

Strategic NRM & land use planning

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Acknowledgments: DEW, FNQ NRM Ltd, Traditional Owners, key project partners



Australian Government
Department of the Environment
and Water Resources



So How? Overview

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- Overview of Project – goals, projects, people & integration
- Overview of each Task
 - Task A: SMART Water Quality Partnerships
 - Task B: Local area planning for biodiversity outcomes
 - Task C: Designing market based instruments (MBI) for environmental conservation
- Collaborative research partnerships & communication
- Looking forward at what the project will address in future years



Strategic NRM Project overview

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Project goal:

Improving planning and institutional arrangements underpinning water quality, biodiversity and wider ecosystem services in GBR catchments
– *while maintaining viable communities through effective partnerships*

Research aims and objectives

- Rigorous water quality management model that helps design effective partnerships and actions
- Effective local planning frameworks to support biodiversity outcomes
- Well-designed market-based instruments including offsets for supporting environmental conservation



Integrated research approach

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- Project 4.9.6b is informed by Sayers and Campbell's (2003) integrated research and planning framework.
- This framework to guide an integrated approach to natural resource planning and decision-making is used to:
 - Ensure the tasks completed towards the Project objectives are integrated to form an adaptive approach to natural resource research, planning and decision-making.
 - Ensure the Project goals, methodologies and analyses are based on negotiations with end-user visions, problems and needs.



Methodology

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- Research partnerships – extensive
- Case studies established: Tully WQIP, Reef Partnership, Mission Beach Habitat Network Action Plan, Daintree
- Implementation Design Tools: SMART partnership, Offsets, Local Area Plans, Incentive packages, Brokering with other plans (SRP, SPP on Cassowaries, etc.), Landscapes Toolkit
- Analysis and synthesis: conceptual models, context analysis, scenario building, trade-off analysis



Project multi-skill set

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- Dr Cathy Robinson, Dr Rosemary Hill, Anthea Coggan, Dr Mark O'Donohue, Mr Bruce Taylor, Dr Kristen Williams, Ms Sonya Heyenga, Dr Petina Pert, Dr Stuart Whitten, Dr Allan Dale, Ms Ellie Bock, Ms Rowena Grace, Mr Tony O'Malley, Mr Steve McDermott, Dr Peter Roberling
- Stakeholder groups /end users:
 - FNQ NRM Pty Ltd
 - Aust Govt: DEW
 - State Govt: EPA, DLGP, DNRW, WTMA
 - Local Govts: Johnstone and Cardwell
 - Traditional Owners, NGOs (ARF, CAFNEC)



Project Timeframes

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Phase 1 (2006 early 2007)

Scope delivery context; engage research partners, design conceptual frameworks;

Phase 2 (2007 –2008):

Test and apply new tools /models and appraise their suitability & effectiveness;

Phase 3 (2008-10):

Identify reform implications for policy and planning initiatives for different asset types and scales



Task A - S.M.A.R.T water quality partnerships

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To inform the design of the level, purpose, and network of partner activities needed to deliver agreed WQIP targets

Research need

Build on existing target setting science with *delivery* science

- Outcomes rely on planned, aligned and agreed actions
- Need for a systematic, sector-focused approach to inform implementation
- Applied within collaborative and adaptive problem contexts



S.M.A.R.T. Partnership Design & Review Criteria

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Specific delivery roles and responsibilities critical to negotiate spatially and between sectors.

Measures of partnership success need to accommodate sector KPIs

Achievable partnerships = those that align with sector NRM capacity and motivations

Realistic partnerships support actions that can be delivered under existing institutional arrangements and relationships.

Timely partnerships reflect strategic and successional planning that ensure the most effective organisational links are implemented throughout each step of adaptive management.



S.M.A.R.T. Water quality partnerships in the Tully

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Collaborative Research through the Tully WQIP

Implementation scenarios proposed to reduce pollutants from Cane, Horticulture, Forestry, Grazing etc that impact on range of urban, rural and conservation land uses & values

Focus in April-May – 6 sector workshops

1. How do proposed scenarios (e.g. BMPs for nitrate reduction from cane lands) “fit” with sectors’ current agendas, priorities and resources?
2. What likely impacts & thresholds (social, institutional and economic) of the different scenarios on sectors?
3. How do 1 and 2 inform effective partnerships for WQ outcomes, that:
 - work across scales? achieve multiple outcomes?
 - are cost-effective in broader terms?
 - can be measured and tracked by sectors?
 - Articulate roles and responsibilities across *all* sectors?



