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LEAP June 2015

**Overcoming Hurdles,
Finding Pathways**

Graeme Newton
4 June 2015



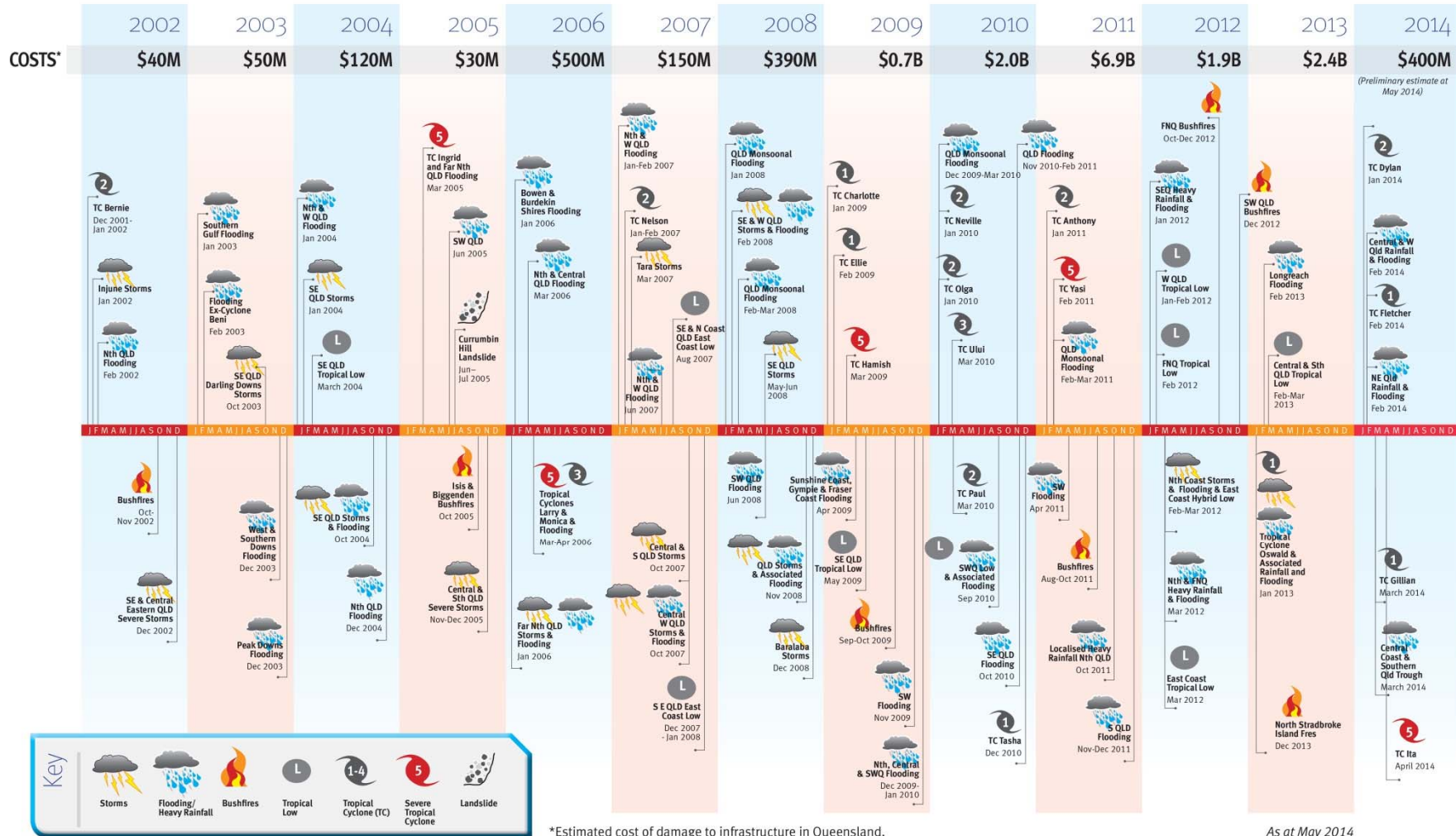
Environment
Institute of
Australia and
New Zealand
SOUTH EAST QLD DIVISION

Overview

- Scale of events
- First response
- Inter-agency cooperation
- Queensland Reconstruction Authority
- Act in Action
- Other initiatives



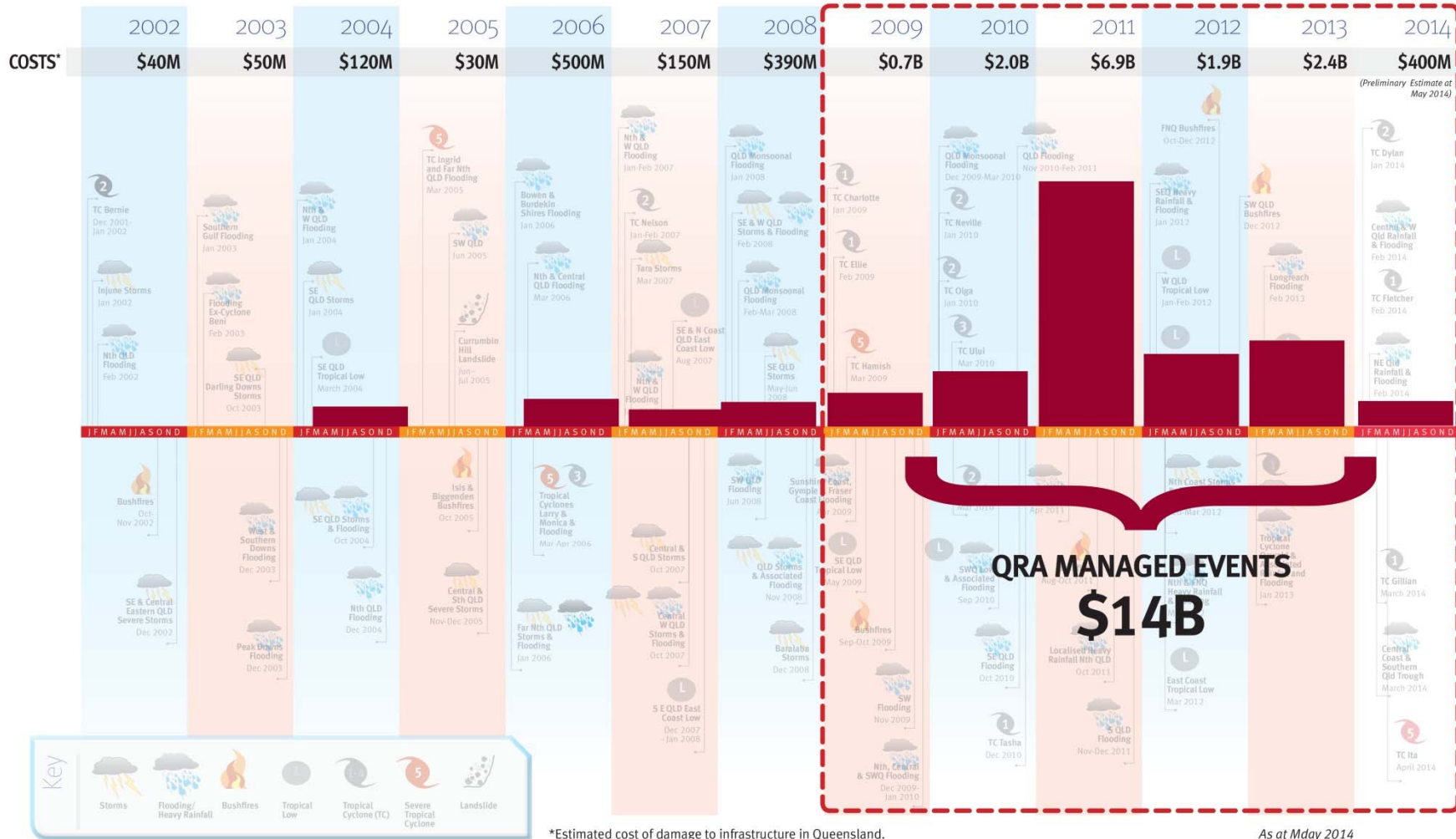
Over a decade of natural disaster events in Queensland



*Estimated cost of damage to infrastructure in Queensland.

As at May 2014

Over a decade of natural disaster events in Queensland



Scale of Disasters – Km²



Chile earthquake 2010
300,000 km²



Japan earthquake 2011
140,000 km²



New Zealand earthquake 2011
5,800 km²



Exxon Valdez oil spill 1989
28,000 km²



Wildfires during 2010
Russian heatwave
8,800 km²



Pakistan floods 2011
114,500 km²

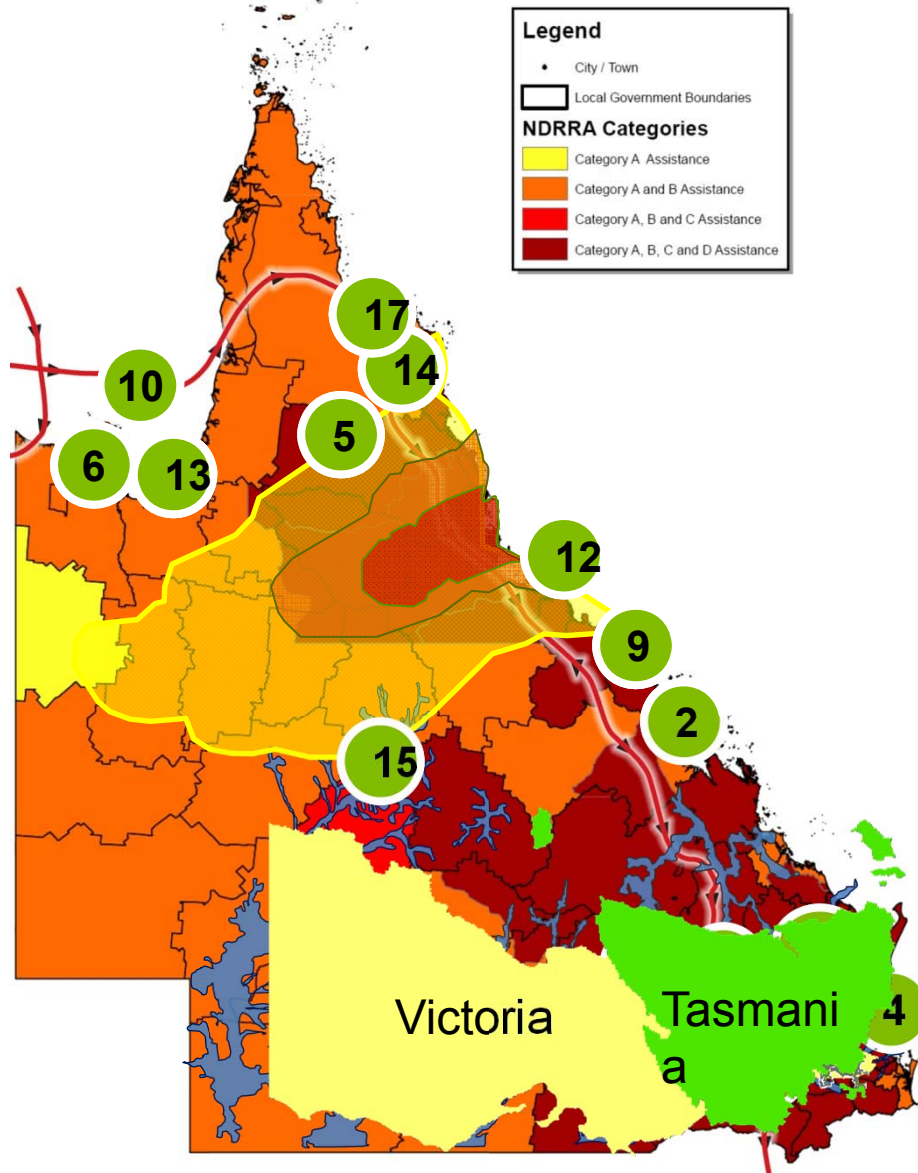


Hurricane Katrina 2005
144,840 km²



Australia floods 2010
850,000 km²

Source: The Year that Shook the Rich: A review of natural disaster in 2011.
The Brookings Institution – London School of Economics Project on Internal
Displacement.



