

Transformative culture of disaster risk management as an enabler to resilience

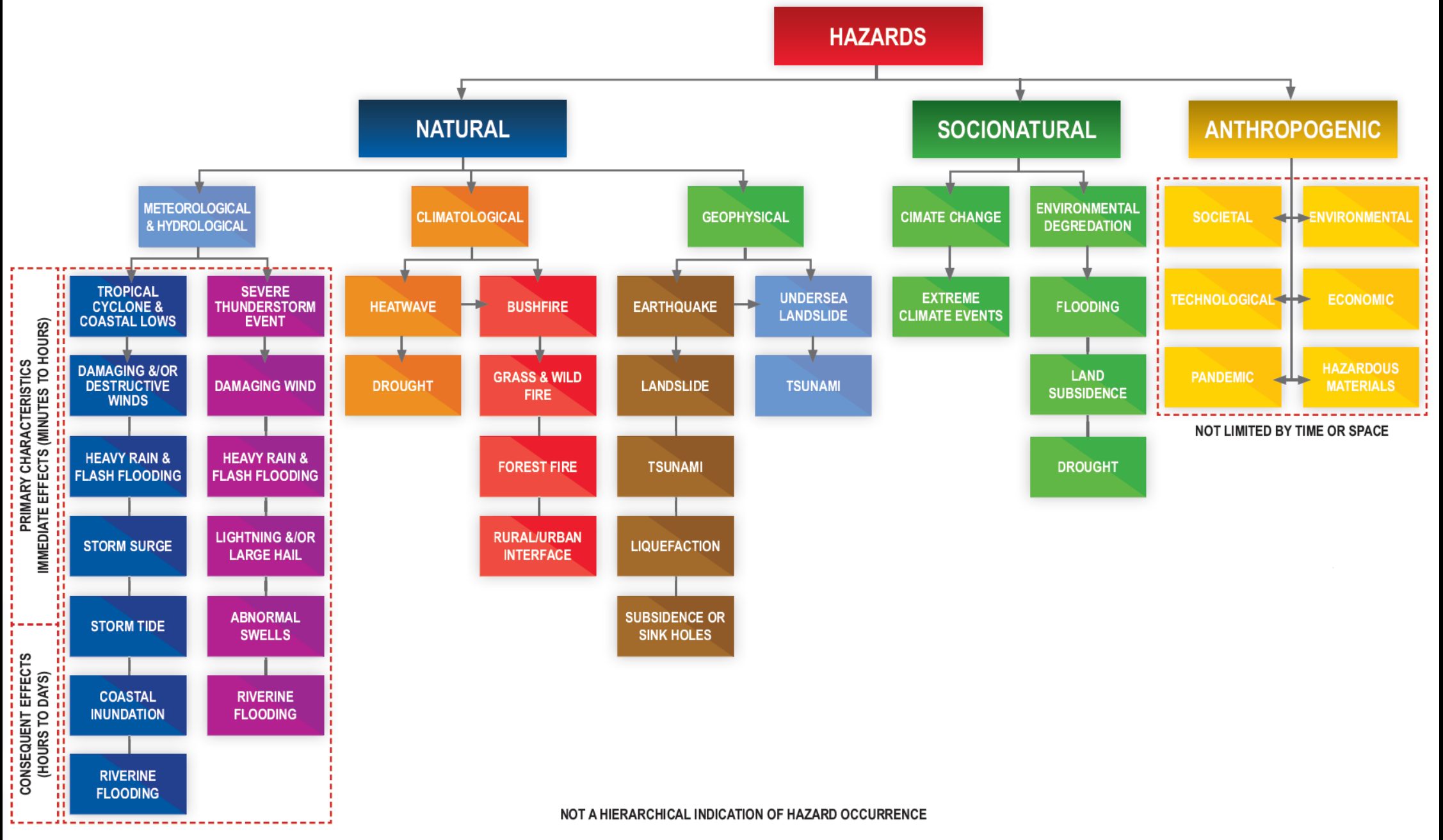
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Reframing risk

- *Hazard x Exposure x **Vulnerability** = Risk.*
- Scientific based hazard data that is understandable, relevant and directly useful (local knowledge).
- Cross sectoral partnerships and networks.
- Open data versus risk information that is sensitive.
- Challenging a compliance driven culture of practice imbued with planning fallacies (illusion of control).
- Continuous learning and a problem solving focus.



