

# Environmental Recovery: Securing landscape resilience?

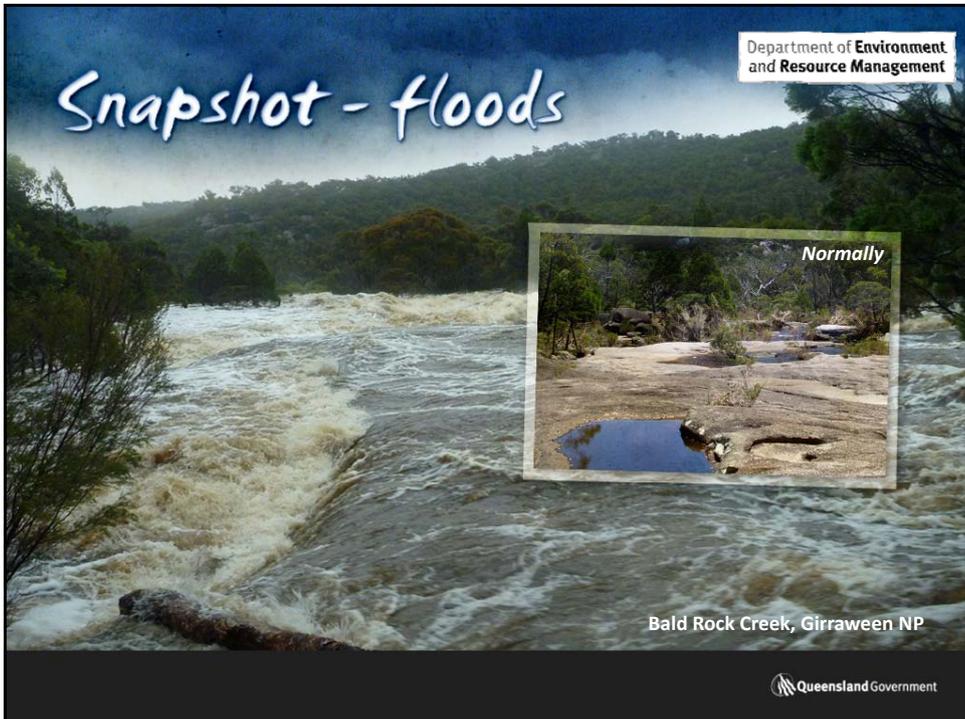
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Presentation to EIANZ  
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Department of **Environment  
and Resource Management**

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# What happened

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Tully Heads

**Recipe for disaster**  
 Worst floods in decades affect half the state + Category 5 cyclone sweeps across the northern part of the state

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# Affected parks...

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Park entrance, Girraween NP

**50% of Queensland's 279 national parks were closed or partly closed by flooding or Cyclone Yasi**

\* Significant biodiversity values inundated by flooding (1-20 Jan 2011)

Queensland Government

## What is recovery?

- The coordinated process of supporting affected communities in the reconstruction of the built environment and the restoration of emotional, social, economic, built and natural environment wellbeing.
- More than just like for like, provides an opportunity to improve aspects beyond previous conditions by enhancing social infrastructure, natural and built environments and economies. Manner in which recovery processes are undertaken are critical to their success (EMA 2011)
- Recovery is the coordinated process of supporting affected individuals and communities in reconstruction of the physical infrastructure, restoration of the economy and of the environment and support for the emotional, social and physical wellbeing of those affected (SDMG Qld Govt 2011)

## Governance - Global to Local

### Global

- World Bank - Global facility for Disaster Reduction and Recovery
- Overseas National Emergency Management Agencies

### National

- Australian Emergency Management Handbook and Manual series, includes Community Recovery - Australian Government 2011
- National Strategy for Disaster Resilience (COAG 2010)
- National Disasters in Australia: Reforming mitigation, relief and Recovery arrangements (COAG 2002)

### State

- Disaster Management Act 2003
- Disaster Management Strategic Policy Framework (Qld) SDMG (2010)
- Queensland Recovery Guidelines (SDMG 2011)
- Queensland State Disaster Management Plan (SDMG 2011)
- Operation Queenslander - State Community, Economic and Environmental Recovery and Reconstruction Plan (QRA 2011)
- State Environmental Recovery Plan

### Local

- DCS & LGAQ - Disaster Management Alliance
- DDMG & LDMG recovery plans

## Governance – State Level

- Qld RA developed the 'State Plan' for flood recovery – objective: a stronger, more resilient Queensland and Queenslanders.
- Environment one of 6 Lines of Reconstruction (LoR):
  - Human and social
  - Economic
  - **Environment**
  - Building reconstruction
  - Roads and transport infrastructure
  - Community engagement and communication
- DERM lead on detailed Environment Line of Recovery, State Implementation and contributed/supported local plans.
- Coordinated by new unit – Environmental Recovery Coordination Unit.