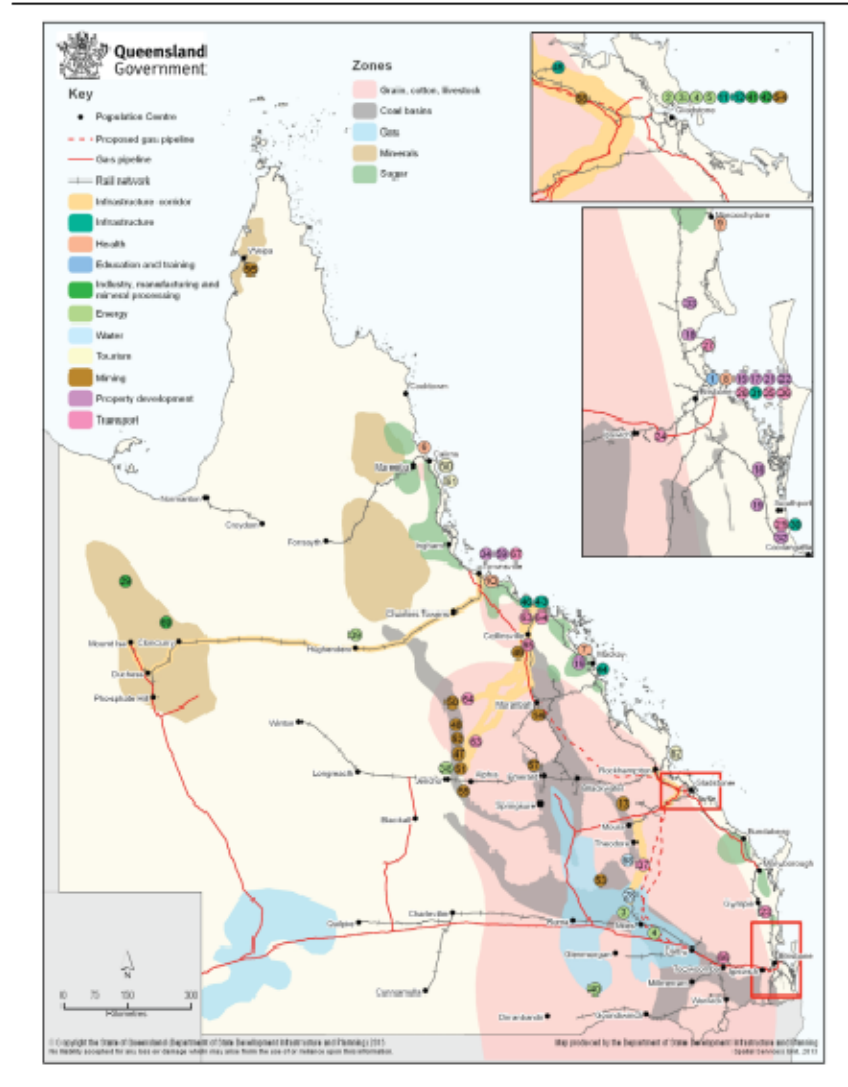
Statistics

Queensland population – 4.6 million
 Queensland area – 1.73 million km²

Disaster events

- | | |
|----------------|---|
| 1. Dec 10 | Rainfall & SE/W flooding |
| 2. Dec 10 | Tropical Cyclone Tasha |
| 3. Jan 11 | Flash flooding Toowoomba & Lockyer Valley |
| 4. Jan 11 | Brisbane/Ipswich flooding |
| 5. Jan/Feb 11 | TCs Anthony & Yasi |
| 6. Feb 11 | Monsoonal flooding |
| 7. Apr 11 | Maranoa flooding |
| 8. Feb 12 | South West flooding |
| 9. Mar 12 | Townsville storm |
| 10. Jan 2013 | TC Oswald & flooding |
| 11. Feb/Mar 13 | Central & Southern QLD Low |
| 12. Jan 14 | Tropical Cyclone Dylan |
| 13. Feb 14 | Tropical Cyclone Fletcher |
| 14. Feb 14 | Monsoonal flooding |
| 15. Feb 14 | Rainfall & flooding |
| 16. Mar 14 | Central & Southern QLD trough |
| 17. Apr 14 | Tropical Cyclone Ita |

Key regional economic drivers



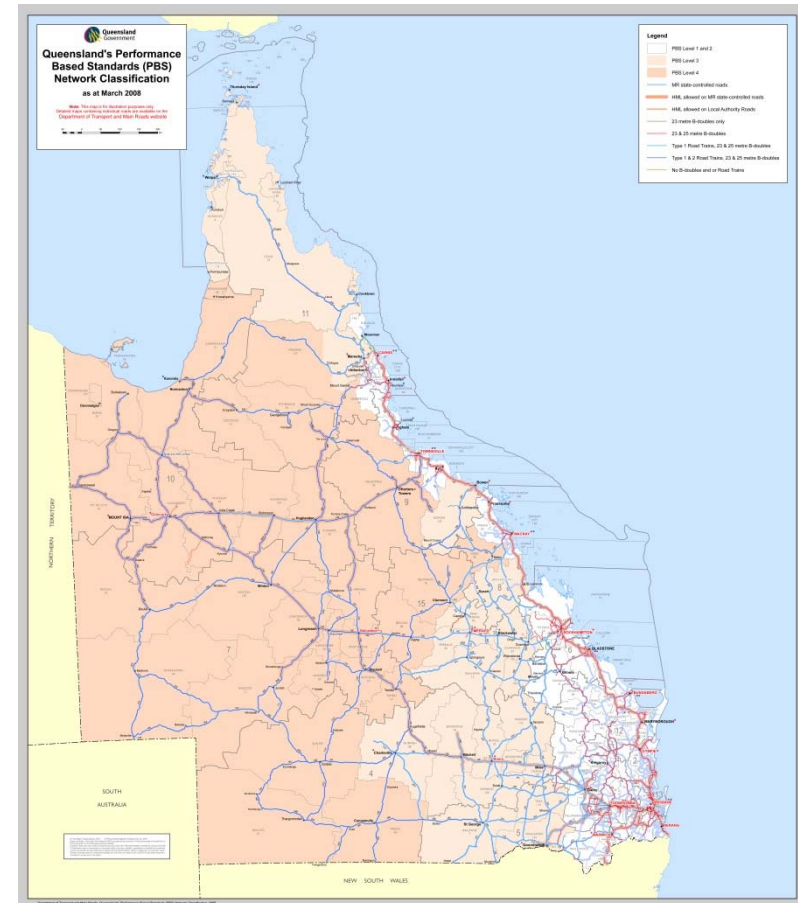
Major commodities moved in bulk



Source: Department of Transport and Main Roads

The effect of 2010-11 floods and cyclones:

- Lost approximately \$6 billion (or 2.25%) of GDP
- Loss of approximately 27 million tonnes of coal (about \$400 million in royalties)
- Loss of agriculture production – approximately \$1.4 billion
 - 75% of State's banana crop damages
 - 20% reduction in raw sugar
 - 370,000 bales of cotton values at \$175 million lost
- Loss of approximately \$400 million in tourism
- Damage, disruption and closure of vital ports across the State.



Major transportation routes



Scale of impact



January 2011 – Grantham



January 2011 Toowoomba



February 2011 Cardwell



March 2012 Mitchell – Roma – St George
floods



January 2013 – Bundaberg



January 2013 – Laidley



January 2013 – Baffle Creek, Gladstone





January 2013 – Maryborough



Scale of Impact

	2010/11 events	2011/12 events	2012/13 events	2014 events
LGAs disaster activated	73	65	58	46
Residential properties affected	136,000	1,400	4,300+	258
State road network affected (km)	20,610	10,890	7,655	6,148
State rail network affected (km)	4,748	4,180	3,100	1,000+
Schools affected	411	7	339	2
Other government buildings affected	4,381	135	99	
Homes & businesses without power	480,000	9,000	390,000	46,000+
National parks affected	162	22	267 <small>(Includes other protected areas managed by DNPSR)</small>	223