Partnerships needed @ multiple scales

Reef WQ Partner Perspectives on role to support T-M-R in FNO www.csiro.au

Overall Reef WQ Partner rating: Green-Amber

Catchment Mgt Practices: Recognised need to coordinate target setting (e.g. WQIP and NMZ). Target setting focused on regional level; efforts to engage peak industry bodies underway.

Distinct costs and benefits identified between different drivers behind WQ target setting in different catchments. Efforts to get science 'right' risks timely and contractive engagement.

Riverine Restoration: A lack of focus and clarity on this area could suggest that restoration is an issue of ambiguity, comparative low priority or uncertain science

Reef Health: High expectations placed on the Reef Report Card to guide performance assessment & future directions. Highlights how Reef WQ Partners can negotiate options & outcomes



S.M.A.R.T. Partnership project outcomes

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'Internalising' externalities in cost-effective planning and decision-making process

- How and when to include 'unpriced' environmental and social externalities into decision-making processes
 - i.e. what parts of the social-ecological system should be included in planning and analysis and where are the critical thresholds / limits of acceptable change
- How to enable local, regional and government institutions to adopt and integrate with adaptive management
 - i.e. what relationships are needed to design, implement and review water quality outcomes and how do we know they are effective?



Task B: Local area planning for biodiversity outcomes

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Effective local planning frameworks to support biodiversity outcomes

Research need

Effectiveness limited by:

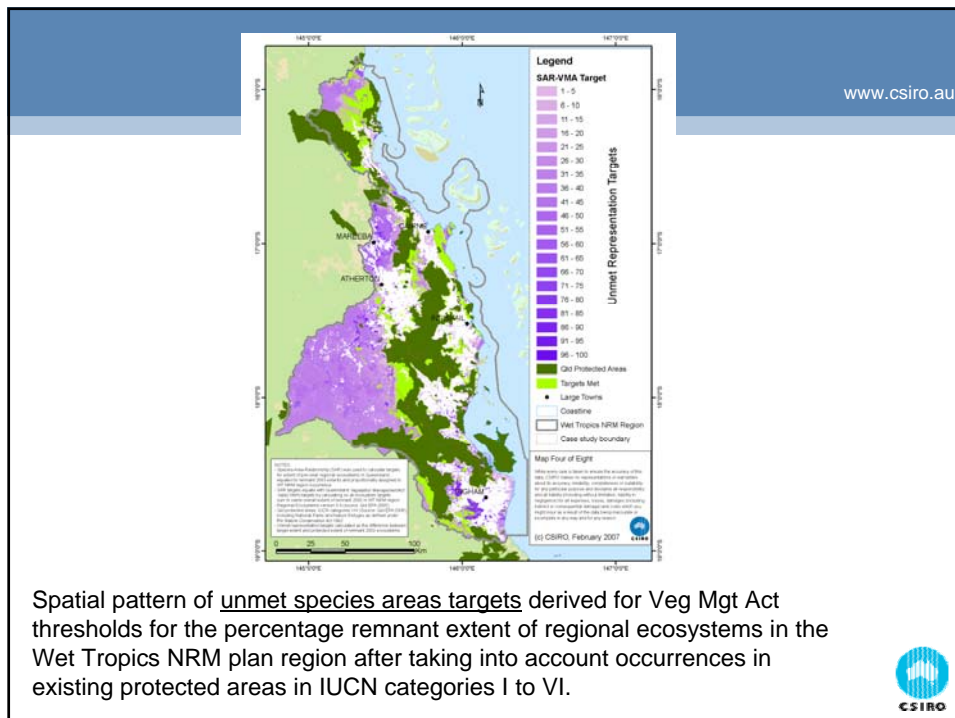
- fragmentation of effort and competing policy goals between agencies
- poor balance incentives/regulatory
- Biodiversity prioritisation focused on patterns not ongoing ecological processes

Three pilot projects

Mission Beach (main effort): Mission Beach Habitat Network Action Plan

Daintree: explicate beneficial landholder processes

Tully-Murray: biodiversity & participatory models for Landscapes Toolkit DSS



Key conservation planning drivers

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- Ecosystems threatened by sea change/tree change
- Key drivers into the future:
 - Population growth
 - Land use change
 - Natural disasters/ climate change
 - Conservation effort (offsets vs public good)
 - Traffic



Planning scenarios

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- Alternative future scenarios as a tool to stimulate community-centred decision making:
 - Baseline (current pop and development trends)
 - Backyards and biodiversity (public good driven conservation)
 - Noosa in the North (market-driven conservation)
 - Backyard and Country (Indigenous reconciliation-driven conservation)
- Biodiversity targets through models that incorporate ecological processes
- Assists MBIs with ecologically defined metrics



