bushfire&natural HAZARDSCRC

CAPABILITY NEEDS FOR EMERGENCY & DISASTER MANAGEMENT ORGANISATIONS

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An Australian Government Initiative

CRC AUSTRALIA

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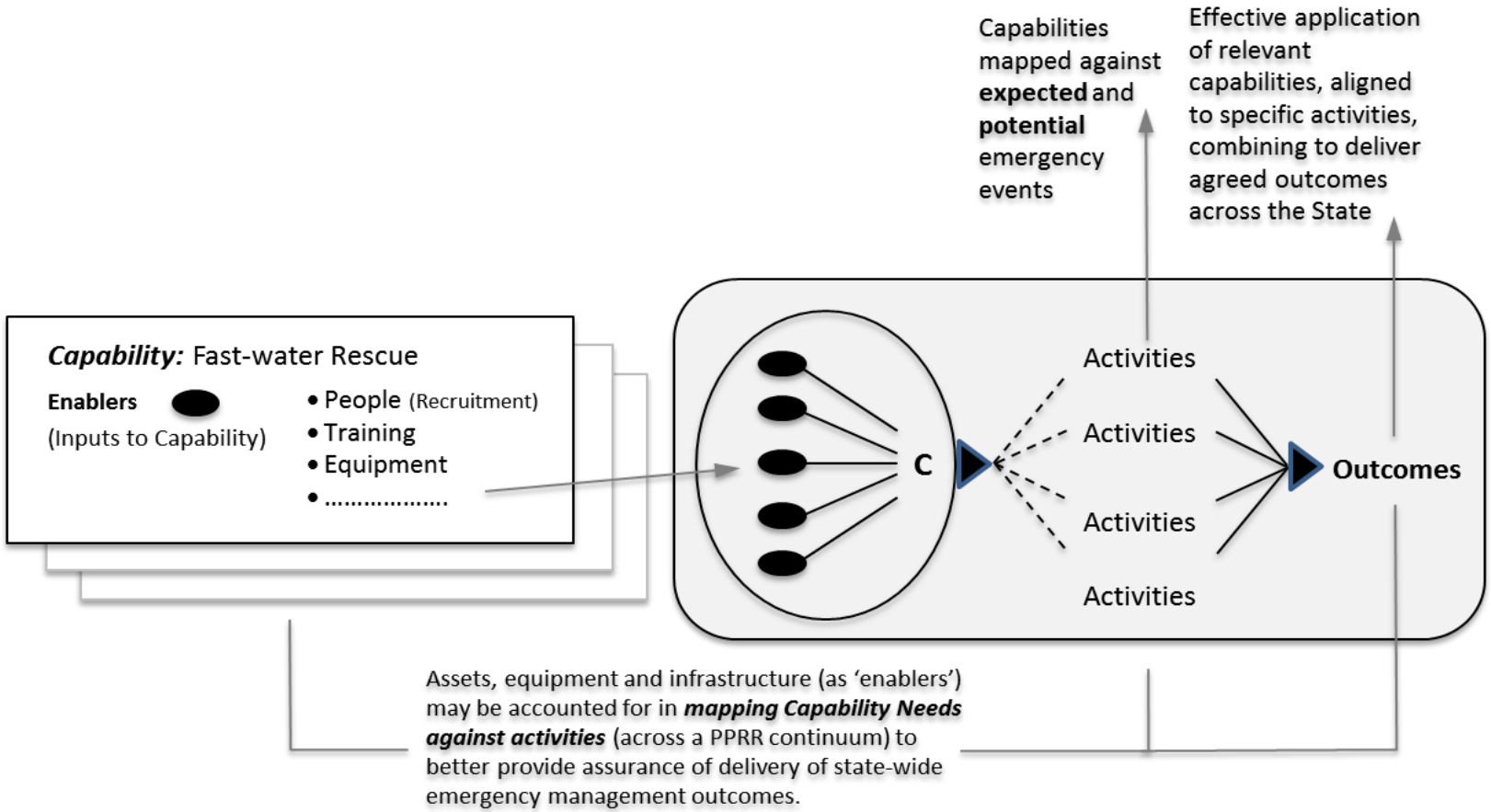
Expected Outcomes from this Work