Mud Army Brisbane 2011



Community Recovery centres



Non-government organisation involvement



Military assistance



Community Recovery staff



Business assistance officers on site



Housing officers at South Mission Beach



Q-Build cleans up Tully SHS classroom

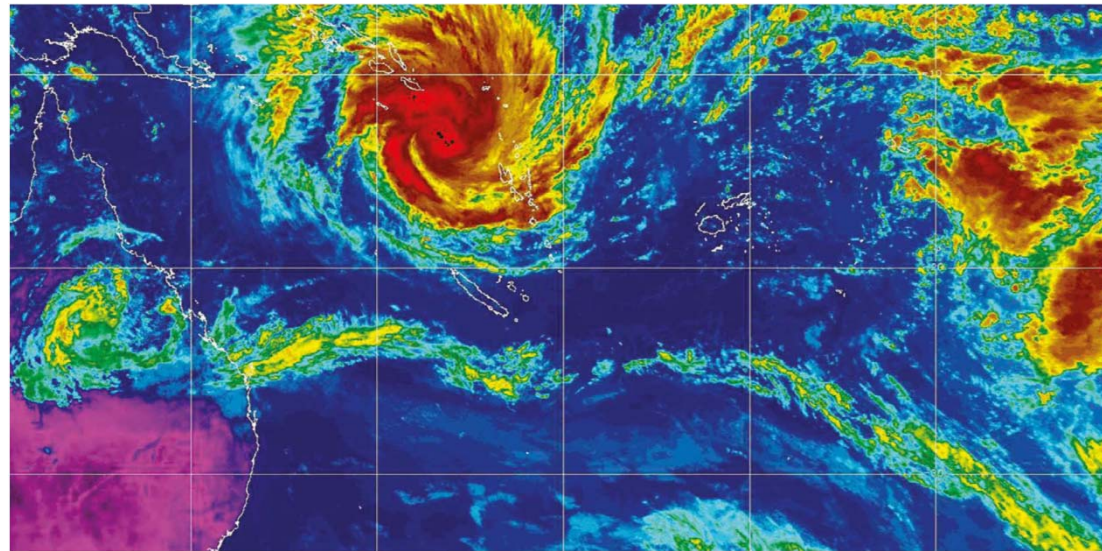


Local Government partnerships

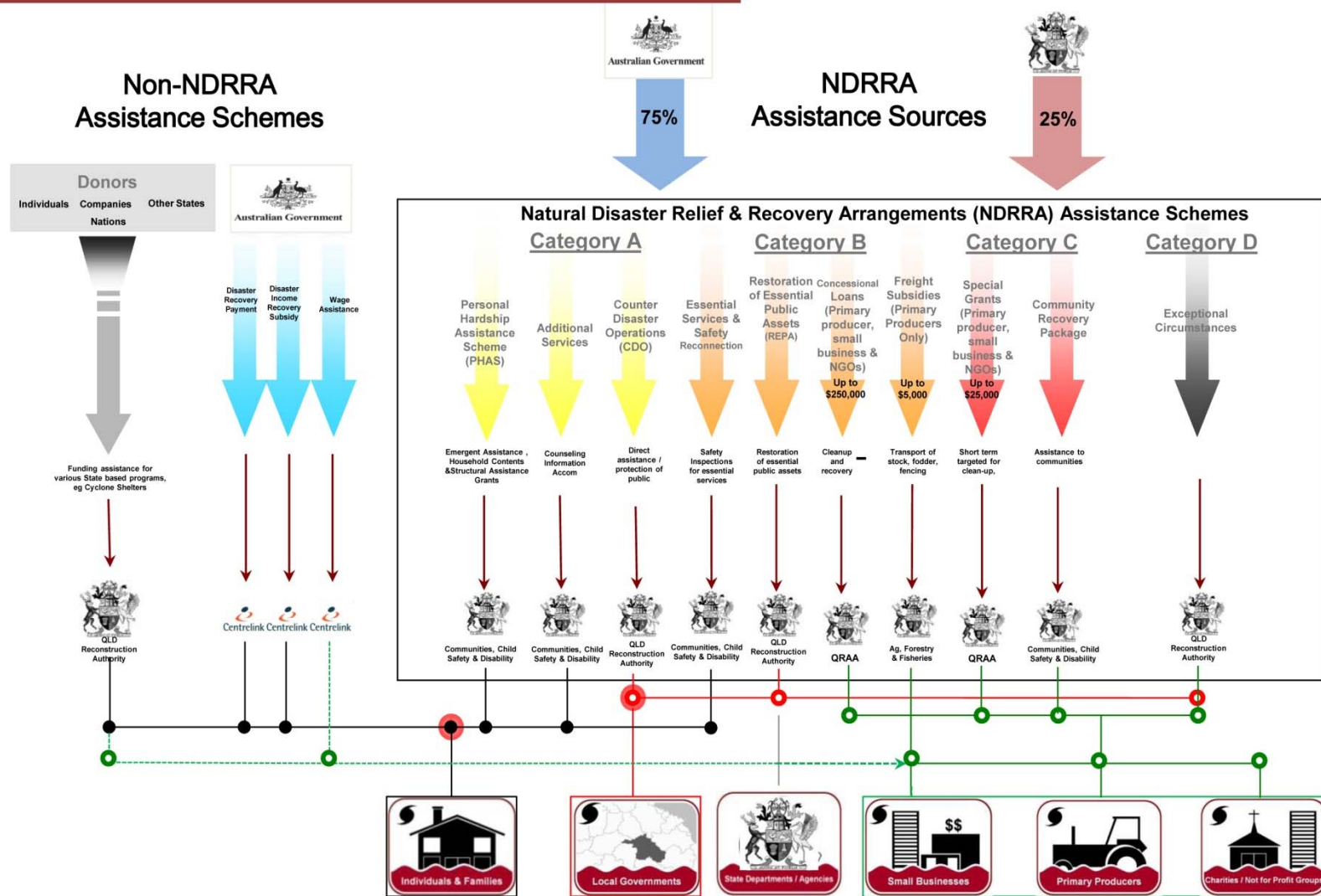
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Queensland Recovery and Reconstruction

The establishment of the QRA



Disaster Assistance Model



Queensland Flood Recovery Plan



- Provision of outstanding response activities and immediate recovery operations.
 - Development of strategies, engagement and consultation with supporting agencies.
 - Upon completion, recovery efforts focus on medium and long-term recovery and reconstruction objectives.
- Execution of functional activities and delivery of resources and services to recover and rebuild.
 - Monitoring of recovery activities and adjustment of functional recovery plans.
 - Development of strategies to enhance resilience to risk of future events.
- Outstanding recovery tasks will be handed over to departmental management arrangements.
 - Progressive handover of recovery responsibilities to appropriate State and Local Government agencies, NGOs and industry sectors.



Queensland Reconstruction Authority

Ensure Queensland effectively and efficiently recovers from the impact of disaster events

- **Established under its own Act of Parliament**
- **Reports to Board and Minister responsible for reconstruction**
- **Coordinate reconstruction**
- **Prioritise infrastructure and services**
- **Administer NDRRA and ensure value-for-money outcomes**
- **Build disaster resilience**
- **Implement Commission of Inquiry findings as needed**



Queensland Reconstruction
Authority Act 2011

Act No. 1 of 2011

Queensland Reconstruction Authority

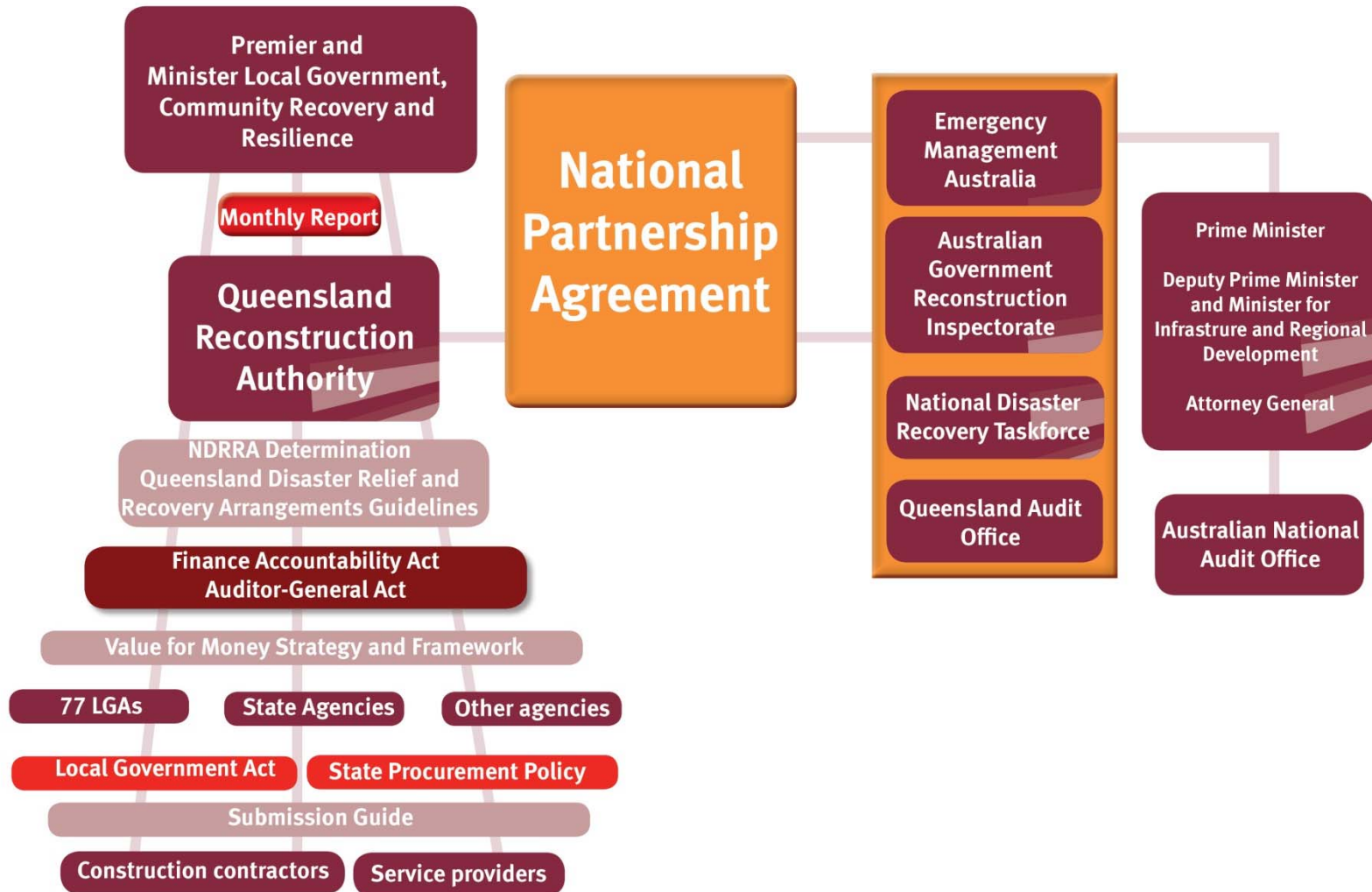
Queensland Reconstruction Authority Act linkages:



