)
• Cause and management options to mitigate hillslope erosion in the headwaters of the Gilbert River Catchment and gully erosion in the Mitchell River Catchment?
• What are the source, distribution and hazard of heavy metals in the Mitchell River catchment?
• What are the natural chemical signatures of the riparian geochemical terrains (to benchmark natural metal and sediment characteristics so that anomalies can be detected and mitigated)?
• Standards developed for Gulf of Carpentaria rivers for future monitoring of these valuable assets that are under increasing national demand to inform future development and management
• Better understand McBride basalt ground water reserves, including the likely impact of extraction on springs

**Climate change**
• What species and habitat are most vulnerable to climate change?
• What are the implications for current farming systems under low, medium and high impact climate change scenarios for the Gulf savannah?
• How do we improve climate forecasting in regard to variability, and how do we encourage its use?
• Measuring soil carbon for sequestration for both intensive agriculture (cane and horticulture) and extensive beef grazing
• What are the adaptation strategies for more extreme weather events (i.e. cyclones, flooding) as a result of climate change?

**Biodiversity**
• What are the current and emerging threats to biodiversity?
• How to manage native pest species
• Identify the most critical habitats for landscape and species conservation given the impending development of our region into the future
• What are the main drivers and management interventions required/possible to improve management of biodiversity?
• How do we design and implement management responses?
• Develop practical models for joint management of areas of high biodiversity value (how to get an economic and management model that improves biodiversity)
• What are the ecosystem services provided by habitat in the region and where are they in the landscape?
• What is the impact of introduced grass species on native species’ distribution and densities?
• What is the best design for functional landscapes?
• The limits of distribution of the ‘isolated’ population of greater gliders in Blackbras NP
• Ecological research on the grunter (Pomadasys kaakan) in the Gulf of Carpentaria
• What are the appropriate systems and technologies to monitor (and eradicate if required) Tilapia in Gulf of Carpentaria rivers?
• What are the impacts on fish movement and breeding created by artificial barriers?
Agriculture / Industry / Land
- What are the opportunities for diversification within the agricultural sector that will also protect GQAL?
- How do we develop agricultural resilience in a functional landscape?
- How do we ensure security of food production to address the demands of the region and export markets?
- Developing tools to measure and provide ‘standards’ on the nutrition of fresh produce (e.g. impact of practices and food miles etc. on nutrition)?
- What are the most appropriate alternative/non-industrial farming systems for the region?
- What are appropriate and emerging crops and cropping systems for the Mareeba-Dimbulah Water Supply Area and the proposed Gilbert River Irrigation scheme?
- What practices and technologies can be implemented to maintain or improve land condition in the rangelands?
- Develop sub-catchment to regional scale prioritisation tools to manage pest plants
- Develop a grazing code of practice to detail preferred technology and practice for grazing landscapes in the Northern Gulf region and encourage uptake
- Develop a small miners code of practice to detail preferred technology and mining and rehabilitation best practices for landscapes in the Northern Gulf region (specifically along the Palmer River) to ensure minimal impact

Socio-Economic
- What are the likely impacts of forecast demographic change on natural resource management systems in the region?
- How do you maintain youth in rural and regional landscapes?
- What is the potential of co-governance and collaborative models for engaging Indigenous values and world views?
- How do you reach and engage with peri-urban and small landholders
- Who is the NRM community and are we effectively engaging?
- Better defined disaster threats – primarily floods, cyclones and storm surge (Karumba/ Burketown)
- Identify if true income can be generated from a ‘conservation economy’ (e.g. tourism potential, potential to harvest and raise native parrot/ cockatoo chicks for international trade, native grass seed collection)
- Does secondary school boarding improve education standards that in turn give these children a better start in life?
- Should migrants spend time in remote/ regional areas to help remote/ regional economies

Governance
- How do you influence policy makers?
- How effective or perverse is environmental law in remote areas?

**Terrain NRM**

Region-wide
- What are the condition and trends of the natural resources and community of the Terrain NRM Region? What are useful indicators for assessing them given resourcing constraints?
- How do we most effectively prioritise management to improve the condition of communities and systems, considering thresholds and investment constraints?
- What drives people’s decision making in natural resource management and how do we most effectively influence policy and decision-making? How do we better understand social trends?

Water
- What is the best mix of management practices (best practices on pesticides, sediment and nutrients and landscape management) to achieve agreed water quality improvements?
- What land use and management options are there to move beyond current best practice to reach required water quality goals?
- Spatial prioritisation – where in the landscape are the major threats to water quality (e.g. where are the major sites of gully erosion in the Wet tropics region and what are the appropriate methodologies for their repair?)
• Traditional Owner values related to water and water resource uses – Where in the landscape? What defines value and what are the management implications (TOs to refine and develop protocols etc.)?

Climate change (currently being addressed by Stream 2 Climate Change program, but gaps may remain)
• What species and habitats are most vulnerable to climate change, and how do we target management action and investment?
• What are the implications for current farming systems under low, medium and high impact climate change scenarios for the Wet Tropics?
• What are the best sequestration/adaptation opportunities in the Wet Tropics (e.g. can we increase soil carbon for sequestration in tropical soils and is it worthwhile? Biochar?)?
• Where in the landscape should sequestration activities be done and what is the mix of benefits and trade-offs (i.e. biodiversity, carbon, economic etc.)?
• What is the best design for landscape connectivity in face of projected changes and how do we get there?

Biodiversity
• What are the current and emerging threats to biodiversity (species, habits, wetlands, connectivity, significant areas etc.)?
• What are the main drivers of change and management interventions required/possible to improve management of biodiversity?
• Research on most effective management responses (corridors; fire, weed control, grazing, revegetation)
• Science to support species recovery plans for threatened species and ecological communities and planning for potential future Matters of National Environmental Significance
• What are the ecosystem services provided by habitat in the region and where are they in the landscape?