1. **Transfer of skills** in applying futures & scenario-based thinking that assists preparedness, Prevention, Response and Recovery for disasters and related incidents that impact on human services and essential infrastructure systems;

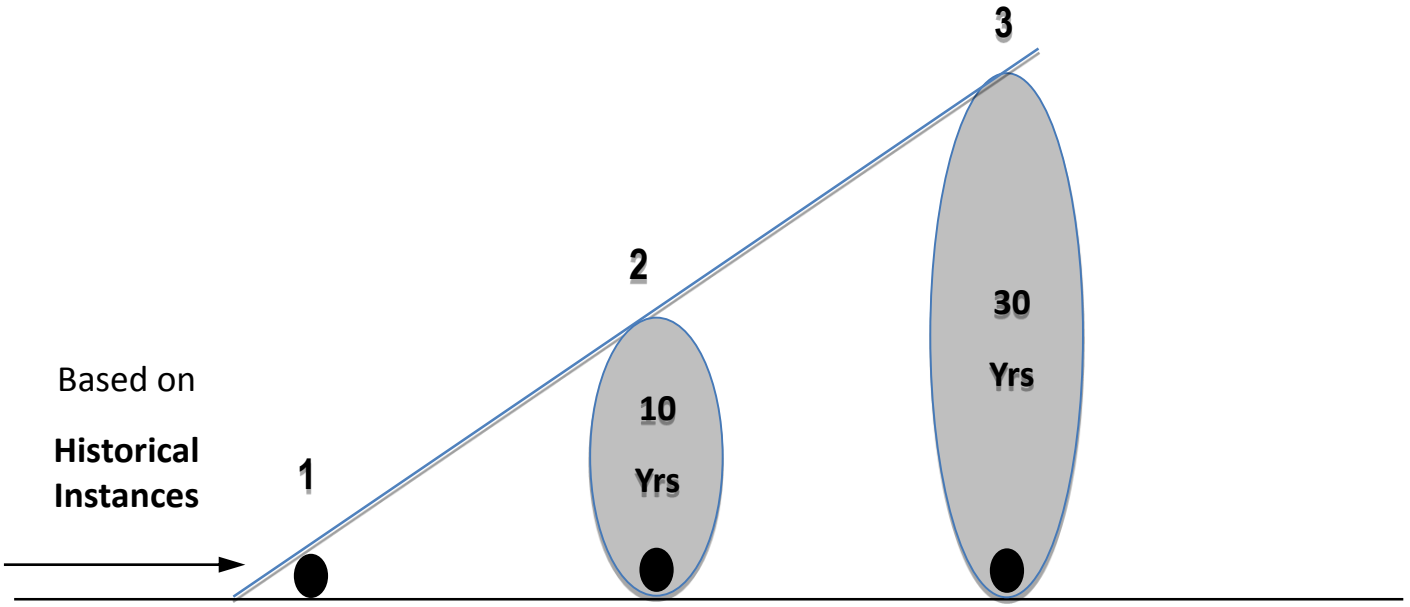
2. **Processes** to better identify future capability and capacity needs for preparedness, Prevention, Response, Recovery and remediation efforts.

3. **Objective frameworks** which will allow individual state disaster management agencies and related authorities to examine capability planning options to enable them to better prepare to adapt to complex circumstances which are commonly created by disasters and emergent threats secondary to immediate disaster-related effects.

A Conceptual View



Emergency Scenarios



Based on **plausible** and **probable** future-scaping

Two distinct future scenarios developed with End-user input.

Each is likely to exhibit some degree of variability between States.