Queensland Reconstruction
Authority Act 2011

Act No. 1 of 2011

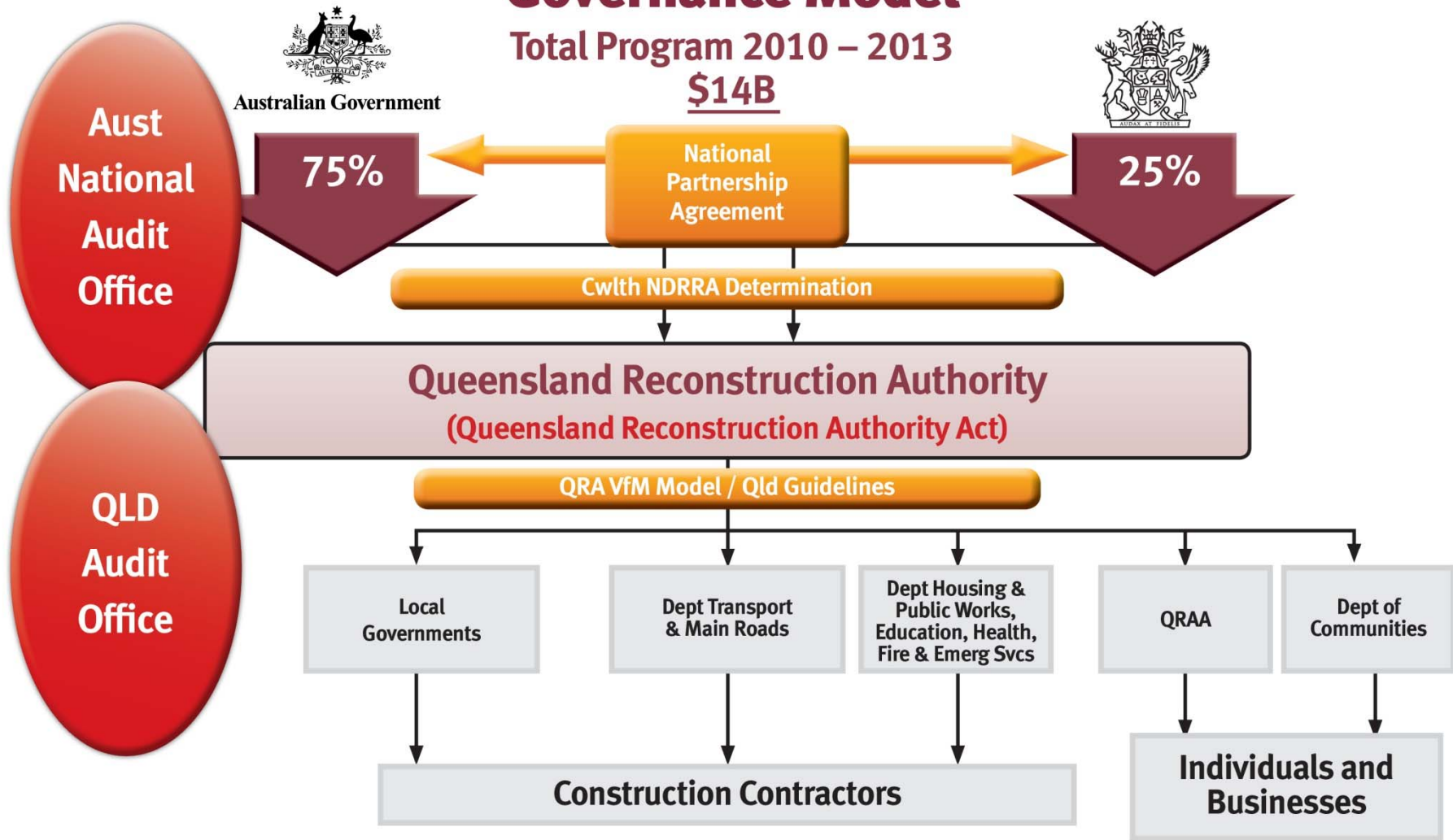
- **State Development Act**
- **Sustainable Planning Act**
- **Acquisition of Land Act**
- **Transport Infrastructure Act**
- **Local Government Act**
- **Coordinator-General powers under other acts**
- **However, the use of these Acts were to be linked to reconstruction of disaster mitigation**



Governance Model

Total Program 2010 – 2013

\$14B



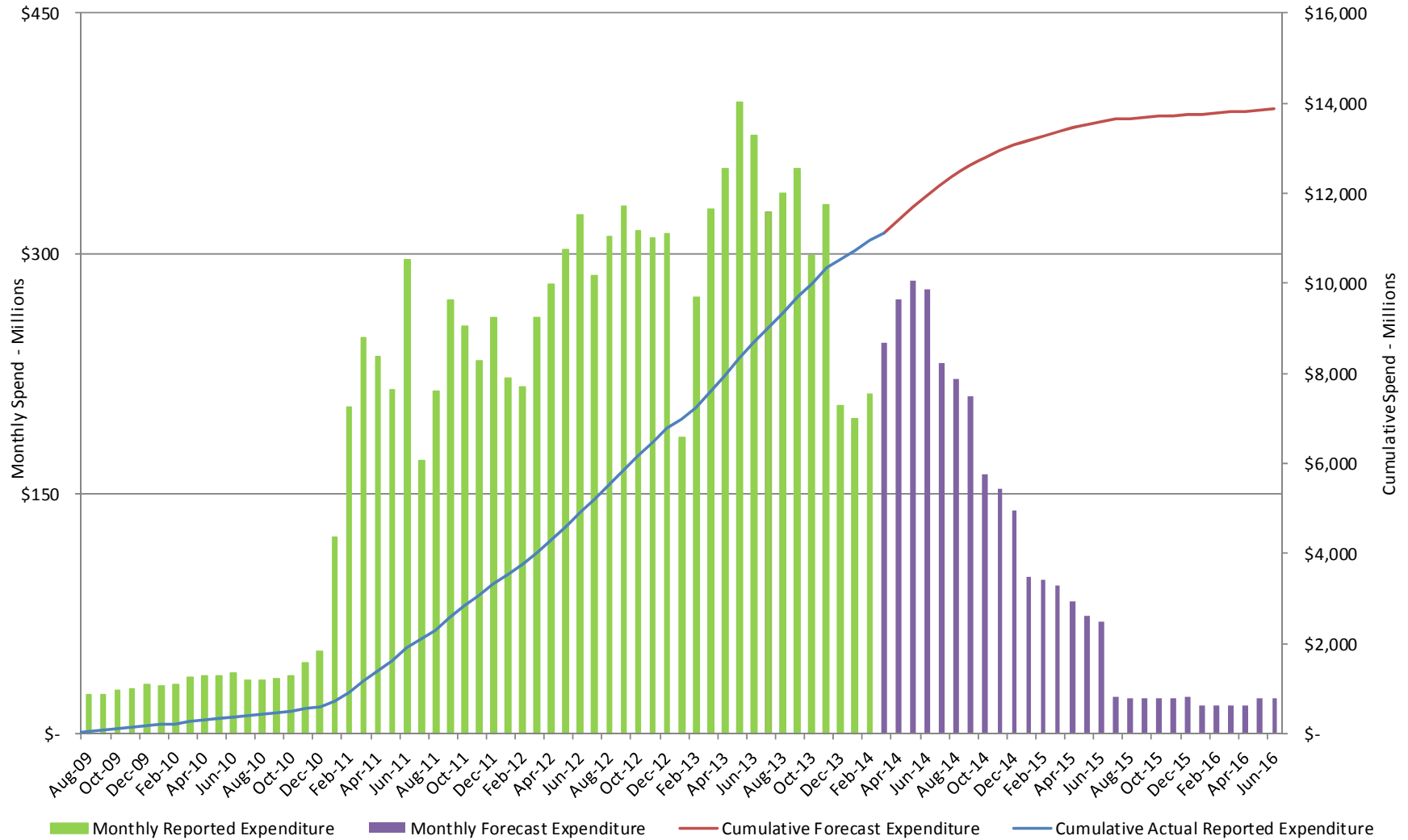


Queensland Reconstruction Core Activities

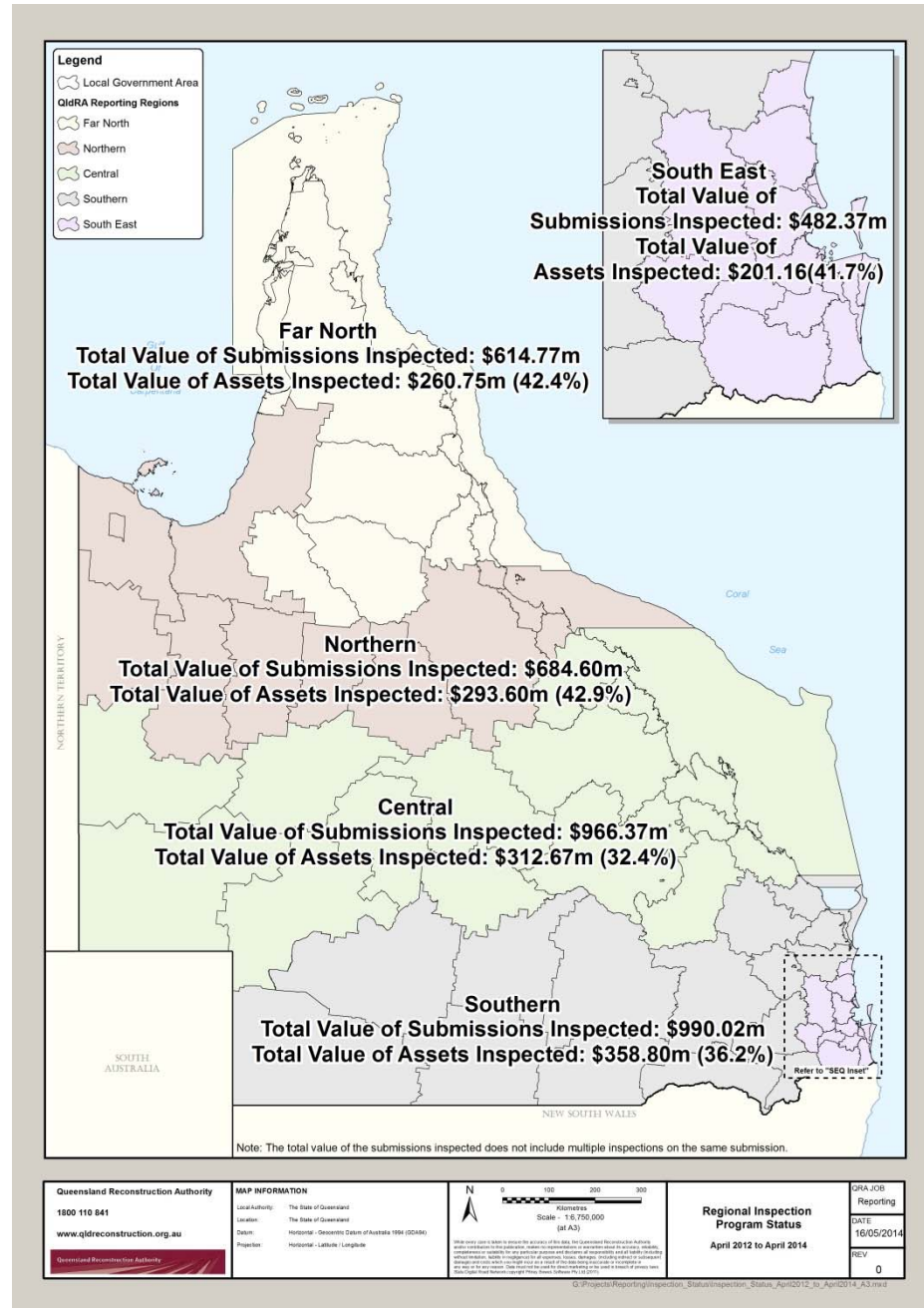
Authority Functional Area	Activities and Tasks					
Eligibility and Value for Money (report section two)	Submission assessment: Eligibility >Value for Money					Support and Intervention
	Review: NDRRA Determination and VfM Framework					
Delivery & Monitoring (report section three)	Mobilize 30% Payment	Progress payments	50% Complete: Validate/ Performance Assessment	Progress payments (up to 90%)	Completion Report 100%	
	On Approval	Validate & Payment	Site inspections	Validate & Payment	Site inspections	
	<i>Quarterly Review and Benchmarking</i>					
Assurance (report section four)	Submission Eligibility & VfM	Validation of Progress Payments	50% Review	100% Review		
	Process Control & Check	Review General ledger Transactions	Validate: Scope v's Spend v's Delivery			
Acquittal/Audit (report section four)	Quarterly Reporting		Annual Acquittal			
	Qld & Federal Budget		QRA - Certify expenditure with NDRRA Determination			
	EMA NDRRA Progress Tracking		QAO - State certification for EMA & ANAO			