Agriculture
• What are the opportunities for diversification within the agricultural sector?
• How do we ensure security of food production to address the demands of the region and export markets?
• What are the most appropriate alternative/non-industrial farming systems for the Wet Tropics?
• Where are the major sites of gully erosion in the Wet tropics region and what are the appropriate methodologies for their repair?
• What are appropriate tree crops and tree-cropping systems for the Wet Tropics?

Socio-economics
• What are the likely impacts of forecast demographic change on natural resource management systems in the region?
• How do we maintain youth in rural and regional landscapes? Succession planning for farms and community groups
• How do we most effectively reach and engage with peri-urban and small landholders
• Who is the NRM community and are we effectively engaging?

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**NQ Dry Tropics**

• How to better inform policy – design monitoring and assessment systems that can deal with poor data quality
• How to influence people’s perceptions in a way that changes their behaviour
• Assessment and management of significant wetlands, especially vulnerability to climate variability and sea-level rise
• Understanding of pressure and drivers – providing a descriptive profile and assessment of implications (e.g. mining, climate change)
• Understanding environmental function, as opposed to monitoring environmental demise
• How to better inform policy – design monitoring and assessment systems that can deal with poor data quality
**Reef Catchments**

- Reef Catchments’ main priority is focused on GBR catchment management. It therefore has prioritised actions that help in sustainable cross-sectoral catchment management planning. These response elaborates on responses to Q4
  1. GBR catchment management.
     - Prioritisation tools that assess the impacts on
       - GBR health
       - Social cohesiveness
       - Economic viability
     - Thresholds around the area of sugar production needs to maintain regional industry viability
     - Assessment of cumulative impacts/risks at scales relevant to on-ground decision making
     - What are the things that have impacts on the environment?
  2. Best practice adoption
     - How can the supply chain be encouraged to participate in the debate and what are the impediments to adoption?
     - What role can the market play?
     - Need assessment of economic ramifications of
       - No adoption
       - Early adoption
       - General adoption

**Fitzroy Basin Association**

1. GBR – information to inform decision making – prioritise investment of activities and areas based on cost/benefit analysis
   Fitzroy Basin is the largest GBR catchment. There is adequate information to assess and prioritise efforts to control hillslope erosion, but stream-bank erosion is emerging as a greater issue, and information is lacking to assess investments; namely
   - Quantify erosion from gullies and riparian areas at a landscape scale
   - Identification of at risk land type
   - Relative merit of management at each location/land type (Management options are known (e.g. fence off, changed practices), but not the return on investment)
   - Public-private benefit ratios. Fencing riparian areas has minimal benefits to landholder
2. Groundwater resources – assessment of resources and their vulnerabilities to extraction and climate change to inform sustainable use
   Need to know
   - Where are they located?
   - Where are the recharge areas?
   - Impacts of coal industry
   - Impacts of climate change
   - Implications for long-term sustainability of agricultural land use
3. Values of wetlands and floodplains and management responses to inform prioritisation of investment
   - Ecological values (biodiversity, fish passage) and resilience/thresholds
   - Water quality improvement and other ecosystems services
   - Metrics for assessment and prioritisation
4. Assessment of NRM effectiveness
   - Develop standardised methodology that can be used across time and regions to assess impact on adoption of improved management practices
     - Include short term assessment
       - What has been achieved within project timeframe?
     - and longer term assessment
       - How long were changes maintained?
       - Did they lead to wider adoption in the industry?
   - Feed back into prioritisation of investment decisions
**Burnett Mary Regional Group**

- Periodic assessment of the Great Sandy Strait seagrass extent and condition
- Strengthening our links in terms of upgrading data that is available for other GBR Reef regions and making it available to the Burnett Mary, so we can level the playing field a little more
- Putting a value on the ecosystem (ecological) service provided by the Baffle and Bustard Bay-Colosseum Inlet to the GBR and what the potential implications of mining/urban development of those areas will mean in terms of reduced ecological function of the GBR/fisheries/tourism etc.
- Mary River erosion study

**Territory NRM**

1. Identification of best practice (weeds, fire, ferals)
2. Scenario modelling
   - CC adaptation
   - Resilience
   - Building visual tools
3. Effectiveness of NRM work and capture costs of inaction
4. Valuing ecosystem service work
   - Economics
   - Consequences
   - Environmental accounts
5. Sustainable livelihoods – keeping people on country
6. Inform evidenced-based decision making and planning
7. Biodiversity – integrated approach to inform management responses

**Rangelands WA**

- Climate change impacts, severity of extreme events (storms, fire, rainfall, temperature, etc.)
- Cane toad migration southwards (Kimberley to Pilbara). Potential mitigation strategies/opportunities
- Processes affecting threatened and endangered species and communities

**RDA Far North Queensland and Torres Strait**

- Looking for opportunities to align NERP research with relevant elements of our Strategic Priority Packages, to inform the Regional Road Map and specific submissions. Key focus on how research interfaces and influences regional development policy. Strong cross cutting interest in planning and governance approaches. Supportive of measures to increase breadth and depth of engagement with stakeholders
- Regional indicators – State of the Region Report¹ (environment, social, cultural, economic)
- Energy – renewable energy – feed into NQ Energy Strategy²
- Water – water storage options (social and cultural criteria); assessment of decision making under the Water Act (social impact dimensions)
- Interested in relationship between NERP, and the proposed northern Agriculture/RIRDC CRC and any northern Australian CRC/research model from the northern Australian white paper
- Interested in resilience research (community, industry, environment)