Future disaster-scaping tool

1) Four **natural hazard categories (hazcats)** have been selected for disaster 'scaping': **hydrological**, **meteorological**, **climatological**, and **geophysical** - with a short context statement specific to a specific state provided for each.
2) The scenario development task (focusing on each hazcat sequentially) seeks to identify the extent that critical societal factors (which may vary between states) are vulnerable to the action of specific sub-categories of each hazcat (as events) as they may be present in each future time point. The current working set are: **Demographic change**; **Land-use (legacy & developing)**; **Infrastructure development and Other(s)** - there is no specific limit to factor choice other than being suitable indicators of conditions/issues that will be impacted by disasters critical to Queensland.
3) The results of this examination are further extended by a rudimentary assessment of ***likelihood***, ***impact*** **and** ***area of effect*** (a generic risk analysis) on that vulnerability factor given a particular hazcat sub-category manifests as, or in, an event.
4) From these steps, viable and plausible disaster scenario descriptions (for hazcat sub-categories as they are deemed relevant and 'high risk' to each state) are sought covering: **What impact(s) are likely**, **How big they could be; Where they might occur; and How long they will manifest**.

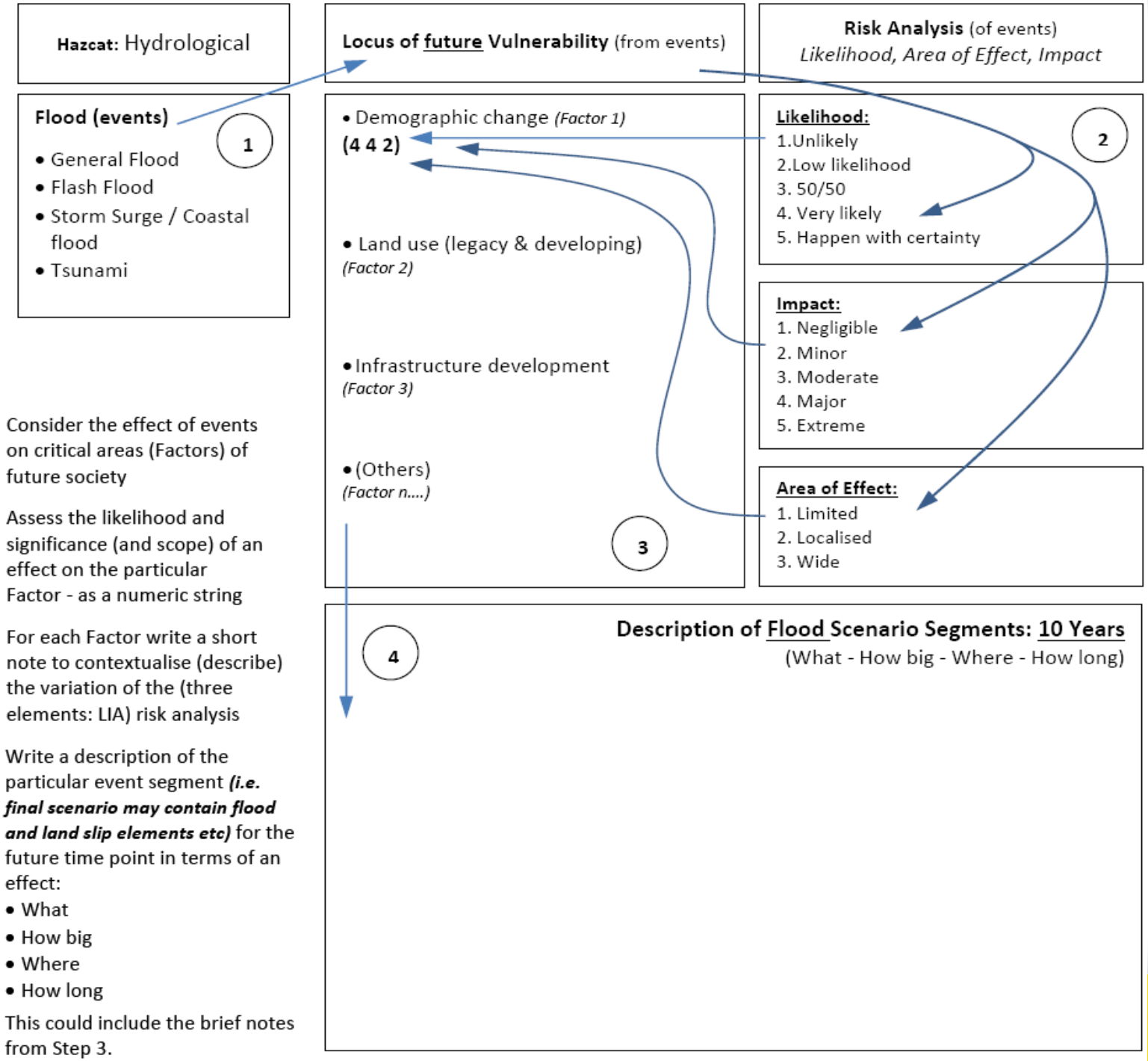
Hazard Category

Hydrological: Future trends in rainfall can be difficult to predict due to natural variability. In coming years, current projections indicate less rainfall across most of Queensland (far North region excepted), but an increase in 2-hr, 24-hr, and 72-hr extreme rainfall events for large areas of South-east Queensland. These significant short-term rain events will increase flood risk in many locations, and likely lead to wet land movement events.