Combined Program of Works



Reconstruction Inspection Program

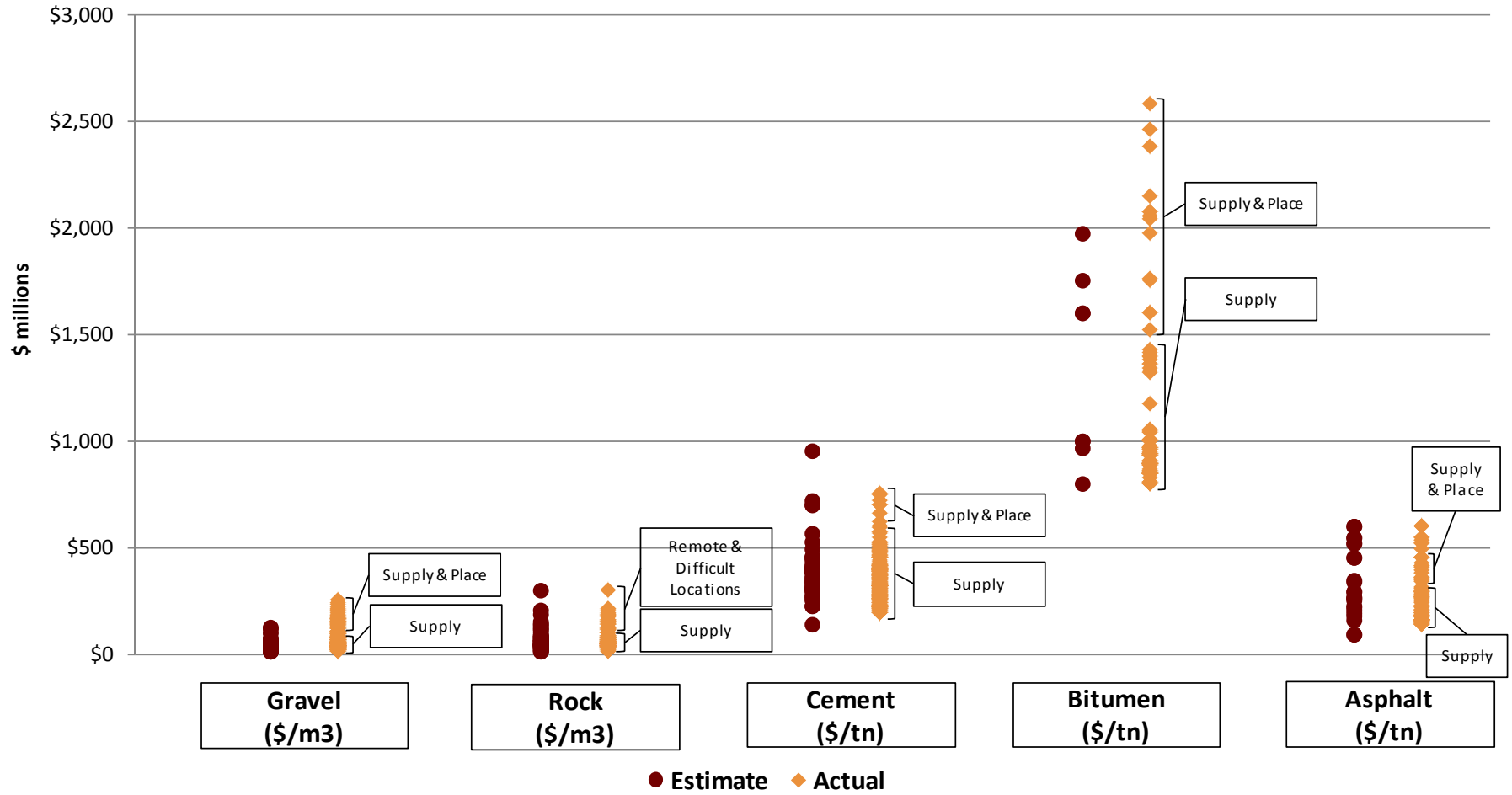


Embedding principles: Value for Money (VfM)

1.5.1T SITE INSPECTION REPORT						
Council:	Moreton Bay Regional Council	Region:	South East Qld	RLO:	ESP:	SMEC Australia Pty Ltd
Inspector:						
Restoration Works						
Submission Number:	Inspection Purpose:	Project Name:	Total Recommended Value for Asset:	Estimated Final Cost:	Construction Completed:	
MBRC.5.11	Mandatory	Bellthorpe Range Road	\$3,975,744.40	\$6,526,044.86	48%	
Asset Code:	Agency Contact:	Package Number:	Date of Form 9:	Total Expenditure to Date:	Cost Variance at 100% Complete:	Forecast Completion Date:
TBA		SEQ13.53	01/Jul/12	\$3,650,527.93	64% \$2,550,300.46	30/Dec/12
Data Source	Dated	Total Expenditure to Date:		Actual Final Cost	Construction Physically Complete:	Forecast Completion Date
Reported by MBRC	26/Mar/13	\$7,795,793		\$7,795,793	100%	18/Jan/13
Approved Scope:		Chainage: TBA		Chainage: TBA	Chainage: TBA	
<i>Check all Form 2/4 and additional photo's supplied for relevant information.</i>						
<p>Proposed restoration work involves restoration of the embankment with gabion structures, replacement of cross road drainage to suitable engineering standard and replacement of the existing pavement with a new granular pavement covered with two coat bitumen seal, to the same depth and width of pavement.</p> <p>TRIM: DOC/11/35473</p>						
Works Not Approved;		Comments on Pictures:		Comments on Pictures:		Original Photograph Location;
<p>Variations in scope due to site conditions encountered from last claim include scope variations for the lump sum component of works being for;</p>		<p>additional lintels for gabions and additional chain wire fencing (items not included in the schedule of rates - total of these items for the period is \$12,111.70) plus scope changes over initial estimates provided for in the schedule of rates, where the quantities have changed but the rate is the same as contracted.</p>		<p>These included further additional clearing works \$17k, extra excavation \$116k, increased construction materials \$116k, increased batter excavation \$94k, additional eco blanket material \$30k, plus increased duration for the Contractor's facilities due to the time extension associated with the additional works \$73k.</p>		<p>P:\Project Controls Group\02 Technical Support & VfM Assurance\06 VfM Verification\Councils\Moreton Bay RC\SEQ13.53-ESP Inspection Jan\SEQ13.53-Roads\SEQ13.53-Bellthorpe Range Road\SEQ13.53-Bellthorpe photos</p>
Inspection Date: 26-March-2013		Completed Works:				
Actual Scope Report (Completed Works)						
<ul style="list-style-type: none"> Length of road reconstructed: 1.2 km. Total cost of construction: \$7,795,793 Total length of gabion wall protection system: 669 m. Size of the largest gabion wall: 55 m. long X 7 m high. Area of reno mattress protection used on project: 1,750 m² Area of vegetation required to be cleared and grub from the slip slopes: 21,000 m² Length of guard rails 933m Quantity of material removed from site: 29,000 m³ Quantity of material imported to site: 27,000 m³ <p>All slope stabilisation and protection works have been carried out as per designs prepared by geotechnical engineers.</p> <p>Cost variance at completion is 96%. Itemised cost details available with MBRC for QRA inspection/review.</p>						

Benchmarking

Materials



Strengthening Grantham



- Designated Reconstruction Area under legislative powers
- Fast tracked processes
- Authority and Council developed Master Plan & Development Scheme
- Construction begun on first stage June 2011
- People were in new homes by Christmas 2011.



Damage at Grantham, January 2011



Strengthening Grantham

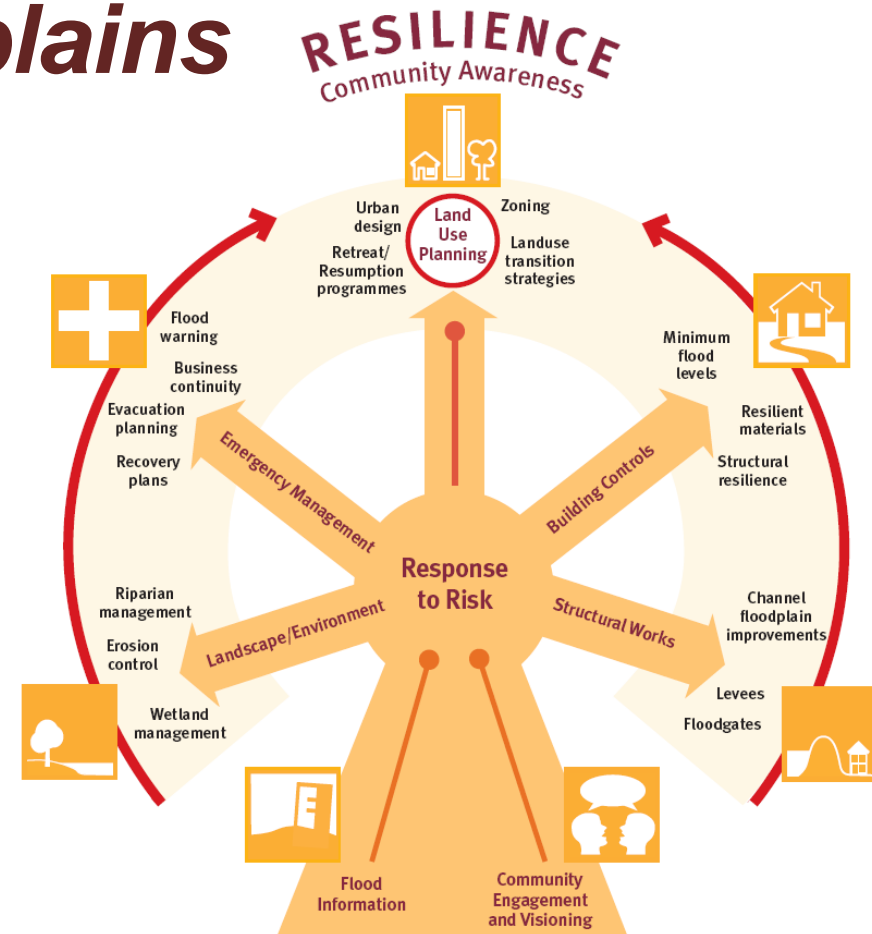
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Planning for stronger, more resilient floodplains

To assist Councils to ensure that floodplain management is addressed through land use planning.