**RDA Townsville and North West**

Four pillars of RDA TNW Roadmap are Water, Energy, Roads and Communications, as these are activities that affect all council areas in the region, but no one council has the resources to address. Research is required, or currently being undertaken to improve decisions made in these areas:

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¹ [http://alga.asn.au](http://alga.asn.au)
Water
- NQ Irrigation Strategy by CSIRO has recently reported on information needed to plan the expansion of irrigated agriculture in the Flinders-Gilbert\(^3\), but different regions have different issues
- Need information for planning to secure water supply and quality (especially for local government/Richmond)
- Assessment of sustainability of water use and impacts of water infrastructure
- Water quality at ports
- See priority 1 in Q4

Energy
- Townsville Enterprise strategic energy study\(^4\) – information on energy efficiency is currently funded
- 30 year energy plan

Roads
- Prioritisation of investment in regional road to be prioritised on the basis of safety, access and productivity

Communications
- Submissions made by RDA to government about telecommunications infrastructure (e.g. National Broadband Network)

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**RDA Mackay-Isaac-Whitsunday**

RDA Mackay-Isaac-Whitsunday’s responsibilities include inland-draining catchments (Isaacs). Has prioritised actions that help in sustainable cross-sectoral catchment management planning. These response elaborates on responses to Q4
- Best practice adoption
- How can the supply chain be encouraged to participate in the debate and what are the impediments to adoption?
- What role can the market play?
- Need assessment of economic ramifications of
  - No adoption
  - Early adoption
  - General adoption

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**RDA Fitzroy and Central West**

See Q4

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**RDA Northern Territory**

RDA’s main role relevant to environmental management is the identification of priorities in the region to pursue strategic development opportunities. Data are required for this prioritisation, but are unavailable or inadequate (poor scale and resolution, with most data for NT available at two regions – Darwin and elsewhere). So RDAs are developing their own indicators, metrics and baseline datasets. These include:
- Health
- Education
- Economic diversification
- Environment
- Capacity (labour and skills)

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The MyRegion website\(^5\) is attempting to provide a platform to capture and display these datasets, to enable comparisons to be made across regions and across time. But there is no ongoing commitment to this website, so another example of lack of continuity.

This lack of data has particular ramifications for efforts to improve Indigenous livelihoods.

**RDA Kimberley**

1. Water use planning
   - Help pastoralists harness water during wet season peak flow to increase production and recharge (e.g. shallow bunding) while improving erosion control and soil fertility
2. Fire management
   - We know how to burn, but we don’t know how to achieve management, especially in remote areas
3. Feral animals
   - Especially cats and cane toads
   - Mechanisms for on-ground activity
4. Threatened species – identification of threats and management responses
5. Sustainable industries that can provide export opportunities

**RDA Pilbara**

Highest priorities are:

- Water resource planning
- Policy development
- Alternative livelihoods and agriculture
- Minimising environmental footprints
- Adapting to climate variability and climate change

Of next level priorities are:

- Achieving best practice management on-ground
- Water quality improvement
- Biodiversity
- Wetlands

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Q3. The following list attempts to provide a spectrum for prioritising environmental research investment across a spectrum from pure to more applied research. Please use this to indicate the emphasis you think should be placed on research investment.

<table>
<thead>
<tr>
<th></th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
<th>Critical</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Understanding environmental function and threats</td>
<td>(FBA...)</td>
<td>.. FBA</td>
<td>CYNRM RDA FNQ&amp;T SGC</td>
<td>NGRM RDA FNQ&amp;T NT RDA MIW</td>
</tr>
<tr>
<td>B. Cultural knowledge, values and livelihoods</td>
<td>(FBA...)</td>
<td>.. FBA</td>
<td>Rangelands WA RDA MIW</td>
<td>CYNRM NGRM RDA FNQ&amp;T NT RDA MIW</td>
</tr>
<tr>
<td>C. Identifying sustainable livelihood options</td>
<td>FBA</td>
<td>RDA MIW</td>
<td>NGRM Territory NRM Rangelands WA RDA NT</td>
<td>CYNRM NGRM RDA FNQ&amp;T NT RDA MIW</td>
</tr>
<tr>
<td>D. Identifying sustainable industry practices</td>
<td>FBA</td>
<td>RDA MIW</td>
<td>CYNRM NGRM Rangelands WA RDA MIW</td>
<td>CYNRM NGRM RDA FNQ&amp;T NT RDA MIW</td>
</tr>
<tr>
<td>E. Identifying other environmental management and rehabilitation options</td>
<td>RDA FNQ&amp;T S</td>
<td>CYNRM Territory NRM Rangelands WA RDA NT</td>
<td>NGRM NGRM RDA FNQ&amp;T NT RDA MIW</td>
<td></td>
</tr>
<tr>
<td>F. Influencing practice change and adoption</td>
<td>RDA FNQ&amp;T S</td>
<td></td>
<td>CYNRM RDA FNQ&amp;T NT RDA MIW</td>
<td>CYNRM RDA FNQ&amp;T NT RDA MIW</td>
</tr>
<tr>
<td>G. Understanding socio-ecological networks and building resilience</td>
<td>Territory NRM RDA MIW</td>
<td>NQDT RDA NT RDA MIW</td>
<td>CYNRM RDA FNQ&amp;T NT RDA MIW</td>
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<tr>
<td>H. Improving program governance, engagement and delivery</td>
<td>Rangelands WA (FBA...)</td>
<td>Territory NRM RDA MIW</td>
<td>CYNRM RDA FNQ&amp;T NT RDA MIW</td>
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</tbody>
</table>

Notes

**Cape York NRM**
In reference to A (above): Specifically improving methodologies for assessing significant environmental areas (re: development approvals and offsets) (see Priority 1 in Question 4).
In reference to G (above): Specifically building resilience (see Priority 4 in Question 4).