(The 2010/11 Queensland floods were of a magnitude not seen since 1974.)

Landslides occur in every state and territory of Australia, often as a result of exposure to prolonged or intense rainfall. Geoscience Australia lists south-east Queensland, as one of seven landslide-prone regions in Australia; areas where landslides are more prone include Townsville, Cairns and Mt Tambourine.

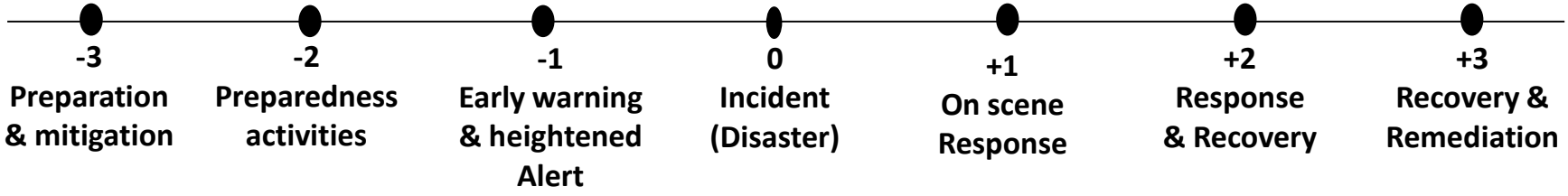
	10 Years		30 Years	
Flood (events) **A** ° General Flood ° Flash Flood ° Storm Surge / Coastal flood ° Tsunami	**Locus of future Vulnerability** (from event) **1** • Demographic change • Land use (legacy & developing) • Infrastructure development • (Others)	**Risk Analysis** (of events) *Likelihood, Area of Effect, Impact* **2** **Likelihood:** 1.Unlikely 2.Low likelihood 3. 50/50 4. Very likely 5. Happen with certainty **Impact:** 1. Negligible 2. Minor 3. Moderate 4. Major 5. Extreme **Area of Effect:** 1. Limited 2. Localised 3. Wide	**Locus of future Vulnerability** (from event) **3** • Demographic change • Land use (legacy &developing) • Infrastructure development • (Others)	**Risk Analysis** (of events) *Likelihood, Area of Effect, Impact* **4** **Likelihood:** 1.Unlikely 2.Low likelihood 3. 50/50 4. Very likely 5. Happen with certainty **Impact:** 1. Negligible 2. Minor 3. Moderate 4. Major 5. Extreme **Area of Effect:** 1. Limited 2. Localised 3. Wide



1. Consider the effect of events on critical areas (Factors) of future society
2. Assess the likelihood and significance (and scope) of an effect on the particular Factor - as a numeric string
3. For each Factor write a short note to contextualise (describe) the variation of the (three elements: LIA) risk analysis
4. Write a description of the particular event segment ***(i.e. final scenario may contain flood and land slip elements etc)*** for the future time point in terms of an effect:
   - What
   - How big
   - Where
   - How long

   This could include the brief notes from Step 3.