Delivers a Toolkit

- Part 1 – Interim measures
- Part 2 – Long term solutions
- State-wide floodplain mapping
- Guide new flood investigations
- Specific guidance for land use responses



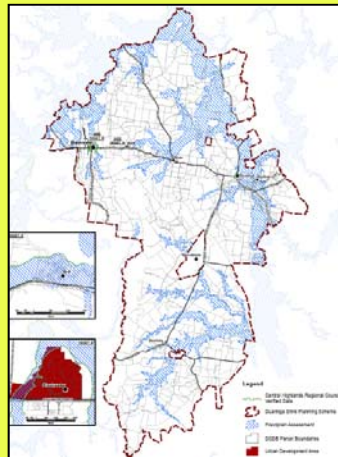
An Integrated Approach across a range of disciplines - Project focuses on Land Use Planning

Flood Investigation Guidance

Level 1 BASELINE

As per Part 1 Guideline

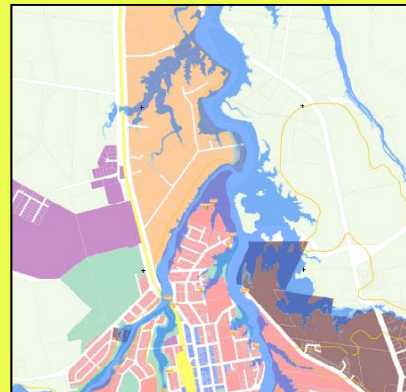
Locally Verified QldRA mapping
+
Flood Level investigations
=
Areas of Inundation + Local flood



Level 2 MODERATE

Mid-level Investigation

Standard Data Inputs
+
Flood Frequency Analysis
=
Basic Hazard Mapping, incl.
height & velocity + AEPs

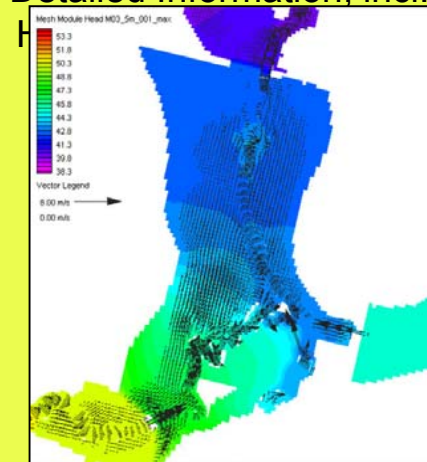


Level 3 ADVANCED

Comprehensive Flood Study

Detailed Data Inputs
+
Computer Modelling
=

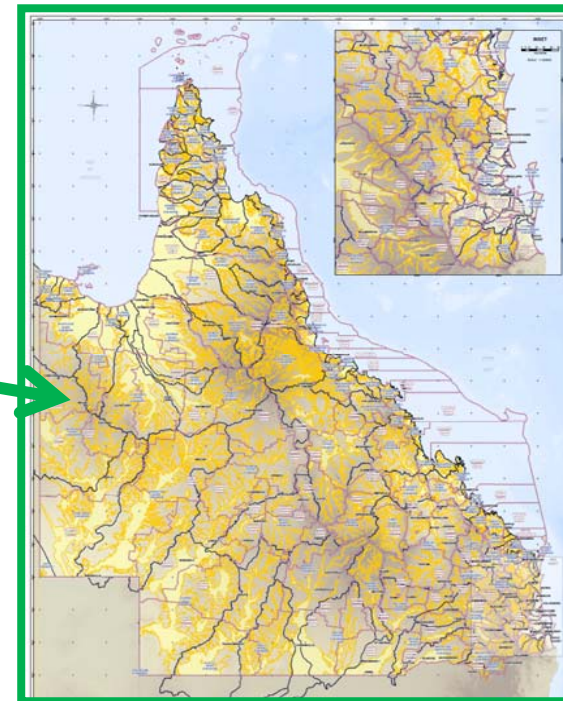
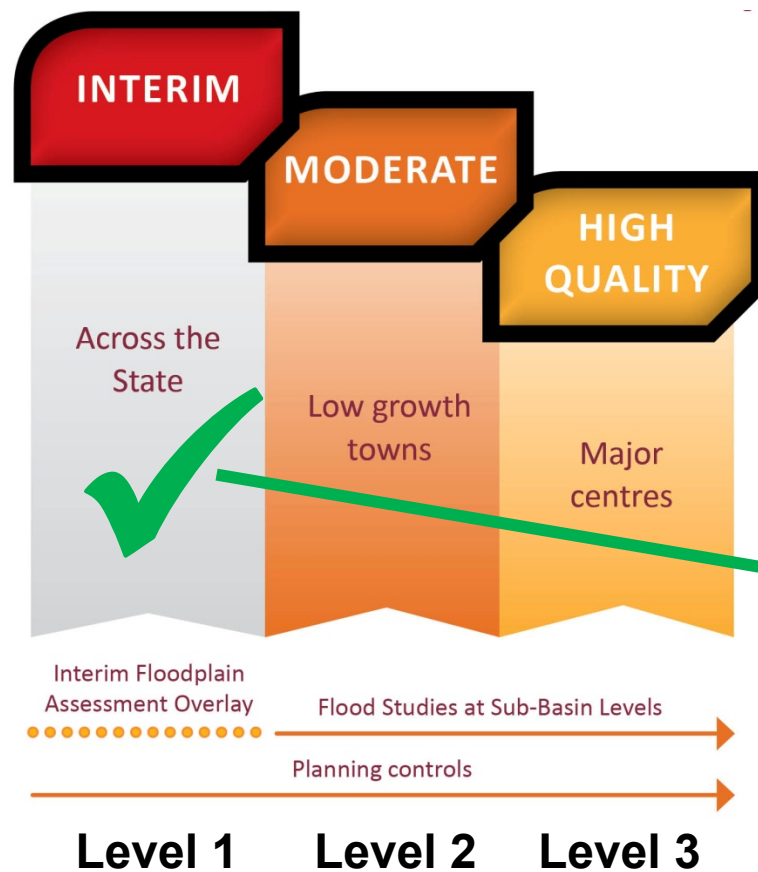
Detailed Information, incl.



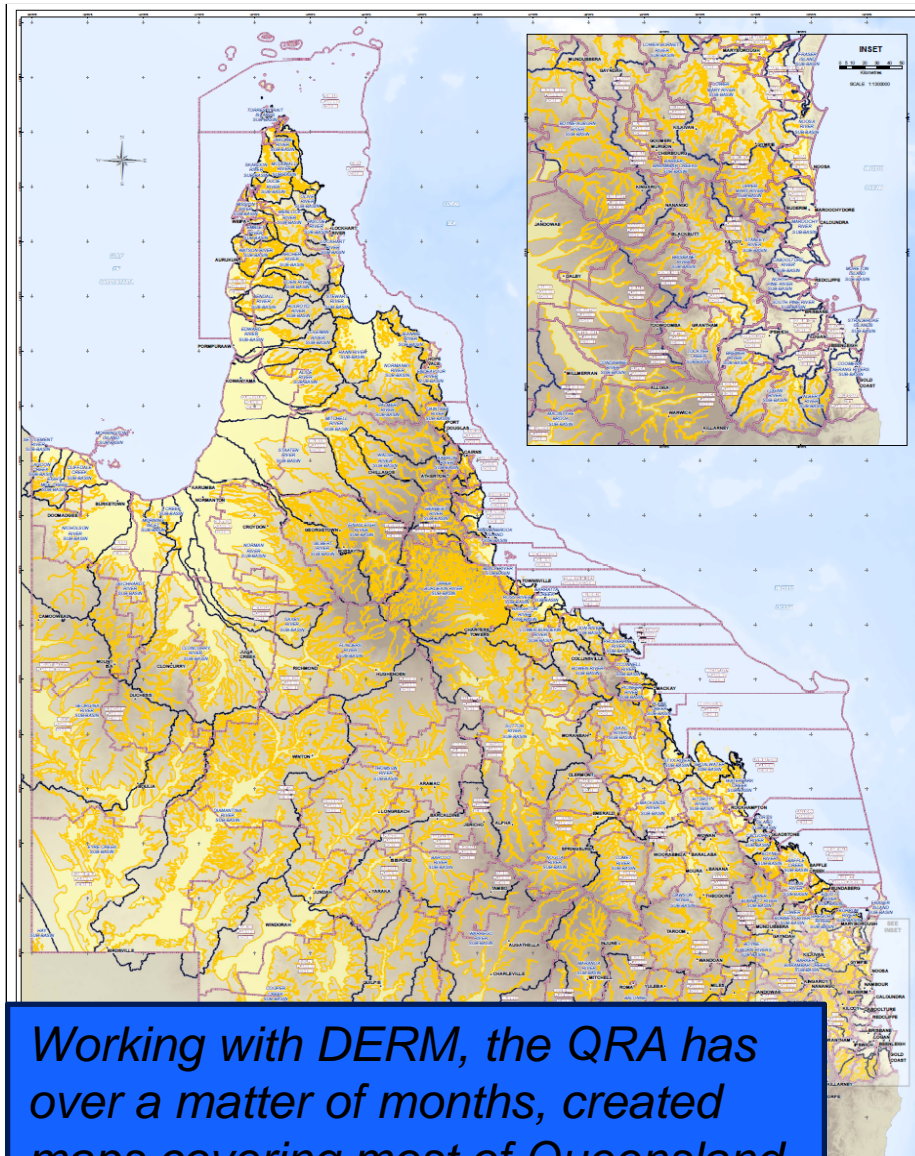
*Local Governments select the combination of flood investigations appropriate for their circumstances

Level 1 – State-wide floodplain mapping

- Good initial identification of hazard
- Uses a broad range of datasets to show potential hazard
- Preliminary product which can be easily adopted



State-wide catchment based maps of Queensland Floodplains being used to understand potential flood hazard and areas for further investigation



Working with DERM, the QRA has over a matter of months, created maps covering most of Queensland.