## Stakeholder engagement

- Environmental recovery planning and implementation guided by a community, conservation, industry and government stakeholders.
- Environment Sub-Committee met weekly then monthly, to lead with particular regard to:
  - effective coordination of environmental recovery activities
  - to maximise efficiency of resource allocation
  - facilitation and exchange of information relevant to sustainable and resilient environmental recovery
  - identification and resolution of critical environment recovery issues.
- Initiatives implemented through broad range of partnerships, including with Regional NRM bodies, Councils, research institutions, volunteer groups, and other government agencies.



qmdc 2011

## Impact Assessment

- Rapid assessment undertaken by Flood Recovery Operations Group (FROG), technical and scientific experts, regional officers in January.
- Broad impacts reported via 'Sit Reps'. Fed into 'Road Map for environmental recovery.
- Immediate, known impacts included:
  - Damaged streamflow gauging networks
  - Water and sewerage treatment plants damage
  - Flooded CSG and other mine sites
  - Dams/weirs structural safety risks
  - Sick, injured and orphaned wildlife
  - Landscape degradation e.g. gully erosion, soil compaction. Coastal erosion
  - Flood plumes at key locations along coast
  - Large volumes of vegetation debris
  - Large volumes of demolition Diffuse and point source chemical waste from flooded industrial sites
- Medium-longer term predicted impacts
  - Threatened species risks (marine, terrestrial, flora & fauna)
  - Marine seagrass death, algae growth
  - Mangrove die-back
  - Increased fire and pest risks

## Planning for recovery

- Detailed state-wide recovery 'Road Map' developed.
- Short, medium and long term actions
- 52 "Activities" – evolving suite of activities that were centrally coordinated to ensure integration and efficiency (now ~ 30 remaining)
- Whole-of-Government approach (e.g. DEEDI Green Army, pest and weed management) and several delivered by Councils, Regional NRM bodies and other partners.
- Activities included:
  - Monitoring, modelling and evaluation
  - on-ground recovery works
  - development of frameworks and policies
  - communication initiatives
  - coordination activities and partnerships.
- Range of geographic scales
- Road Map was expanded in February 2011 to include TC Yasi