**Northern Gulf Resource Management Group**
Economic valuation of ecosystem services should be considered Critical. Prioritising knowledge gaps that impact sustainable NRM (as opposed to continued research in traditional areas) should be considered Critical.
### Terrain NRM

In reference to F (above): More emphasis is needed on social science – what drives behaviours and decision-making, effective interventions etc. – similar to “practice change and adoption” above but broader. Rate this as Critical.

### Fitzroy Basin Association

Informing and prioritising NRM investment should be considered Critical.

### RDA Northern Territory

Notes and additional comments: These areas are prioritised based on perceived regional needs, not just those of RDA NT.
Q4. Please list three to five research areas that you think should be progressed over the next five years

**Torres Strait Regional Authority**

1. Baseline monitoring systems (key ecosystem features), biodiversity monitoring and reporting
2. Ecosystem services and their economic value to development of Torres Strait
3. Climate change adaptation and projected impacts
4. Climate change impact on target fish species – economic and social impacts
5. Identification of intrinsic and extrinsic barriers to the implementation of actions and strategies by communities as identified through research projects

**Cape York NRM**

1. Improving methodologies for assessing significant environmental areas (re: development approvals and offsets)
2. Prioritisation of wetlands for conservation and protection from sea-level rise on the basis of connectivity, carbon abatement opportunities etc.
3. Emergent weed threats, especially relative to new arrivals and strategies to minimise weed arrival and spread
4. Identification of alternative sustainable industries to improve resilience to climate change etc.
5. Systematic understanding of water resources/ecosystems and their sustainable use
6. Integrative fire management, incorporating Indigenous Knowledge, to obtain multiple benefits, including carbon abatement. (Very important to maintain momentum built on CYP)

**Southern Gulf Catchments**

1. Climate variability
2. Control of woody weeds (e.g. prickly bushes)
3. Water allocation, availability and storage

**Northern Gulf Resource Management Group**

1. Identifying environmental threats and values to form a baseline across northern Australia
2. Prioritising knowledge gaps that impact sustainable NRM (as opposed to continued research in traditional areas)
3. Economic valuation of ecosystem services

**Terrain NRM**

1. Climate change – vulnerability, adaptation, strategies, sequestration/abatement opportunities, trade-offs and implications (cost/benefit analysis)
2. Biodiversity (species, communities, wetlands, significant areas, connectivity) – Main drivers and threats, and management interventions
3. Agricultural futures – identify sustainable systems for future conditions – concentrating on diversification and innovation
4. Reef health – Landscape level approach across land use, ecosystem management and best practices
5. Governance and influence – How do you influence decision making. What are the best institutional arrangements?
6. How to measure and report condition and trend in community and natural resources and incorporate into appropriate management responses, given resource constraints
### NQ Dry Tropics

| 1 | Landscape function in dry tropics, disruptions to function and effective management responses |
| 2 | Carbon in tropical Australian landscapes and management responses |
| 3 | Wetland management – with a focus on the ecosystems of the aquatic-marine interface (mangroves, coasts, estuaries, floodplains) including identification of values, landscape interactions, threats and management responses |
| 4 | Sustainable livelihoods – beyond agriculture – alternatives that work in sympathy with the landscape |
| 5 | Intelligent management of protected areas that overcomes current difficulties (too difficult, too expensive) and may include multiple-use options |

### Reef Catchments

| 1 | GBR catchment management. Assessment of all land-uses and their impacts – with a stronger emphasis on sustainable development (people, planet, profit and trade-offs), cross-sectoral and with more uniform geographic spread of project activity |
| 1a | Assessment and management of impacts of development (e.g. coal mining and associated infrastructure) |
| 1b | Understanding of landscape function to inform management (e.g. connectivity) |
| 2 | Mechanisms for best practice adoption |
| 3 | Enhancing resource use efficiency to minimise environmental footprint (water, energy, land etc.) |

### Fitzroy Basin Association

| 1 | Inform investment in management of GBR catchments by improving knowledge of stream-bank and gully processes and costs and benefits of management responses |
| 2 | Improve knowledge of ground water resources and their sustainable use to prioritise management effort |
| 3 | Improve knowledge of the values and resilience of wetlands and floodplains to prioritise management effort |
| 4 | Standardised assessment of NRM Effectiveness |

### Burnett Mary Regional Group

| 1 | Periodic assessment of the GSS seagrass extent and condition |
| 2 | Extend data to assess impact of catchment management on GBR Reef to the Burnett Mary |
| 3 | Wetland ecosystem services and impacts of development (as relates to Baffle and Bustard Bay-Colosseum) |
| 4 | Mary river erosion study |

### Territory NRM

| 1 | Landscape design |
| 2 | CC adaptation – especially values, vulnerability and management responses for floodplain and coastal systems |
| 3 | NRM livelihoods |
| 4 | Scenario modelling – visual outputs |
| 5 | Cost-benefit analysis of management interventions, especially in relation to Gamba grass spread |
### Rangelands WA
1. Water – nutrients in Ramsar, fracking, agriculture/industry
2. Mitigating nutrient and sediment loads in waterways (Ramsar, major rivers)
3. Integrated catchment management (fire and invasive species)
4. Landscape and ecosystem function analysis
5. Sustainable models for Indigenous ranger programs to deliver environmental outcomes