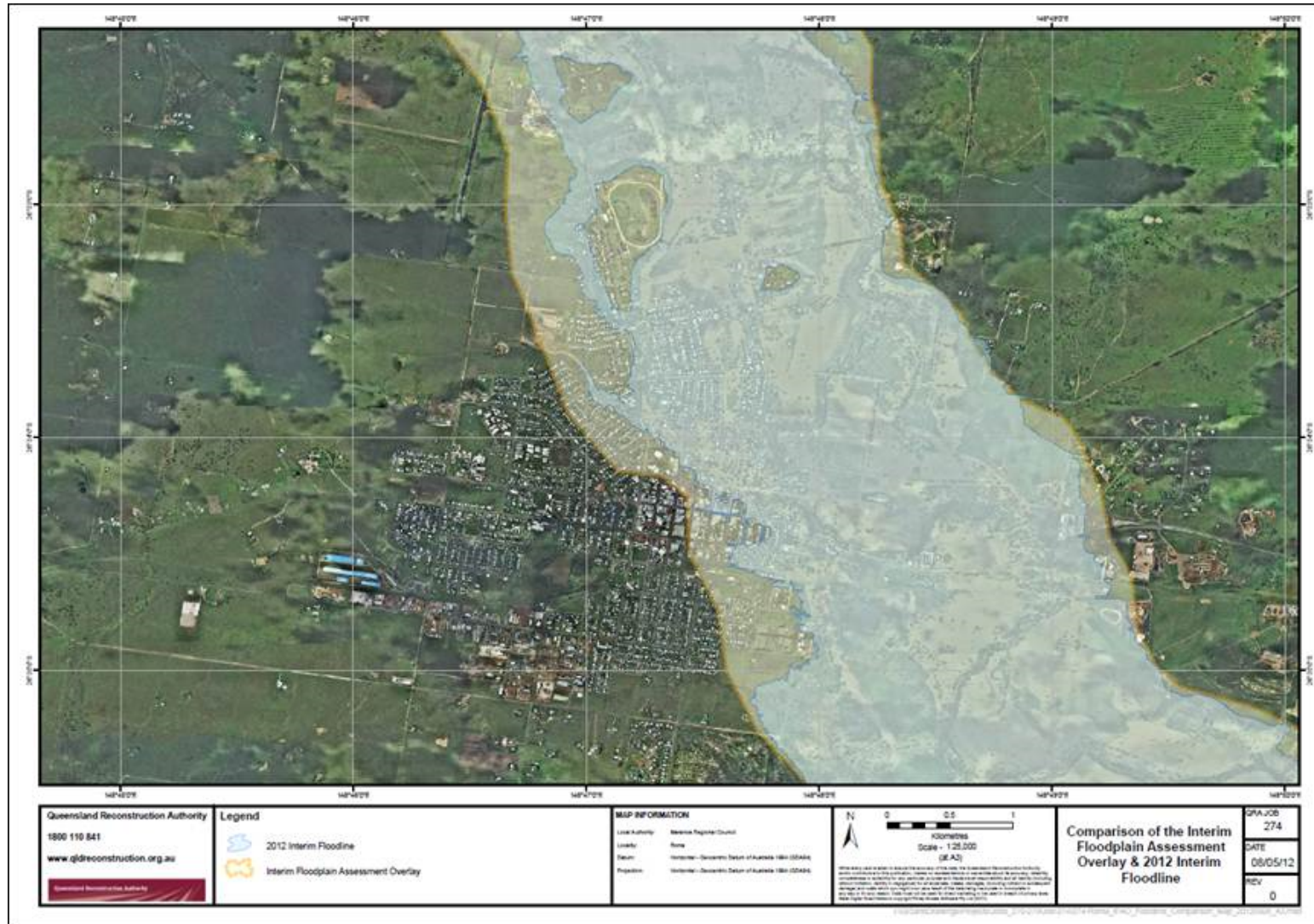
Col Final Report, March 2012, pg 67

State-wide mapping

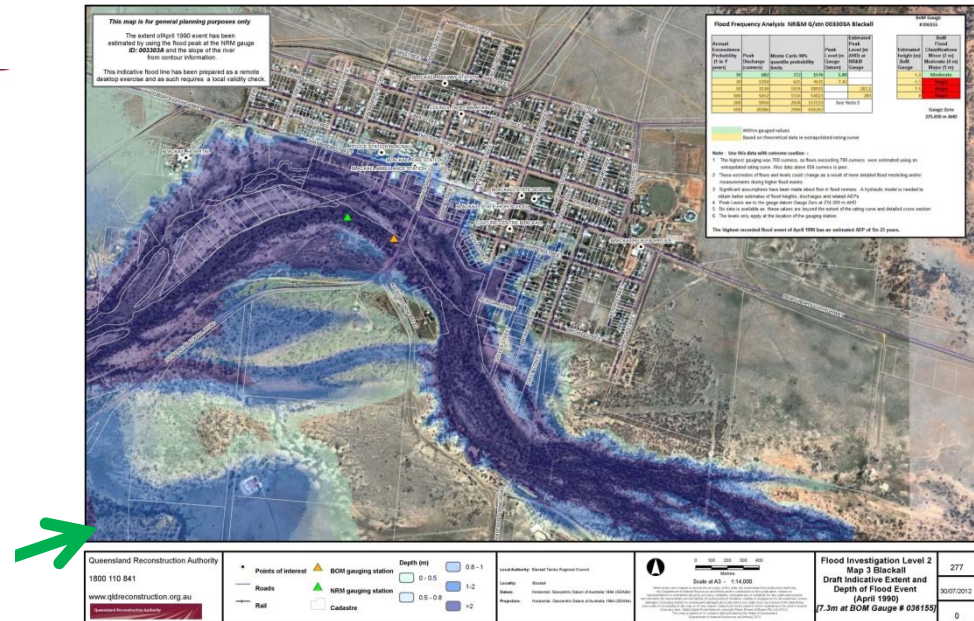
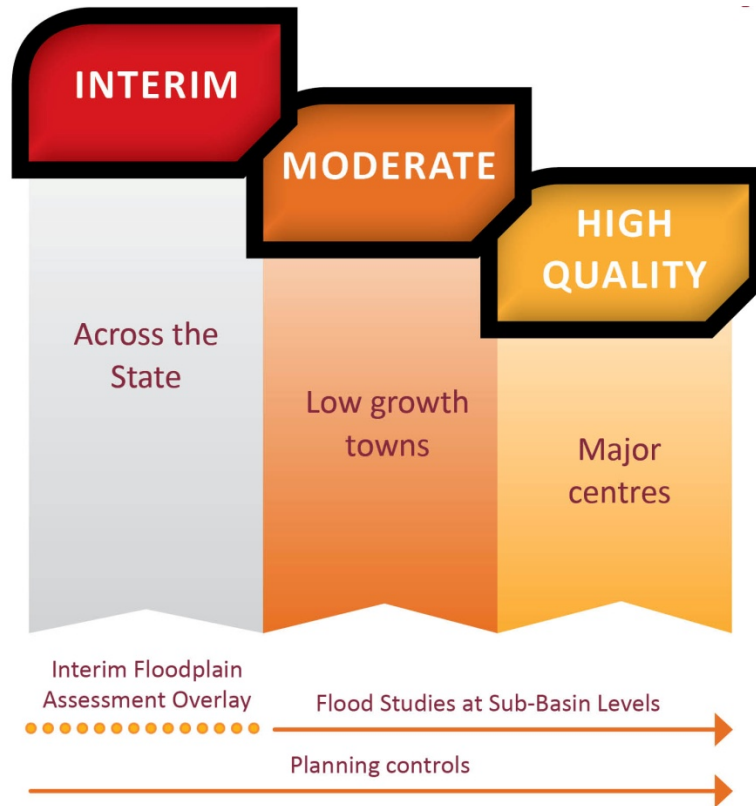
- 129 Sub-basins across Queensland
- 119 sub-basins have been mapped to date (within 8 months)
- In total 99.3% of the State has been assessed for floodplains
- 26.6% identified within a floodplain
- 8,875 map pages produced to date (A3 @1:50,000 scale)
- Using more than 35 cartographers
- Largest mapping exercise across the country in a long time

Released publically for free download in GIS format – Government Information Website

Comparison of IFAO to 2012 Floodline – Roma



Level 2 – Flood investigations for key towns



Flood investigations being delivered for BoM identified towns across Qld through the Queensland Flood Mapping Program (QFMP).

Results in hazard maps and flood animations that can be used for land use planning and emergency management purposes



Queensland Flood Mapping Program (QFMP)

Purpose

Undertake flood studies for 100+ high risk flood towns across Queensland

Why?

- Recent flooding events across Queensland highlighted the need to have access to flood information
- The Qld Flood Commission of Inquiry recommended (2.4):
‘A recent flood study should be available for use in floodplain management for every urban area in Queensland. Where no recent study exists, one should be initiated.’