Capability Gap Analysis

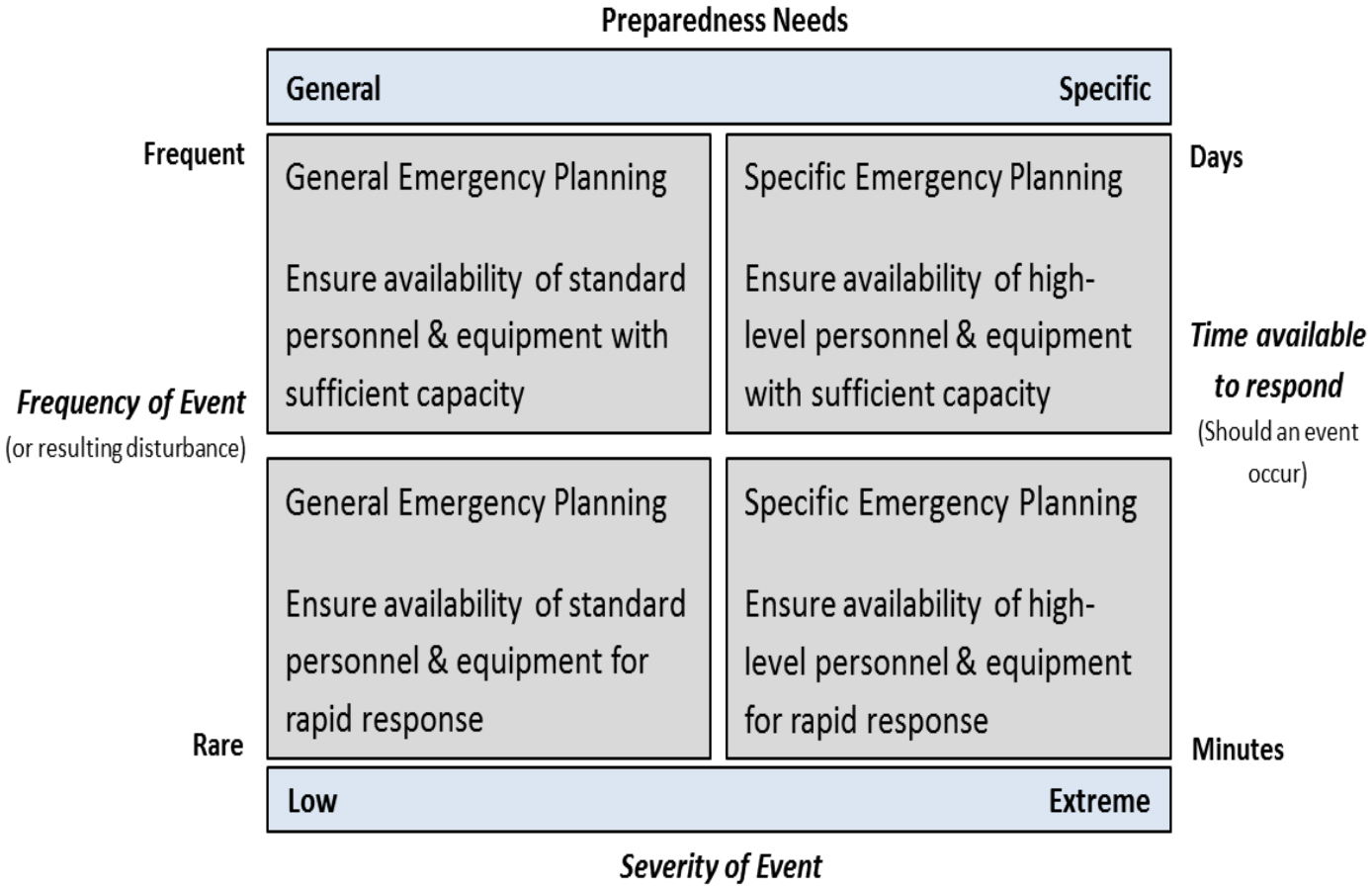


Actual Capability
Ideal Capability
Gaps in Capability
Options for addressing gaps