### RDA Far North Queensland and Torres Strait
1. Water – future water storage, innovative water use and management (domestic, major projects), water quality, efficiency for industry
2. Energy – alternative energy sources (biofuels), regional energy supplies, remote/rural supply
3. Sustainable regional development frameworks – how to really deliver social, cultural, environmental and economic outcomes
4. Water – future water storage, innovative water use and management (domestic, major projects), water quality, efficiency for industry

### RDA Townsville and North West
1. Improve data needed for water planning across region
2. How to manage for best outcomes in coastal areas (sustainable development)
3. Employment opportunities for Indigenous people in remote and regional areas (environmental management, tourism, mining jobs)

### RDA Mackay-Isaac-Whitsunday
1. Understanding environmental factors
2. ID technologies and rehabilitation options to limit impact
3. Assessment and management of impacts of coal mining and associated infrastructure, including clean coal production
4. Mechanisms for best practice adoption
5. Enhancing resource use efficiency to minimise environmental footprint (water, energy, land etc.)

### RDA Fitzroy and Central West
1. Water resource planning
2. Water quality
3. Policy development
4. On-ground best practice
5. Minimising environmental footprint
6. Adapting to climate variability

### RDA Northern Territory
1. Ground and surface water research and modelling to underpin resource allocation in face of planned agricultural development
2. Critical analysis of governance and service delivery
   Programs delivery prevents long-term progress and maintenance of community commitment. Destructive aspects include the short-term funding arrangements, frequent priority-shifting and inappropriate performance measures. Great effort is put into projects that are not given the time to succeed. Need to identify systems that will deliver and real change and progress
3. Enabling technologies to improve capacity and minimise environmental footprints in
<table>
<thead>
<tr>
<th>4</th>
<th>Primary production-based alternative sustainable economic opportunities and sustainable management practices</th>
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</thead>
<tbody>
<tr>
<td>5</td>
<td>Integrated landscape planning – combining town-planning, industry guidelines, environmental assessment and management policies, conservation planning to provide an enduring strategic direction for northern development that has commitment from all stakeholders</td>
</tr>
</tbody>
</table>

Notes and additional comments: These areas are prioritised based on perceived regional needs, not just those of RDA NT

**RDA Kimberley**

<table>
<thead>
<tr>
<th>1</th>
<th>Water use planning</th>
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<tbody>
<tr>
<td>2</td>
<td>Achieving effective fire management</td>
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<tr>
<td>3</td>
<td>Identifying effective feral animal control mechanisms</td>
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<tr>
<td>4</td>
<td>Threatened species – identification of threats and management responses</td>
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<tr>
<td>5</td>
<td>Sustainable industries that can provide export opportunities</td>
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</tbody>
</table>

**RDA Pilbara**

<table>
<thead>
<tr>
<th>1</th>
<th>Water resource planning</th>
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<tr>
<td>2</td>
<td>Policy development</td>
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<td>3</td>
<td>Alternative livelihoods and agriculture</td>
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<tr>
<td>4</td>
<td>Minimising environmental footprints</td>
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<tr>
<td>5</td>
<td>Adapting to climate variability and climate change</td>
</tr>
</tbody>
</table>
Q5. What factors do you think should be considered in deciding how research funding should be spent?

**Torres Strait Regional Authority**

GBR, ecologically, in research design is treated as one system (i.e. include Torres Strait as part of the GBR)

**Northern Gulf Resource Management Group**

- Stakeholder (community and industry) and science input needs should be used to set the research priorities
- Researchers seeking funds need to prove public support for their research
- There needs to be identification of research gaps in terms of where little or no field research has occurred and then there needs to be incentives (by the Australian Government) to have researchers invest in riskier (unchartered) applied science
- There needs to be more investment in determining environmental threats and values to form a baseline across northern Australia to enable more research to be conducted in gaps/geographical holes like the Northern Gulf region

**Terrain NRM**

- Majority of research funding should go towards informing decisions about resource use and management at various scales but also recognising the need for blue-sky research (say up to ~20% of funding)
- Research should stand up to cost/benefit and gap analysis
- Need a mix of research delivering usable outputs in the short-term and longer term research for more in-depth understanding of complex problems or processes
- Funding priority to be given to research proposals that use co-research approaches described below
- Maintain continuity of effort where this is needed to address knowledge needs, rather than just keep researchers employed in same fields

**NQ Dry Tropics**

- The type of research focus and investment that has been dedicated to the Wet tropics and the GBR needs to be extended to the dry tropics, as this is where the greatest development pressures are
- The research should be management drive, and have applicable outcomes
- Reef research needs to be broadened to fill in the research gaps in aquatic-marine interface (mangroves, coasts, estuaries, floodplains)
- Prioritisation should not mean that research is excluded just because it was not made a priority. The message should be that we value and can use a variety of research far beyond the few themes that we identified here. Continuation of good work in some areas (Reef) or opening of entirely new areas not listed (human population dynamics) should not stop or be seen as highly beneficial just because they were not a top six priority.

**Reef Catchments**

- If current NERP hubs are refunded, there needs to be a rethink of the definition of “Tropical Ecosystems”, to include environments other than GBR, TS and WT. Also, research effort needs to have a more uniform geographic distribution through these environments, and not be focused between Townsville and Cairns. If this is not rectified, the NERP projects will be of limited use to Reef Catchments.
- Processes used to prioritise NERP investments should align to other prioritisation processes, e.g. QG prioritisation of Reef RD&E; AG (DOE/DAFF) Reef rescue prioritisation; QDAFF Sustainable Agriculture; QDNRM water security
- Universities should be treated as a subset of stakeholders, not the primary stakeholder driving NERP investment
- Program investment should be allocated to two sorts or research: blue-sky research (~10%) and research with tangible outcome deliverables that will directly address a management issue (~90%). The latter should be linked to a product (service/management practice/tool, e.g. modelling/decision-making software) that a stakeholder is willing to invest in/use. This means that the project to develop this product needs good engagement to ensure the product is fit-for-purpose.
- Need to have sound science, but also social context to ensure applicability and environmental impact – NRMIs are in a good position to help focus research in this regard

### Fitzroy Basin Association

Research hub should be set up around theme – not geographic area

Investment should be based on
- Alignment of programs and outcomes – e.g. should have consistency with the various sustainable agricultural strategies
- Program should have clear objectives, rather than be based on a defined geographic area
- Projects should be able to develop applicable findings – e.g. produce tools that can inform on-ground management
- Socio-economic research needs to be more practical – e.g. go beyond understanding motivations and barrier to what do we do about them?