NOT A HIERARCHICAL INDICATION OF HAZARD OCCURRENCE

PROCESS 1



Assessment of the hazard against probability of occurrence (AEP)

PROCESS 2



Assessment of likelihood of occurrence based on scenario modelling from the past 50 years of historical data

Risk Assessment

CONTEXT

Natural Environment
Built Environment
Community

RISK BASED PLANNING

Review existing plans
Develop future plans

PLANNING

ASSESSMENT

1

2

4

3

Queensland
Emergency
Risk Management
Framework

HAZARD ANALYSIS

Manifestation
Exposed elements
Risk identification

RISK ANALYSIS

L x V x C
Assign level of risk
Gap analysis

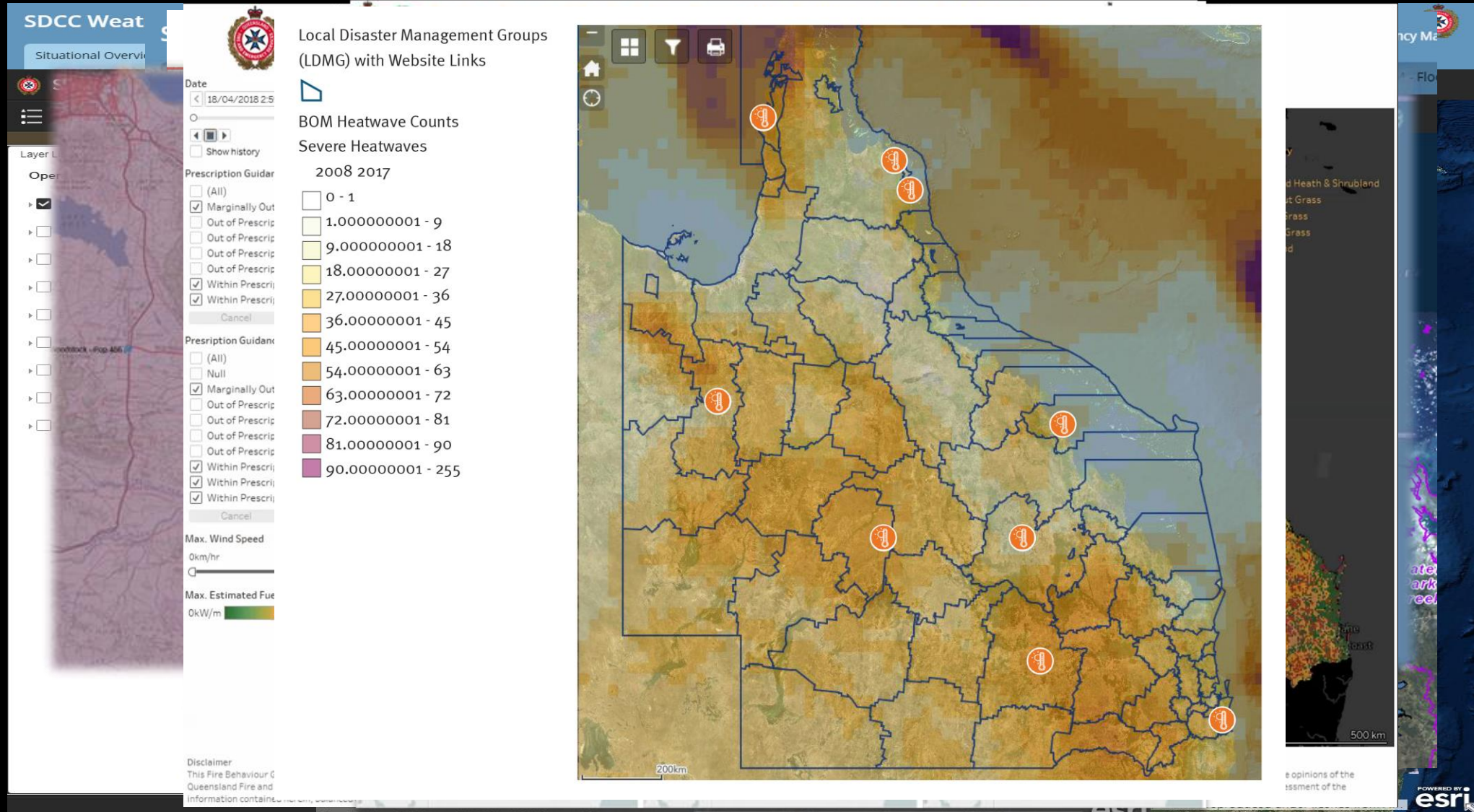
assessments
planning
articulate

systems,

tendencies;

g cascading

Geospatial intelligence as a means of focus



Appendix 6: Sample Risk Register (Infrastructure)

Exposed Elements – Imported directly from the Risk Assessment Table.

Risk Statement – Imported directly from the Risk Assessment Table.

Inherent Risk Level – Imported directly from the Risk Assessment Table.

Register ID – An alphanumeric identification number which identifies the current version of the register (reviewed annually) and the priority of the specific hazard. (The number before the decimal point indicates the priority of the hazard for the District and the number after is the version of the Risk Register. In this example, 1.0 shows Tropical Cyclone is the highest priority hazard for this District and this is the first version of the Risk Register. Next year when the Risk Register is updated, and if Tropical Cyclone remained the number one priority, the numbering would shift to 1.1 to indicate the reviewed version of the register.)

Decision Log Reference Number – An alphanumeric identification number which is used to clearly link the relevant line of this Risk Register to the agreed actions in the Decision Log.

Note: The Risk Register summarises the outputs of the Risk Assessment Table to inform decision making on managing the identified risks. A Register should be completed for each of the Exposed Elements sections from the Risk Assessment Table:

- Essential Infrastructure
- Access & Resupply
- Community & Social
- Medical