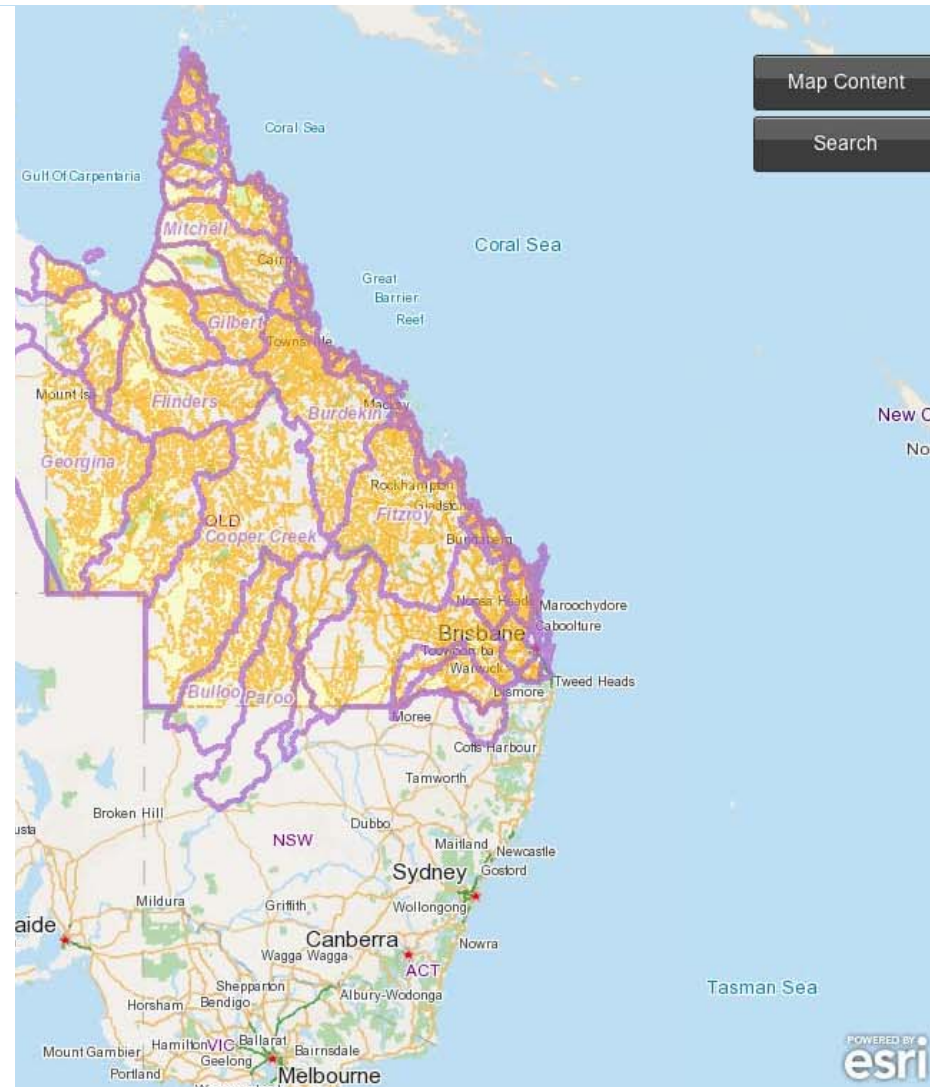
Dirranbandi | 2012



QFMP Mapping: February 2012

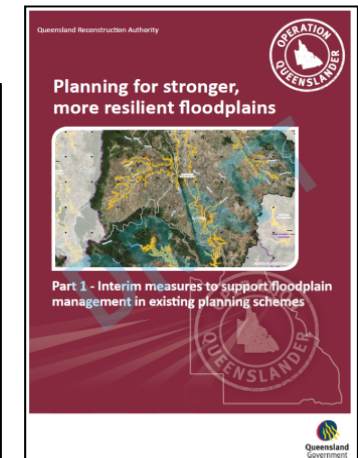
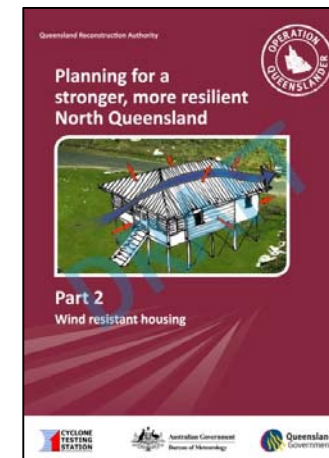
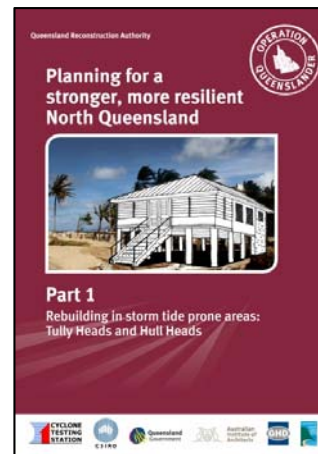
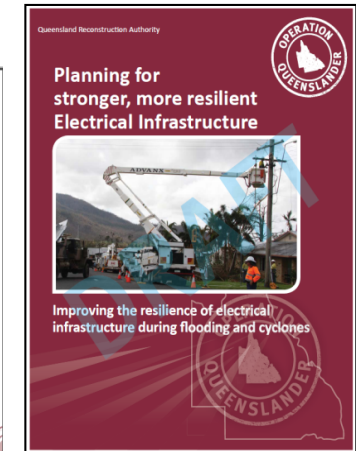
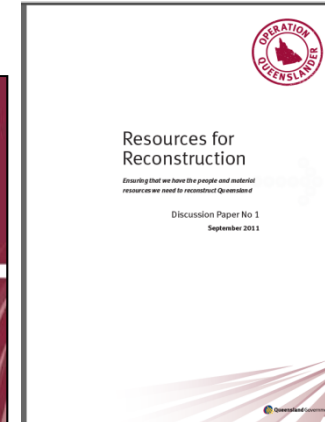
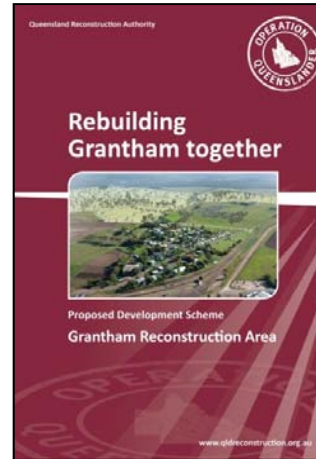
FloodCheck

- FloodCheck displays the following:
 - Imagery and floodline of historic events (e.g. 1893, 1974 and 2011 for Brisbane)
 - Flood study locations and information drawn from database
 - State-wide floodplain mapping
 - Location of river gauges
 - Downloadable flood information reports per property or area of interest
- FloodCheck experienced over **17,600** users during the January 2013 flood event – strong community awareness tool during the event



Strategic projects

- Rebuilding Grantham together
- Floodplain management
- Rebuilding in storm tide prone areas
- Wind resistant housing
- Planning for stronger, more resilient electrical infrastructure
- Resources for reconstruction

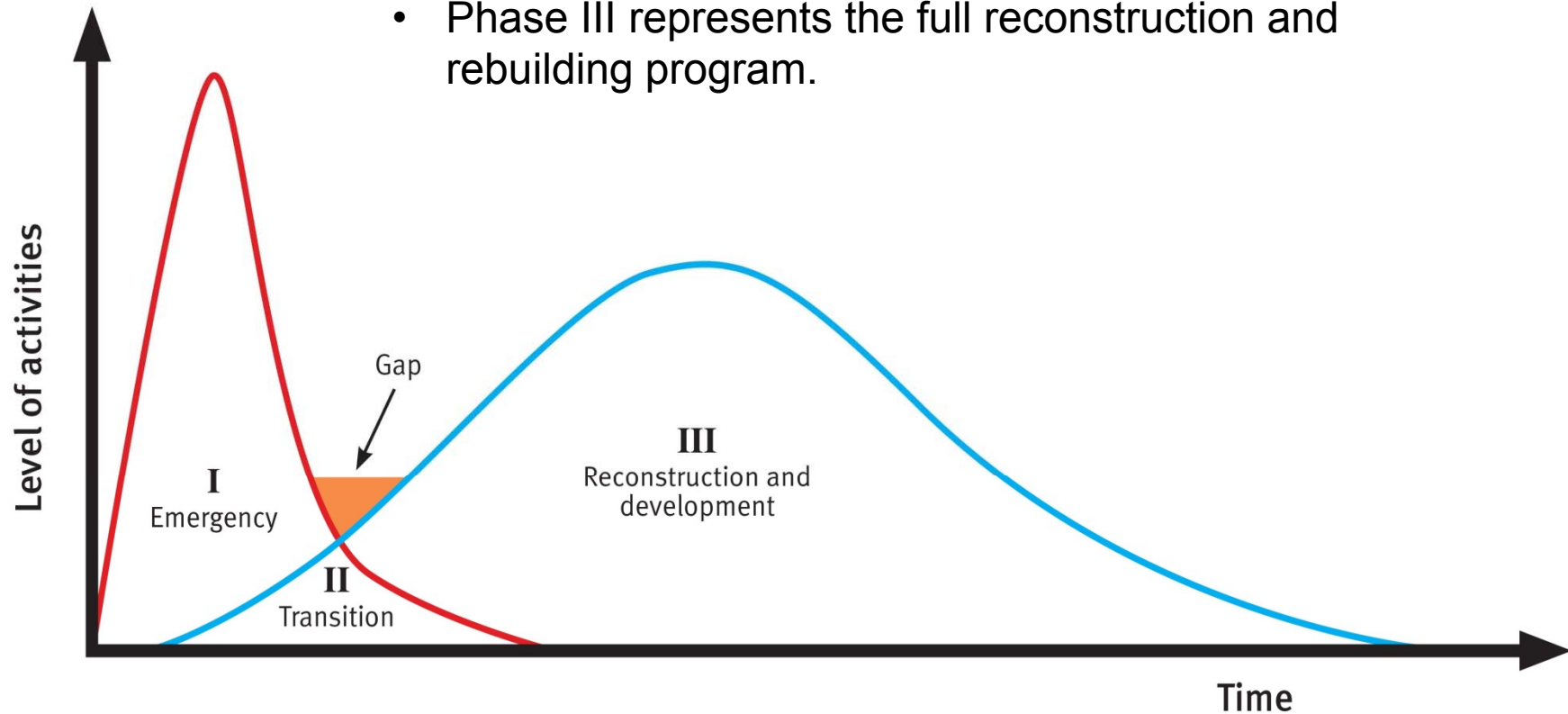


Growth of Capabilities

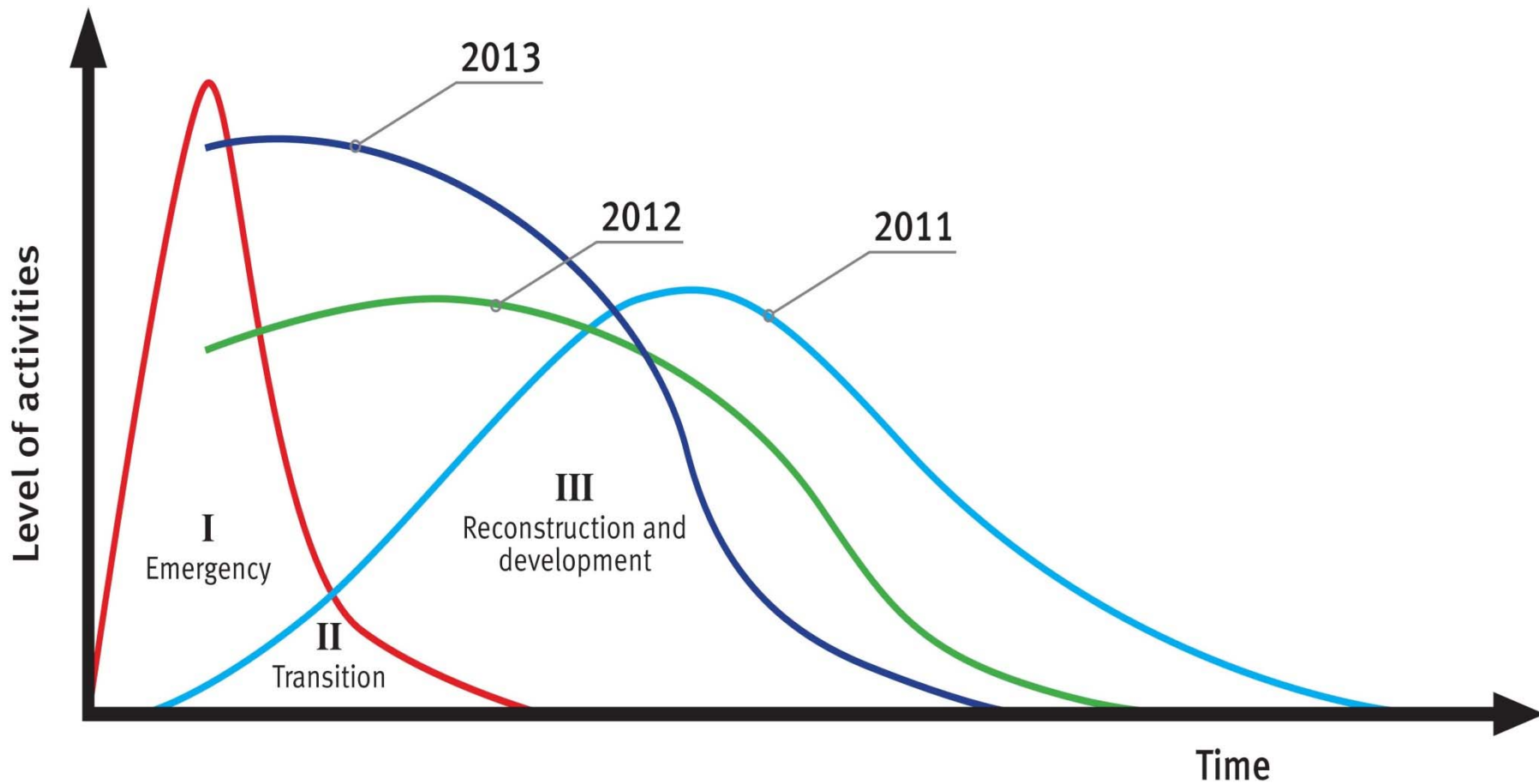
Ongoing focus aids recovery



- Phase I is the emergency relief effort.
- Phase II is the transition from an emergency to a full-scale reconstruction program. This phase is identified as the critical phase for the success of the whole reconstruction program.
- Phase III represents the full reconstruction and rebuilding program.



Queensland's reconstruction capability and activity 2011-2013



“The challenge of recovery is to institutionalise urgency, i.e. to embed the drive for extraordinary results into government practices.”

- Asian Development Bank & The World Bank. 2011.



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