### Territory NRM

- Alignment to NT Integrated Natural Resource Management Plan
- Relevance and applicability to on-ground activity
- Applicability across northern Australia and to a range of stakeholders
- Analysis of gaps – documenting what research is already done/going on
- Brings in outside researchers where identified expertise is needed
- Still maintain local capacity, but also build it with opportunities for new research areas or to host visiting researchers

### Rangelands WA

- Prioritisation of potential threats impacting natural landscapes (relatively intact ecosystems)
- Little knowledge available about state of the environment and threatened species at risk of extinction
- Linking research to environmental and production outcomes to ensure pastoral by-in to environmental initiatives
- Utilisation of existing projects and resources to minimise duplication

### RDA Far North Queensland and Torres Strait

- End-users’ needs (policy application and on-ground uptake)
- Where will the biggest impact be? What is the problem that we are looking to solve?
- How will it align with government(s) priorities?
- Need strategic investment to deliver regional scale outcomes – look at processes and systems
- Appreciate difficulty in balancing ongoing research effort (and capacity and knowledge); addressing emerging or anticipated issues; and filling gaps (Greenfield science-v-science synthesis). Suggest criteria and process around this
- Appreciate different academic culture regarding control of research projects and access to funding – educative process around mutually beneficial outcomes and directions
- Do need an appropriate level of accountability without overloading researching with bureaucracy and report writing. Suggest milestone payments could be worked into NERP system

### RDA Townsville and North West

- Do not duplicate effort, so build on existing networks and initiatives. RDA has a coordinating role that could be very useful to make sure duplication does not happen
Engagement and integration

Q6. Please provide any comments you have on how future research programs should engage and communicate with stakeholders

Torres Strait Regional Authority

1. Native title implications WILL affect approvals to community. Ensure either time is allowed for appropriate consultations as part of the Guidelines or in designing the guidelines; pre-proposal stage which is used to seek approval from native title holders
2. Financial support for a dedicated FTE – liaison officer to be housed within TSRA Land and Sea Management Unit or another organisation which is the conduit between community, researchers and end-users

Cape York NRM

From CYP Regional Investment Strategy

- Acceptance of a more diverse range of local, traditional and scientific knowledge systems
- A resilience thinking approach that achieves an acceptable balance between the integrated, complex and often competing socio-ecological systems
- Cultures of collaboration, adaptive learning, knowledge transfer, implemented management, learning by doing, and action research
- Right people speaking for and working on Country, and appropriate protocols for project operation when direct involvement of TOS is not possible
- Two-way communication and information sharing activities to provide new opportunities and relevant support
- Bring new ideas and innovations through Representation on behalf of CYP alternative economies “Think Tank”
- Support citizen science

Northern Gulf Resource Management Group

- Action learning
- “End-users” need to include community and industry stakeholders not just the Australian Government
- Stakeholder (community and industry) and science input needs should be used to set the research priorities
- The timeline for developing submissions needs to be extended and allow for broad consultation/engagement
• Better collaboration and cooperation would be formed and, with it better research results, if a percentage of research was conducted as residencies with groups based in regions where the research was being conducted
• Improved investment in citizen science

**Terrain NRM**

• Need a co-research approach wherever possible
  o Early partnerships to define research questions and develop action-research together with managers – will ensure that questions are as relevant as possible, maximise use of findings and facilitate learning together
• Important for Traditional Owners to be engaged from the start to respect traditional knowledge, to set up proper protocols for its collection, storage and use, and to ensure that traditional and local knowledge is not lost and is able to contribute to better management decisions

**NQ Dry Tropics**

• A longer funding cycle is required to allow real gains to be made and for stakeholders to see program as worthwhile
• Program must demonstrate user involvement in research, including
  o Design of management questions
  o User involvement as researchers
  o Review of progress
  o Communication and dissemination of research findings
• The program needs the right governance structure that includes stakeholder engagement
• Move away from individual stakeholders to partnerships with the organisations, so that engagement is values at both ends, and for stakeholder organisations to have serious commitment
• Programs should be linked to improving capacity and education
• Each project will need a different engagement process

**Reef Catchments**

• Both the program and the projects should have their own engagement and communication plans
• These will vary depending on project focus and objectives, particularly between projects that have tangible outcome deliverables, and those that are blue-sky research. Where Reef Catchments is a stakeholder in these projects, the engagement will depend on the type of project and should be defined and negotiated at the start.
• Resourcing of engagement should be built into projects
• NRM groups and alliances are well-positions to engage with a broader stakeholder base

**Fitzroy Basin Association**

• Researchers need to
  o Design research around end-user needs
  o Come to the regions and explain their research
• Projects need to communicate what they are doing and their findings throughout projects