- Significant Industries
- Environmental.

ID	Decision Reference	HAZARDS LIST	EXPOSED ELEMENTS	VULNERABILITY	ALMOST CERTAIN	EXISTING RISK TREATMENTS OR CONTROLS	CONSEQUENCE	Risk Level				
<p>LDMG/DDMG: Mango Hills Hazard: Natural – Low Priority</p> <p>Event/Scenario: Extreme Weather QLD Likelihood: Almost Certain</p> <p>Author: Martin Williams</p>												
1		New Risk	Aged Care Facilities		Agriculture							
2		Edit Risk	Comms (Fibre Optic)		Comms (Other)							
3		New Decision Log	Emergency Services		Emergency Shelters & Places of Refuge							
4		Edit Decision Log	Local Ecosystems or Species of Concern		Maritime							
5		Administration	Rail (Freight)		Rail (Passenger)							
6		Transport Infrastructure (Maritime)	Transport Infrastructure (Road & Rail)		Transport & Logistics							
7			Power (Bulk)	Extreme	Possible	Agency, Organisation or Business Name: test	People: Major, Financial & Economic: Minor, Community & Social: Moderate, Public: Moderate, Environment: Minor	H10				
8			Power (Bulk)	Low	Possible	Agency, Organisation or Business Name: test 3	Financial & Economic: Minor, Community & Social: Major, Public Administration: Moderate, Environment: Major	Major, H10				
9			Power (Bulk)	Moderate	Almost Certain	Agency, Organisation or Business Name: test 3	Financial & Economic: Minor, Community & Social: Major, Public Administration: Moderate, Environment: Major	Major, H10				
10	1.5		- Gas & Oil Pipelines – Gas line from Coolgardie to Mandurah may be affected leading to economic disruption and disruption to domestic supply.		L6	redundancy or mitigation strategies for specific assets in exposed areas. Facility operators emergency plans and business continuity plans. - Operators maintain lists for priority of supply during and post an event. Agency Business Continuity Plans. - Establish long term plans for the mitigation of potential exposed sites.	Operators BCPs highlight priority of resupply for fuel during and post event (Emergency Services etc.)	to provision of 4 days supply to District priority list.	level. Damage to storage facility or continuing resupply disruption may have significant impact across multiple response areas.	Major	L5	Transfer