## Environmental Line of Recovery Implementation Plan



1. Water and sewerage  
infrastructure



2. Mining and industry



3. Marine health



4. Wildlife



5. Riparian and coastal  
ecosystems



6. Protected areas



7. Landscapes

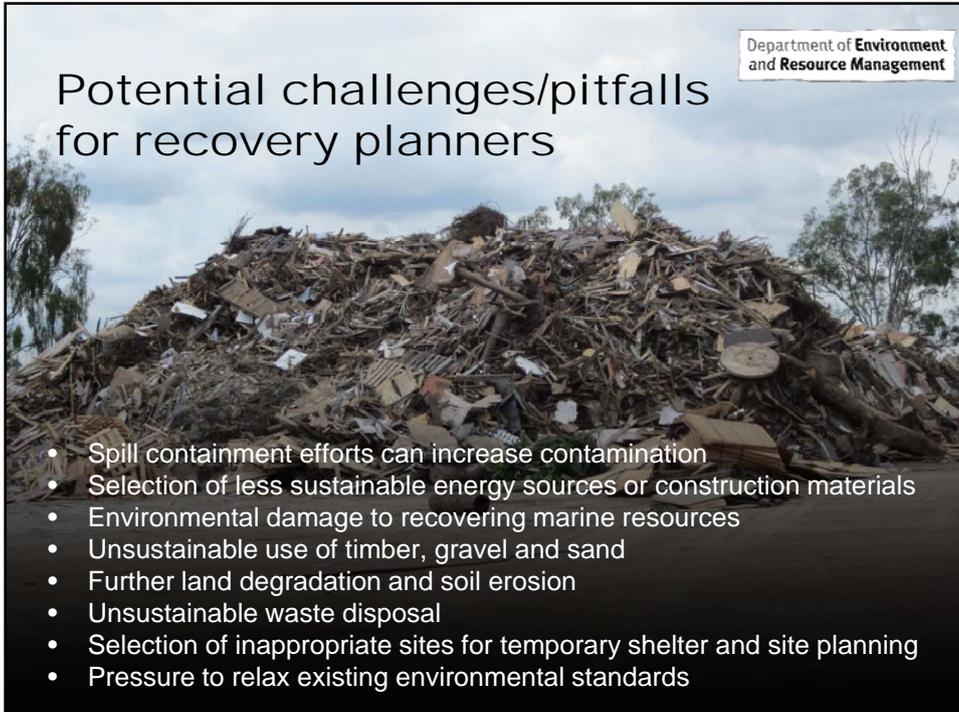


8. Waste and  
contamination

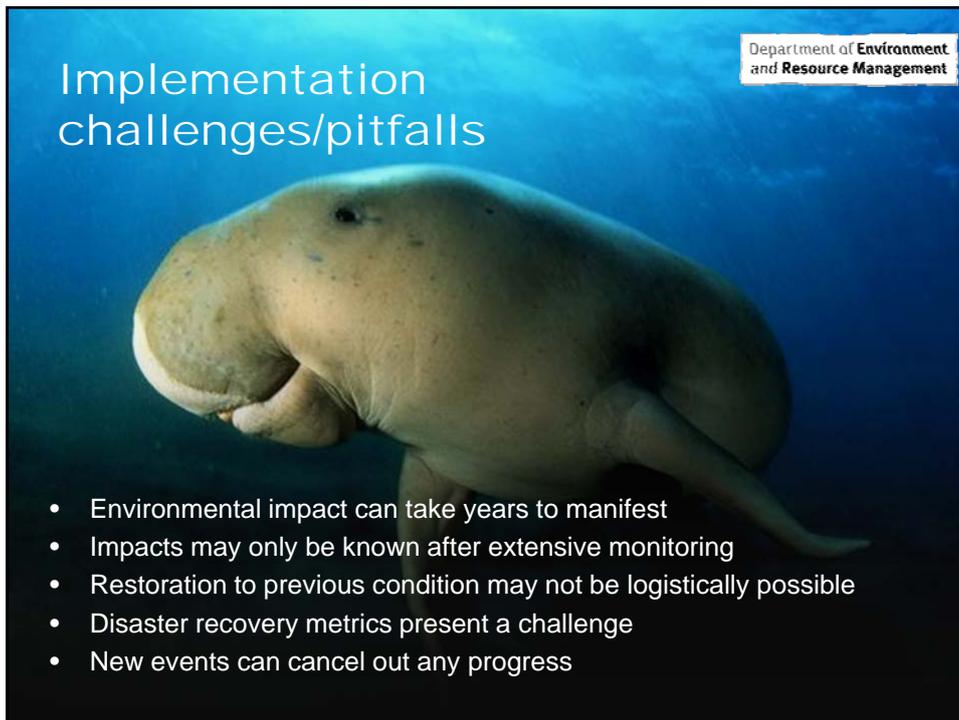


9. Cross LoR Activities

## Potential challenges/pitfalls for recovery planners



- Spill containment efforts can increase contamination
- Selection of less sustainable energy sources or construction materials
- Environmental damage to recovering marine resources
- Unsustainable use of timber, gravel and sand
- Further land degradation and soil erosion
- Unsustainable waste disposal
- Selection of inappropriate sites for temporary shelter and site planning
- Pressure to relax existing environmental standards



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## Implementation challenges/pitfalls

- Environmental impact can take years to manifest
- Impacts may only be known after extensive monitoring
- Restoration to previous condition may not be logistically possible
- Disaster recovery metrics present a challenge
- New events can cancel out any progress