**Territory NRM**

• Steering committee with NRM practitioners
• Regular communications and presentation to community and landholders
• Bring people along throughout using an adaptive management approach
• Get stakeholder buy-in through close collaboration
• Produce outputs that stakeholders will read
• Stakeholder engagement needs resourcing – e.g. NRM involvement may require a funded position depending on roles
• Need to be addressing integrated NRM plans and become integrated into NRM business
Rangelands WA

- Holistic approach – including multiple stakeholders/groups/ideas/points of view
- Practical on-ground outcome/change of practice focus for research
- Include existing on ground practitioners and community groups in developing research opportunities, priorities and delivery
- Communication with community groups before, during and after
- Respect for contemporary and traditional knowledge

RDA Far North Queensland and Torres Strait

- Regular forums
- Provide broad overview of multiple projects and more detailed sessions for those wanting to get into the nitty gritty
- Briefs (easily digestible) outlining implications/benefits of research
- Newsletters / webinars etc.
- About making research relevant to stakeholders and easy for them to understand implications
- Science communication critical – need to have strong understanding of stakeholders – think NERP probably good regarding NRM and some government agencies e.g. WTMA etc. but would be challenged in engaging and meeting research needs and communicating with bus sector etc… or some industries
- Regional Economic Development Research Forum – how NERP research is relevant for economic development, involve industry bodies, regional economic development groups etc… and government

RDA Townsville and North West

- Councils in rural and remote areas are critical for uptake of on-ground actions and engagement. They can be key partners or have input into prioritisation and assessment

RDA Mackay-Isaac-Whitsunday

- Both the program and the projects should have their own engagement and communication plans
- These will vary depending on project focus and objectives, particularly between projects that have tangible outcome deliverables, and those that are blue-sky research. Where RDA MIW is a stakeholder in these projects, the engagement will depend on the type of project and should be defined and negotiated at the start
- RDAs are well-positioned to engage with a broader stakeholder base
- Active involvement of community, business and government is required

RDA Northern Territory

- Ongoing engagement and ownership to ensure implementation of research findings. How to do this will differ depending on project focus and objectives
- Link engagement and communication to existing networks and communication opportunities. Don’t create new ones. Don’t expect stakeholders to turn up to, or gain value from, academic talk-fests
- Commit to doing communications properly. Websites, newsletters, and presenting at meetings of stakeholder alliance (e.g. Northern Australia RDA alliance, Kimberley to Cape alliance)

RDA Kimberley

- Open community consultation and communication
- RDA Kimberley would be supportive of an engaged process
Q7. What role(s) would you like your organisation to have in a National Environmental Research program to address NRM/RDA needs?

**Cape York NRM**

CYNRM would like to
- Be active collaborators and research partners, including community practitioners
- Identify levels of involvement and engagement appropriate to individual projects
- Contribute to developing criteria for project models (recognising that each project will need a different model of engagement)
- Engaged
- Collaborative
- Participation
- Co-generative
- Contribute to defining parameters and processes for research e.g. delivery of milestones-achievement (approval by partnership/end-user panel)

**Southern Gulf Catchments**

SGC would like to
- House researchers
- Assist in project delivery
- Sit on advisory panels etc., where relevant

**Northern Gulf Resource Management Group**

NGRMG has strong research priorities and already commission its own research, so is in a position to influence research direction and not just be an “end-user”. Its role should be as a research-partner. Some examples are that NGRMG can draw together on-ground experience of local people (e.g. about where species occur or how to kill cats) about issues which might otherwise be thought of as knowledge gaps. NGRMG can also coordinate citizen-science, with the local people collecting information that would be more expensive to collect by researchers having to drive long distances.

**Terrain NRM**

Terrain’s and other research partners’ roles will include
- Refine research questions and approach
- A role in deciding on funding allocation and/or manage funds to commission research
- Design of contract deliverables and outcomes (with capacity to modify through project as required)
- Facilitate two-way knowledge exchange
- Run or facilitate engagement processes with their own stakeholders (e.g. community and Landcare groups)

**NQ Dry Tropics**

NQDT would like to engage with NERP through partnership arrangements that are resourced and normalised through an MoU to
- Help frame management questions to ensure research aligns with environmental planning and management needs
- Review of program and project progress
- Play a partnering/brokerage role in research knowledge transfer (the educator bridge between academia and community/industry) including marketing of tangible decision support and training package material

Continual engagement will allow for a better two-way learning with managers having better appreciation of research and researchers having better understanding of management needs.
• Engagement processes should be dependent on the nature of the research (thematically rather than geographically-driven, or based on jurisdictional boundaries)

Change terminology from end-user (which suggests bottom-feeder) to a term that recognises importance of relations (e.g. research partner)

**Reef Catchments**

Reef Catchments

• Can share in engagement of their stakeholder bases, the communication of research findings and outputs to a wider stakeholder base to ensure two-way communication
• Should have a more integrated engagement role at program level and (where appropriate) project level
  o Identify priority areas and projects and metrics for selection
  o Identify critical success factors and metrics for assessment
  o Participate in annual review of program/project progress
• Can be cash-investors and leverage additional funds

**Fitzroy Basin Association**

FBA would like to
  o Be involved in program selection and prioritisation
  o Be involved in steering committee representation where research is relevant
  o Assess progress and give strategic direction
  o Advise on engagement to region and on which mechanisms work for different sectors
  o Be a conduit for engagement – bridge communication between researchers and broader stakeholder community

**Territory NRM**

Territory NRM would be prepared to

• Sit on steering committee
• Advise and direct to ensure applicability of research
• Review progress and advise on change of direction if required
• Assess milestones achievement
  o Milestones should be clear, with some relating to undertaking research and others specifically about communication outputs and dissemination
• Assist communication and dissemination
• Be project partners
• Host researchers
• Co-supervise research students