Edit Exposed Element - Power (Bulk)

Exposed Elements

Asset Owner: Other

Asset Name: test

Asset Type: Power Line

Voltage: 500kV

Impact Type: Fire

Consequence

People: Major

Financial & Economic: Minor

Community & Social: Moderate

Public: Moderate

Environment: Minor

Existing Risk Treatments or Controls

Agency, Organisation or Business Name: Agency PB d1

Existing Risk Treatments or Control: Mitigation Strategy

Vulnerability & Likelihood

Vulnerability: Extreme

Likelihood: Possible

Risk Level: **H10**

Specific Information For Vulnerability

Some notes in here

Cancel Risk Save Risk

Existing Risk Treatment or Controls – Imported directly from the Risk Assessment Table.

Capacity – An assessment of the resources, plans and attributes within the Local or District Disaster Management Group (including stakeholders) which are able to manage, reduce or mitigate risks.

Capacity – An assessment of the ability of the Local or District Disaster Management Group (including stakeholders) to sustain their capability during an event.

Capacity Gaps – An assessment of the Local or District Disaster Management Group's gap in capability and/or capacity to manage the identified risk. Otherwise known as residual risk (or the risk that remains in unmanaged form.)

Consequence Rating – An assessment of the projected or anticipated impact of the gap in capability and/or capacity if they were to evaluate during the response to an event. This assessment will auto-generate the residual risk rating.

Residual Risk Rating – The magnitude of the residual risk expressed in terms of the combination of the inherent risk rating, assessment of existing treatment control measures and the consequences of the capacity gaps manifesting during an event.

Residual Risk Decision – The annotation of whether the residual risk will be accepted (tolerated), plans will be developed to mitigate the risk or it will be transferred (upon consultation) to the next level of the CDMR. This is recorded within the Decision Log.

Traversing the void between inherent risk and residual risk

- Establishing inherent risk associated with spatial and temporal hazard manifestation via the analysis of exposures is essential however risk, and subsequently consequences, can only truly be determined through vulnerability analysis.
- Particularly true of infrastructure, systems and networks that are highly interconnected and mutually dependent.
- Broad area disaster risk assessments require interdisciplinary and cross institutional perspectives and collaboration.

Defining time horizons and emerging industry pressures

- Current time horizons between risk assessments (which should incorporate climate variability) and climate change projections?
- Longer time horizons are especially relevant when evaluating investment in new developments and or reducing vulnerability of infrastructure and communities.
- Climate risk is now distinctly seen globally as financial in nature including increases in litigation regarding climate risk disclosure.
- Put variability and change in perspective and what this means for the area of interest subject to the disaster risk assessment.

Collaborative problem solving

- Bringing individuals and organisations together is key but this is insufficient of its own as this does not necessarily involve commitment to shared goals nor commitment over time.
- Challenge is to create synergies toward action.
- Collaborative problem solving involves: communication, cooperation and responsiveness.
- Creation of common intent and its transformation into coordinated action in the production of disaster risk reduction plans is directly observable at each step.