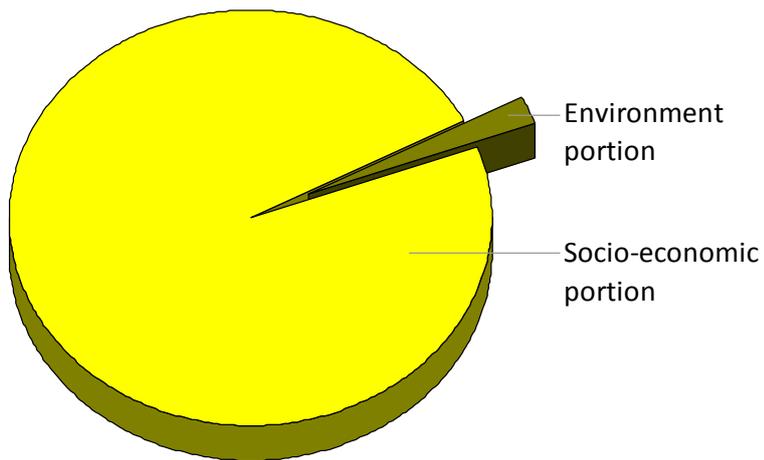
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## \$ecuring funding

- Funding often not available for essential monitoring/modelling work
- Works may miss out on significant early funding opportunities
- Environmental works ineligible for major funding sources (e.g. National Disaster Relief & Recovery Arrangements)
- Tendency for short term vs long-term thinking
- New events can cancel out any progress
- Post 2011 – environment still largely ineligible for NDRRA funding

## Selling environmental recovery/resilience benefits

- **Traditional difficulties in valuing ecosystem services**
- **Potable water** – increased processing costs; contaminated water supply; bushfires reduce the amount of rainwater available for agriculture and other uses (due to increased catchment forest regrowth).
- **Tourism** - damage to national parks ecosystems and infrastructure, and marine ecosystems
- **Fisheries** – industry economic losses.
- **Agriculture** - invasive plant species, soil compaction on arable lands, reducing farmers ability to return to productivity.
- **Navigable waterways** – flood sediments in navigable channels cause commerce and trade issues.



2010/11 Disasters reconstruction funding ~ \$6.8 billion

## New developments

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- National Partnership Agreement for Natural Disaster Reconstruction and Recovery (2011)
- Australian Emergency Management Institute Community Recovery Handbook (2011)
- Queensland Recovery Guidelines (2011)
- Operation Queensland - Rebuilding a stronger more resilient Queensland (2012)
- State Environmental Recovery Plan *under development* (2012)



## Queensland new approach to disaster recovery

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- Community led
- All Agencies
- All Hazards
- Communicate, communicate, communicate
- Invest in resilience
- Functional Lead Agency for Environmental Line of Recovery
  - restoration and regeneration of biodiversity in ecosystems the green infrastructure
  - amenity/aesthetics/cultural and heritage sites
  - environmental health, waste, contamination pollution and hazardous materials
- Concept of Operations - Transition - Response into Recovery
- Recovery Strategy developed consistent with the level of residual risk, recovery issues and priorities



## More work to be done...

- Post-disaster decision-makers should consider opportunities to improve and facilitate natural buffers and environmental safeguards during the recovery phases of disaster management. Examples include...
  - Increase watercourse 'roughness' to reduce the energy of floods, leading to potential reductions in future flood heights and speed.
  - Stabilise stream banks using engineering and revegetation, to reduce future loss of productive agricultural land, riparian assets and soils.
  - Manage flood and cyclone debris to reduce risk to life and property in the event of future hazards, including fire.
  - Reinstate wetlands, mangroves and other coastal ecosystems to protect against storm surge and extreme weather events.

## Natural Assets for Flood and Cyclone Resilience

- DERM and the Department of Local Government and Planning (DLGP) working with stakeholders to:
  - review existing environmental and natural resource management programs and research in relation to the flood and cyclone mitigation potential of natural assets;
  - identify and evaluate the flood and cyclone mitigation potential of regional landscapes and ecosystems; and
  - inform regional plans and other regional and local policy and planning for natural resource management.
- The initiative will provide the basis for focused policy and planning in landscape-scale natural disaster mitigation and will enhance the resilience of Queensland's urban and rural communities through more informed landscape-scale management.



“Prioritising natural asset recovery is increasingly being recognised as integral to reducing community vulnerability to future disasters. Healthy and well managed landscapes and ecosystems provide buffers and safeguards to life and property, against a wide variety of hazards including fire, flood, cyclones and tsunamis.”

(Queensland Recovery Guidelines 2011)

## Further Information

[www.qldreconstruction.org.au](http://www.qldreconstruction.org.au)  
[www.floodcommission.qld.gov.au](http://www.floodcommission.qld.gov.au)  
[www.premiers.qld.gov.au](http://www.premiers.qld.gov.au)  
[www.derm.qld.gov.au](http://www.derm.qld.gov.au)  
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