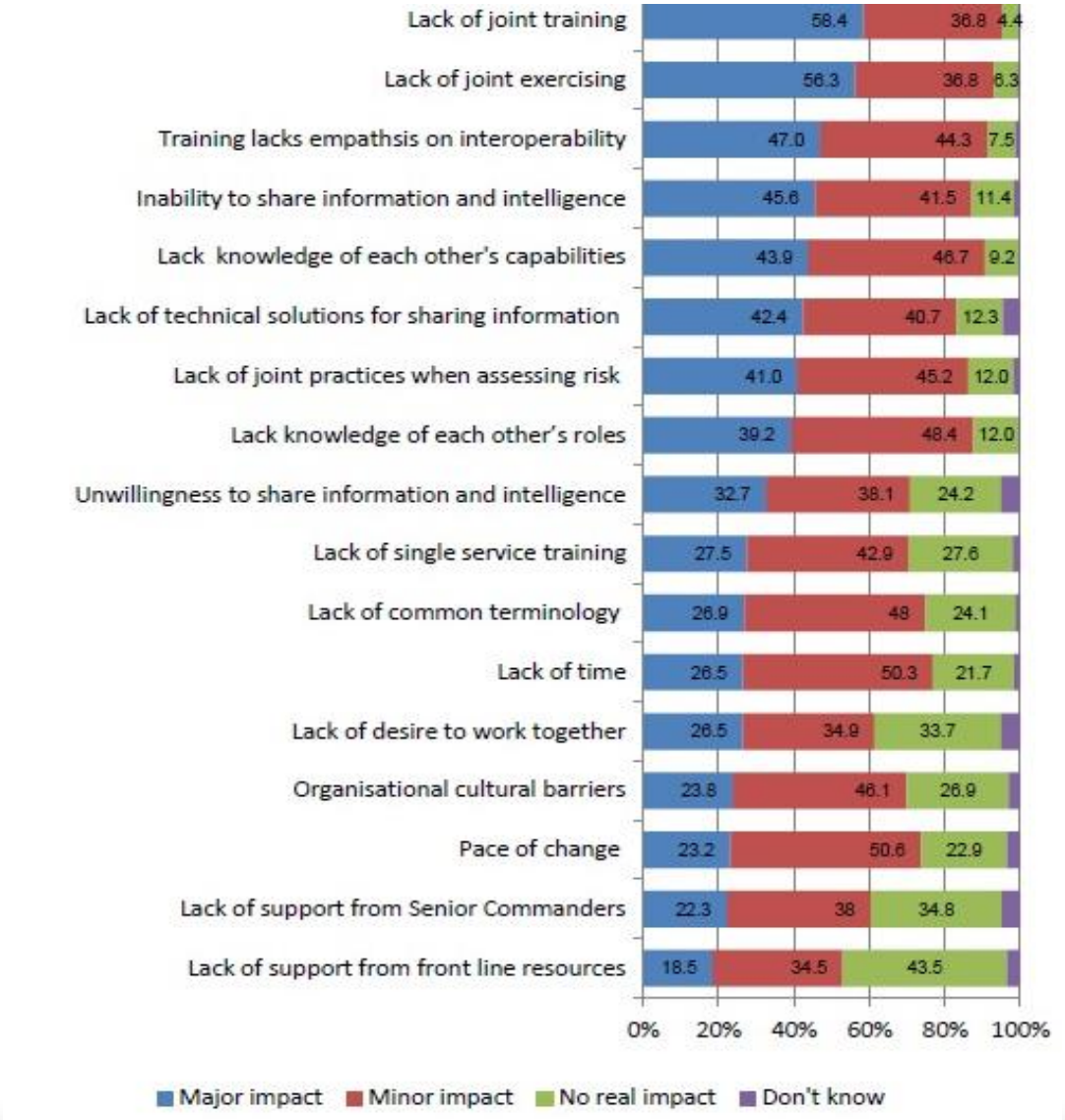
Candidate Interoperability Needs Amongst Responder &Recovery Groups