Passage of 'residual risk' is key to any tiered system/framework

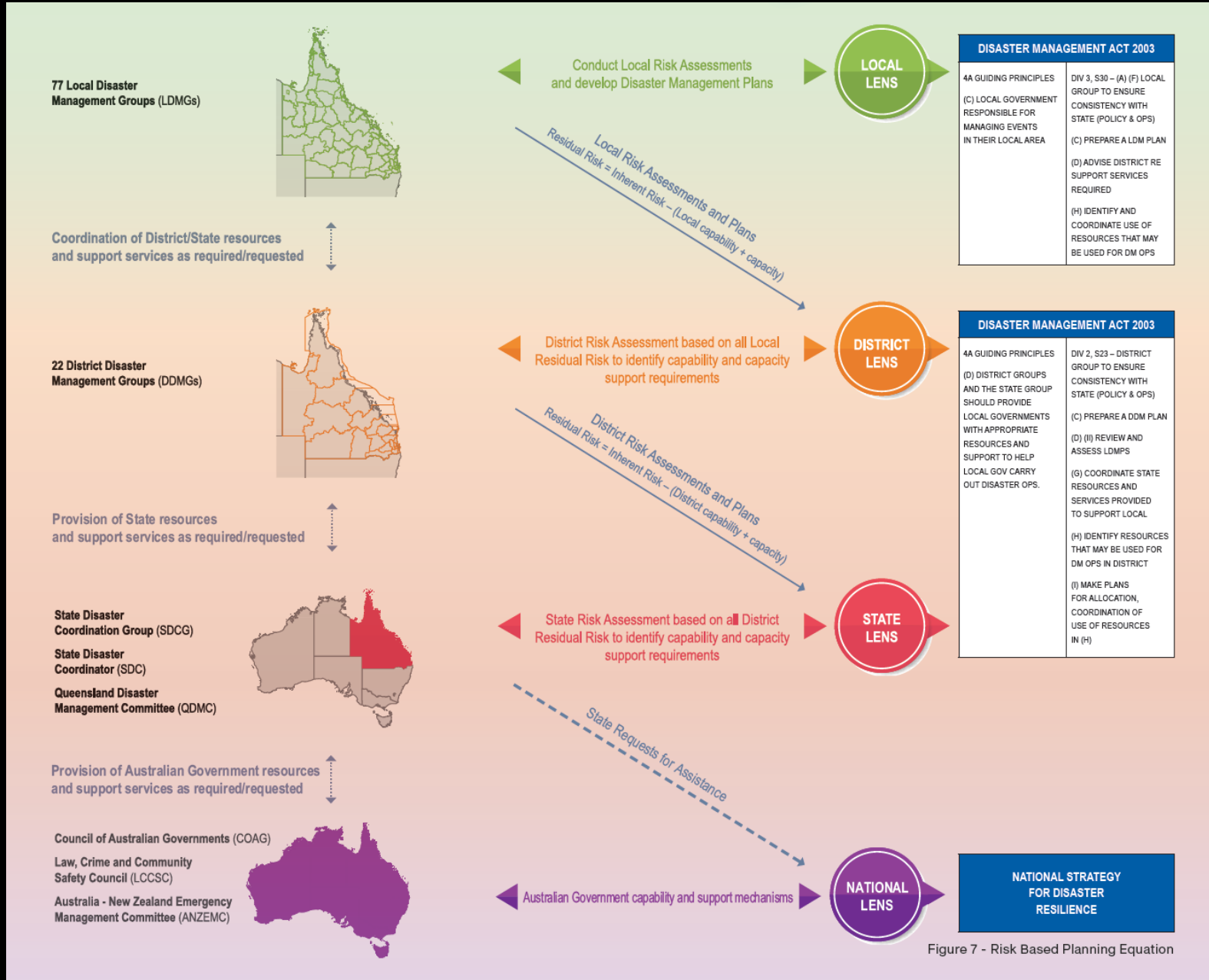


Figure 7 - Risk Based Planning Equation

QUEENSLAND EMERGENCY
RISK MANAGEMENT FRAMEWORK (QERMF)

RISK ASSESSMENT
PROCESS HANDBOOK

Prepared by Community Resilience and Risk Mitigation Unit, Emergency Management and
Community Capability, Queensland Fire and Emergency Services

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QUEENSLAND
State Natural Hazard
Risk Assessment
2017



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Transformative risk

- Scientific based hazard information/local knowledge.
- Cross sectoral partnerships and networks.
- Responsible/accountable sharing of risk information.
- Assisting risk owners to move beyond 'compliance'.
- Continuous learning through science, technology and lived experience.
- A culture of practice emerges that has a solution focus through collaborative problem solving = enabling adaptation.



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