CHALLENGES OF MEASURING EMERGENCY MANAGEMENT PERFORMANCE UNDER ADVERSITY: THE GOOD THE BAD THE UGLY

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Enhancing incident management team effectiveness and organisational learning

Effective emergency management organising

Cognitive decision-support tools (heuristics)

Dwyer, Douglas Hickey Salter Owen

Abbassi, Bearman, Bhandari, Brooks Curnin Hamra Owen

Brooks Bearman Curnin Grunwald Owen
2014 - PRACTICAL DECISION TOOLS FOR IMPROVED DECISION-MAKING IN COMPLEX SITUATIONS

Cognitive Decision Strategies

Process-based performance metrics

Team monitoring strategies
The Future of Emergency Management 2011
Opening keynote, Commissioner Lee Johnson, President AFAC
<table>
<thead>
<tr>
<th>ASPECTS</th>
<th>Local incident management</th>
<th>Strategic emergency management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Event complexity</td>
<td>85% routine</td>
<td>Out-of-scale, non-routine</td>
</tr>
<tr>
<td>focus</td>
<td>Locally defined</td>
<td>Broader consequences</td>
</tr>
<tr>
<td>Information flows</td>
<td>Incident management and mitigation</td>
<td>National/State-level and political</td>
</tr>
<tr>
<td>Time span</td>
<td>Immediate, reactive</td>
<td>Longer duration; indirect effects</td>
</tr>
<tr>
<td>Resourcing and prioritising</td>
<td>shift handovers, upwards requests</td>
<td>Prioritisation; Inter-state and international liaison</td>
</tr>
<tr>
<td>System Oversight</td>
<td>Safety officer</td>
<td>Reliability assurance</td>
</tr>
<tr>
<td>Inter-agency liaison</td>
<td>Minimum to moderate</td>
<td>Significant- whole of government</td>
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STRATEGIC LEVEL EMERGENCY MANAGEMENT
INFORMED BY 2012 INDUSTRY SURVEY
“WHAT MECHANISMS ARE IN PLACE TO ASSESS THE EFFECTIVENESS OF THE OBJECTIVES?”

Incident management evaluation mechanisms

- End product: 28%
- Internal criteria: 17%
- External feedback: 10%
- Shift briefings: 4%
- Unsure/no eval: 4.5%
- Afterwards: 8%
- Didn’t answer: 29%

Responses of regional and state level participants – industry survey n=206
INFORMED BY - 2013
END OF PROJECT - REVIEW AND CONSULTATION
2013 REVIEW CONSULTATION METHODS

- Interviews experienced personnel (N=15)
- End user group teleconferences based on WIKI (n=2)
- Workshop with AFAC AIIMS Steering Group
- Consultation survey to confirm issues and drill down
  - Sponsored by CEO AFAC
  - 36 Fire and emergency services agencies seeking 2 participants
  - 38 participants (54%) of potential sample
CONSULTATION QUESTIONS

• At a strategic level, what constitutes an appropriate set of objectives for out-of-scale events?

• At local, regional or state levels, what are the indicators of "trouble" that may signal movement toward vulnerability in emergency response and its management?

• How would we know that major/out-of-scale events had been well-managed?

Sample:
Years in industry: 24 (m)
Years in agency: 13 (m)
All types of ESOs incl
- Rural (n=10)
- Urban (n=7)
- LMAs (n=9)
- All hazards (n=12)
QUESTION 1 - EFFECTIVE EMERGENCY MANAGEMENT OBJECTIVES

“The critical issues must evolve around community safety” [#27]

“there are clear strategic plans in place to manage both the event and consequences” [35]

[response means] “we have failed to manage risks” [#31]
“I think we need to be settling on a realistic outcome and that may at times not necessarily be a palatable outcome...it may for instance include some loss of property and in fact loss of life but given the circumstances on the day that in fact may have been a great result... I don’t think we are of a mindset to ensure that the public knows just how difficult a task is undertaken at times and perhaps we need to use the media more to our advantage” [#28]
QUESTION 2 – WHAT ARE INDICATORS OF TROUBLE? – IN RESPONSE

“incident escalates faster than escalation of effort”

“incident managers narrow their focus[#28]

“inaccurate or non-timely information to the community” [#21]

“There is conflicting information /intelligence” [#4]

“plans or priorities between stakeholders are in conflict” [#6].
QUESTION 2 – WHAT ARE INDICATORS OF TROUBLE? – BIGGER PICTURE

“Increasing loss of experienced staff within agencies.” [#10]

“Lack of implementation of lessons learnt into doctrine and practice.” [#10]

“Rationalising resources - i.e. removing a surge capacity from an organization.” [#16]

“We lose, or fail to establish, contact/engagement with the community at risk” [#2].
QUESTION 3 – WHAT ARE INDICATORS OF SUCCESSFUL MANAGEMENT?

“\n
At all times each ESO should have no problems articulating the following: Exactly who
• from the agency is involved in every level of the response?
• where are they at any moment in time during the response?
• what are they doing in relation to the IAP and who is supervising them?
• If these questions can't be answered in exact detail, the strategic level is not even connected to the rest of the organisation and operating with these unknowns = vulnerability” [#13].
QUESTION 3 – WHAT ARE INDICATORS OF SUCCESSFUL MANAGEMENT?

**Confidence**: that the confidence of the public and its elected leaders is maintained

“The level of community recovery - a comparative analysis of the capacity of a community before and after the event. Can it do/provide what it did before the event -- or has there been a change in that capacity and if so what is the size of that change. [#10].
QUESTION 3 – WHAT ARE INDICATORS OF SUCCESSFUL MANAGEMENT?