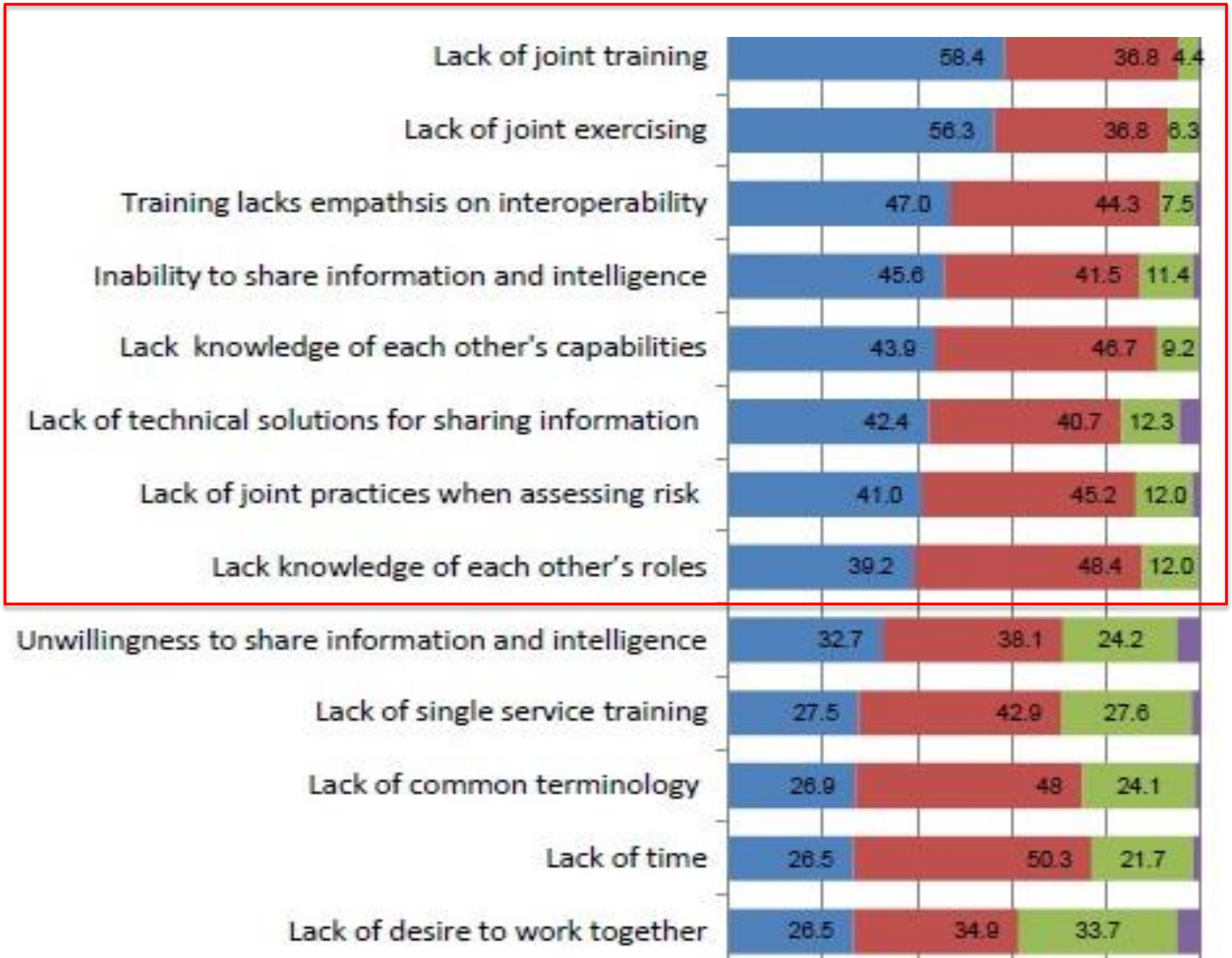
(Project D8)