Local area planning project outcomes

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- Rigorous local area planning framework for biodiversity incorporating values and ecosystem services:
 - regional ecosystems
 - threatened species, threatening process
 - beneficial processes provided by landholders.
- Testing the effectiveness of tools and engagement through real-world application:
 - Exploratory tools - historical trends analysis, natural and cultural values significance assessment,
 - Platform-building tools - stakeholder analysis; scenario generation,
 - Negotiation tools - participatory decision support tool design; biodiversity analysis under alternative land use configurations, scenario evaluation
- Incorporate habitat suitability, connectivity and fragmentation effects in the design of biodiversity persistence metrics.



Task C: Designing MBIs for conservation

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The mandate:

- Refine, tailor and apply the concept of market based instruments for implementing ecosystem goods and services specifically for the purpose of using offset schemes for environmental conservation in developing areas.

The key questions/steps:

- What are the ecosystem service impacts of urbanisation
- What are the current institutions and structures to address the supply of ecosystem services and the impacts of urbanisation.
- What are the gaps in the current framework that the MBI will need to address/improve on.
- Design, test and refine a market based instrument to manage conservation and urban development.



Task C: Actions so far

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- Ongoing engagement with FNQNRM on offsets (current pressures and research direction).
- Literature review of ecosystem services, urbanisation and Cassowaries in Mission Beach.
- Investigation of current institutions to manage development and Cassowaries in Mission Beach.



Photo: Mat Gilfedder



Ecosystem services & urban development – Problem at Mission Beach

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Photo: Mat Gilfedder

- Tourism and residential values are strongly based on the natural assets (reef and rainforest).
- Focus on Cassowary as a keystone species
- Development affects Cassowaries
 - directly (changes in habitat)
 - indirectly (people, vehicles etc).
- Effects of development on Cassowaries are potentially significant and not well managed in the current frameworks (markets or other).
- Management tends to occur at the site level ignoring the cumulative and compounding (and mostly indirect) impact of development on Cassowaries
 - death of 1000 cuts.



Investigating a solution – the so how?

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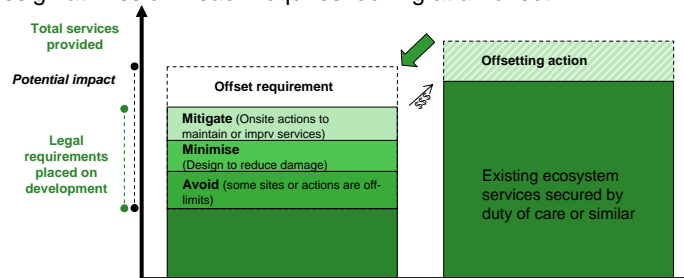
- A market based instrument (MBI) is:
 - Voluntary
 - Based on exchange (there is a contract)
 - Uses money as a basis of exchange and therefore places a price on ecosystem services
 - Price varies according to the quality of the good (location and habitat quality)
- MBIs can be efficient and effective because:
 - They place a positive incentive on the provision of ecosystem services
 - They allow flexibility on how outcomes are achieved (so can get least cost actions)
 - Encourage innovation.



Investigating a solution – the so how?

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- For a market we need:
 - A buyer and a seller & a way for these two to make the exchange.
- Sounds easy ... but for ecosystem services we often don't know:
 - The product? who owns it? who would buy it? etc
 - How to get parties together for an exchange
 - What rules we need to encourage trades that generate effective outcomes.
- MBI design at Mission Beach requires looking at an offset.



MBI project outcomes

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- Need to address the hard questions of:
 - What the product is, who owns it, how it is produced, who would buy it etc, the exchange and the rules.
 - Link with task b for biophysical input into exchange currency.
- Will look at current institutions and structures to evaluate best role for MBI application & mix with other implementation frameworks (e.g. S.M.A.R.T partnerships).
- Integrated mix to analyse of requirements for stakeholder participation.



Looking forward

- the science to inform effective NRM implementation

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Implementation science = problem, asset and context specific
Effective NRM = negotiated actions to achieve multiple outcomes

- Analysis to inform implementation options – (e.g. MBIs of BMPs) that include environmental, economic, cultural and social values
- Determine potential institutional and relationship structures that will provide increased effectiveness of NRM / WQIP plans
- Draw on environmental economics, landscape ecology and planning approaches to provide integrated and strategic NRM approach to sustain GBR's ecosystem services



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Thank you



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