**Rangelands WA**

• Apolitical and access to a broad stakeholder network
• Guidance on regional priorities, issues and linking with broader project opportunities

**RDA Far North Queensland and Torres Strait**

• Advisory and end user
• RDA research needs analysis across our Regional Road Map, Strategic priority packages, submissions and other collaborative work would help identify our top priorities and how we could progress – this is flagged to be developed over the next few months
• Could be a very useful role for RDA in advising on policy interface and how to align research efforts to maximize impact on regulatory and business world
**RDA Townsville and North West**

RDA TNW would like to facilitate communication with stakeholders (councils and 1,000 members in region) to
- Advocate uptake of project findings
- Provide feedback to NERP from stakeholders
- Communication and dissemination of research findings through social media and newsletters

**RDA Mackay-Isaac-Whitsunday**

RDA MIW can engage stakeholder bases, the communication of research findings and outputs to a wider stakeholder base to ensure two-way communication.

**RDA Northern Territory**

RDA NT
- Would like to have input into identifying priorities
- Can identify stakeholders and partnerships, extending them beyond entrenched stakeholder base
- Keeping RDA informed will allow broader dissemination of information and outputs to a wide stakeholder base, and help with application of research findings in the long term

**RDA Kimberley**

RDA Kimberley would be prepared to
- Assist with stakeholder engagement in region
- Be part of the program process (e.g. advisory bodies, steering committee)
- Help with two-way information dissemination and communication (especially get input on what is achievable on-ground)
Q8. Please provide comment on the processes that you think would most improve the integration of research findings into your business

**Cape York NRM**

See Q7.
Depending on the type of research, CYNRM would like an action research model, with an action researcher/practitioner funded to work from within NRM body across NERP projects. This would minimise transaction costs, and increase the capacity of CYNRM to participate and to draw value from the research projects.

**Southern Gulf Catchments**

- Hold workshops/information sessions in relevant communities
- Make general research findings available electronically in simple to understand language
- Provide simplified summaries of relevant material

**Northern Gulf Resource Management Group**

- A North Queensland Science Network, including local research consultants included in network
- Integrating local and traditional knowledge and science
- Base monitoring research on the information needs of the managers and communities and then fed to research and government programs

**Terrain NRM**

- If proper engagement and co-research arrangements are in place, these result in strong partnerships and information flow will follow
- Other actions to enhance evidence-based decision making include:
  - Co-location of researchers with NRM groups
  - Science synthesis in simple, useable formats

**NQ Dry Tropics**

As long as the governance structures and MoUs are in place, then research findings will flow through to immediate stakeholders and thereby to end-users. This includes clear project delivery agreements that enunciate what is being purchased from the researcher, and which may include:
- Research
- Answers to management questions
- Improved knowledge about an environmental or related system

Proposed structure of NQ Dry Tropics planning process (see below) will
- Provide a mechanism for NQ Dry tropics to identify regional research (Management strategy)
- Facilitate communication of NERP research findings within and beyond the organisation to stakeholders (Management strategy, Context library and Learning kitbag)

Form research partnerships (Investment exchange)
Figure 2: Burdekin Dry Tropics Natural Resource Management Planning Framework  
Source: NQ Dry Tropics

- **Reef Catchments**
  - Make sure governance structure includes end-user representative group with regular opportunities to meet to provide critical advice, and assessment of progress
  - There should be a centralised repository with simple synthesis that points to research outputs
  - Part of the budget of all projects should be dedicated to synthesis and dissemination
  - Onus of dissemination should be shared between all stakeholders. At present there are too many platforms, and these need rationalising or the effort to find and use them will mean they are not effective
  - Effective and ongoing engagement will help NRMs get early value from projects (including just through developing a culture of information exchange)
  - Annual get-togethers of stakeholders around specific themes

- **Fitzroy Basin Association**
  - The following processes would be useful for FBA to make best use of the research
    - Consult FBA about best processes at the project level
    - A coordinator to identify the relevant science and its applications
    - Synthesis and summary of not just relevant research but how it informs practice change
      - Describe findings
      - What do they tell us?
      - How should they inform decision making?
**Territory NRM**

- Visualisation tools – 3D modelling (Melbourne University)
- Engagement based on Integration & Application Network, University of Maryland, Center for Environmental Science
- Communication is essential – appropriate to audience
  - Present to communities in which research is happening
  - Present to regional forums
- Research advisory group
- Colocation of researchers and co-supervision of students

**Rangelands WA**

- Plain English scientific language
- Research needs to be relevant to regional priorities
- Best practice methodologies which integrate NRM gaps (knowledge, skills and capacity building for groups and community)
- Access links to research findings
- Shared communication and dissemination to regional stakeholders

**RDA Far North Queensland and Torres Strait**

- Access to research outcomes in digestible format
- Opportunity to talk with researchers around policy implications of research (help identify how to take forward etc.)

**RDA Mackay-Isaac-Whitsunday**

- Make sure governance structure includes end-user representative group with regular opportunities to meet to provide critical advice, and assessment of progress
- Effective and ongoing engagement will help NRMs/RDAs get early value from projects (including just through developing a culture of information exchange)

**RDA Northern Territory**

Better communications
- Direct communication would be great, but demanding on everyone’s resource, so can be extended through
  - Good informative and easily navigable websites
  - Newsletters with simple and brief project summaries and updates
  - Using simple language and formats that are match to clientele/end-users

**RDA Kimberley**

- Time communication activities around regional schedule (wet season is a good time for meetings in the Kimberley)
- Programs need to have long term funding as in short-term projects engagement and communications drop off
- Hold forums at least in the towns, and where possible, in the communities

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[^6]: [http://ian.umces.edu/](http://ian.umces.edu/)