A Planning Frame for Complex Emergencies

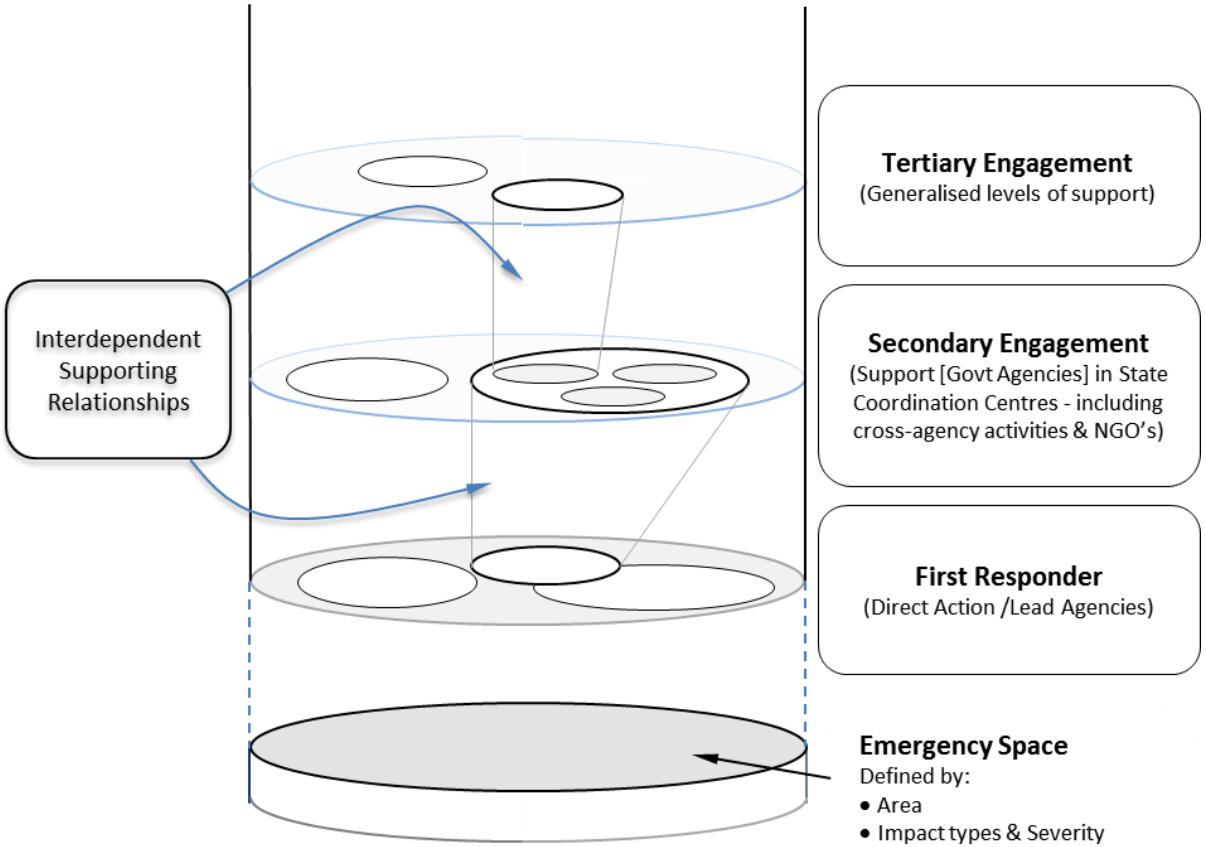


Results of first responder survey (JESIP 2013)




Lack of joint training
58.4
36.8
4.4
Lack of joint exercising
56.3
36.8
8.3
Training lacks empathsis on interoperability
47.0
44.3
7.5
Inability to share information and intelligence
45.6
41.5
11.4
Lack knowledge of each other's capabilities
43.9
46.7
9.2
Lack of technical solutions for sharing information
42.4
40.7
12.3
Lack of joint practices when assessing risk
41.0
45.2
12.0
Lack knowledge of each other's roles
39.2
48.4
12.0
Unwillingness to share information and intelligence
32.7
38.1
24.2
Lack of single service training
27.5
42.9
27.6
Lack of common terminology
26.9
48
24.1
Lack of time
26.5
50.3
21.7
Lack of desire to work together
26.5
34.9
33.7

A Conceptual View



Some Challenges

- Industry Participants at different levels of maturity in relation to using capability as a central aspect of their planning

- Futures thinking not well represented as a core planning factor (similarly, looking backwards to capture learning opportunities may be better represented)

- Interoperability
  - is not fully inclusive of all participants with standing in EM & DM
  - must be fully thought through (as a strategic goal) & efforts resourced into longer terms.