Reflexivity and learning for continuous improvement

“we need to be able to create a learning environment where triumphs and mistakes can be shared in blame free environment for future benefit” [#3].
# Thematic Analysis of Comments

<table>
<thead>
<tr>
<th>Themes found in data</th>
<th>Data extracts coded to theme</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Q1: Approp objectives?</td>
<td>Q2: Indicators of trouble?</td>
</tr>
<tr>
<td>1 To be prepared and ready</td>
<td>9 (4%)</td>
<td>13 (5%)</td>
</tr>
<tr>
<td>2 To ensure that the incident control system is maintained appropriately (achieving objectives, managing risks)</td>
<td>111 (48%)</td>
<td>117 (48%)</td>
</tr>
<tr>
<td>3 To coordinate with other stakeholders</td>
<td>24 (10%)</td>
<td>16 (6%)</td>
</tr>
<tr>
<td>4 To maintain the confidence of the affected and general public and its elected leaders</td>
<td>85 (37%)</td>
<td>85 (35%)</td>
</tr>
<tr>
<td>5 To support whole of government strategic decision making for consequence management</td>
<td>1 (0.5%)</td>
<td>14 (6%)</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>230 (100%)</strong></td>
<td><strong>245 (100%)</strong></td>
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THEMATIC ANALYSIS OF COMMENTS

Most concern for

• To ensure internal layers within the response working properly

• To maintain confidence of citizens and elected leaders

N=651 comments in total

- To be prepared and ready
- To ensure ICS layers working properly
- To coordinate with others
- To maintain confidence citizens and elected leaders
- To support whole of Govt strat conseq management
IMPLICATIONS: THE GOOD

- An increasing motivation to engage
- Existing frameworks

1) **values** governing the evaluation of performance
2) **complexity** of the systems involved
3) **validity** of the information on which the analysis and evaluation is based and
4) **limiting conditions** under which the emergency response system operated during the emergency event.

# Values Governing Performance Measurement

<table>
<thead>
<tr>
<th>Themes of concern</th>
<th>Values</th>
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<tbody>
<tr>
<td>To be prepared and ready</td>
<td>A healthy, capable, resilient workforce</td>
</tr>
<tr>
<td>To ensure that the incident control system is maintained appropriately (achieving objectives, managing risks)</td>
<td>Safety of personnel, trust and empowerment</td>
</tr>
<tr>
<td>To coordinate with other stakeholders</td>
<td>Respect and integrity</td>
</tr>
<tr>
<td>To maintain the confidence of the affected and general public and its elected leaders</td>
<td>Primacy of life and public service</td>
</tr>
<tr>
<td>To support whole of government strategic decision making for consequence management</td>
<td>Support and service contribution</td>
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</tbody>
</table>
## Complexity Governing Performance Measurement

<table>
<thead>
<tr>
<th>Themes</th>
<th>Complexity</th>
</tr>
</thead>
<tbody>
<tr>
<td>To be prepared and ready</td>
<td>Workforce restructuring</td>
</tr>
<tr>
<td>To ensure that the incident control system is maintained appropriately</td>
<td>Technological interoperability and limitations</td>
</tr>
<tr>
<td>(achieving objectives, managing risks)</td>
<td></td>
</tr>
<tr>
<td>To coordinate with other stakeholders</td>
<td>Legislative frameworks; government policy</td>
</tr>
<tr>
<td>To maintain the confidence of the affected and general public and its</td>
<td>Demographic shifts</td>
</tr>
<tr>
<td>elected leaders</td>
<td></td>
</tr>
<tr>
<td>To support whole of government strategic</td>
<td>Regional economies indirect economic effects</td>
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<tr>
<td>decision making for consequence management</td>
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VALIDITY AND LIMITING CONDITIONS

Validity
• Performance measured during or after an event (hindsight bias)
• Measuring performance or making judgements of guilt (two different tasks – 2 different groups)

Limiting conditions
• How named?
• Could negative consequences have been avoided?
• Were there other ways of affecting the objectives in a positive way that were not exploited?
CONCLUSIONS: THE BAD

• Externally driven and media/politically based critique important BUT
CONCLUSIONS: THE BAD

... “on the contrary, the mediatisation and politicisation may cause crisis managers to lose track of operational lessons and underlying organizational lessons and instead pay excessive attention to symbolic crisis learning verbalised and framed in terms of buzzwords that may hamper critical reflection or laid down in merely rhetorical fantasy learning documents” Deverell (2009, p. 85)
CONCLUSIONS: THE BAD - INQUIRY

• Don’t necessarily learn the right lessons

• Tensions between investigating the cause-consequences as well as assigning blame
CONCLUSIONS: THE BAD - INQUIRY

- Don’t necessarily learn the right lessons

- Tensions between investigating the cause-consequences as well as assigning blame

“given that both types of evaluation [of EM performance] commence along the same sort parallel path -- of seeking to identify the cause of the crisis and how the response of the crisis was handled, it is not too surprising that the missions of cause-and-consequence and guilt blur together”.

CONCLUSIONS: THE UGLY

There is a need to explicitly try to make the limiting conditions under which the emergency response performance occurred visible when measuring its performance.

- degraded conditions
- Migration from safe to unsafe working practice

Zone of Coping Ugly

Ben Brooks, Bushfire CRC, 2013
CONCLUSIONS: THE UGLY

An important attribute of expert decision-makers is that they seek a course of action that is workable, but not necessarily the best or optimal decision. Time pressures often dictate that the situation be resolved as quickly as possible. Therefore it is not important for the course of action to be the best one; it only needs to be effective (Phillips, Klein & Sieck, 2004, p.305).

Zone of Coping Ugly

Ben Brooks, Bushfire CRC, 2013
NEXT STEPS

Consultation with existing end users of developing a framework for measuring performance

• Cognitive decision strategies
• Team monitoring strategies
• Process-based performance metrics