



Team Decision Making Breakdowns in the Wangary and Kilmore East Fires

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Breakdowns in team decision making

Success in complex emergency situations is often highly dependant on effective coordination and communication within and between teams. Due to the hazardous nature of these situations breakdowns in the communication process can introduce significant potential dangers.

A breakdown is defined as a situation where a failure in coordination, cooperation or communication leads to a temporary loss of ability to function effectively .

Disconnects

A disconnect is a specific instance of disagreement between individuals or groups that can instigate a breakdown. Disconnects were found to flow into each other to form disconnect chains within breakdowns.

Operational disconnects: There is either a difference between the actions of one party and actions expected by the other party or a mismatch in the plans that each party has about the physical operations of the response.

Informational disconnects: There is a difference in the information that each party possesses.

Evaluative disconnects: There is a difference in the evaluation or appraisal of information that is available to both parties.

Study Design

Two major fires were examined, the Kilmore East fire of 2009 and the Wangary fire of 2005. Preliminary analysis resulted in 24 instances of coordinated decision making breaking down. A further 55 disconnects were found within the breakdowns.

Breakdowns were analysed for causes, consequences and implications using a qualitative top-down and bottom-up analysis approach. This ensured that the complexity and depth of the source material was preserved.

A quarter of the data was analysed by a three member panel (2 academics and 1 subject matter expert). The remaining data was analysed by 1 coder using the panel discussions as a coding guide.

An example of a set of breakdowns and disconnects from the Kilmore East fire is shown here.

Please see Grunwald and Bearman (2011) for details on the full analysis.

EXCERPT FROM THE ROYAL COMMISSION INTERIM REPORT

“...the draft alert message of 3:02pm was not released. According to <A> it was not released because ‘the fire was being controlled by the Kilmore ICC and it was their responsibility to issue information messages be they urgent messages or otherwise’. This message was not released by the Kangaroo Ground ICC because the Kilmore ICC, not the Kangaroo Ground ICC, continued to have control of the fire

<A> stated in evidence that he attempted to contact the Kilmore ICC to pass the information on, without success. He did not know whether the Kilmore ICC was releasing this type of information. ...in any event, he reiterated: ‘not being the controlling ICC for that fire at that time, I was not able to issue those information releases regardless

 stated that the unauthorised release of fire information may have caused confusion... It is apparent that personnel at the Kangaroo Ground ICC were not aware that the Information Officer for the Kilmore ICC at that time was based at the Seymour RECC, not at Kilmore.”[Royal Commission Interim Report, 2009. P.250]

Failure to Resolve Disconnects

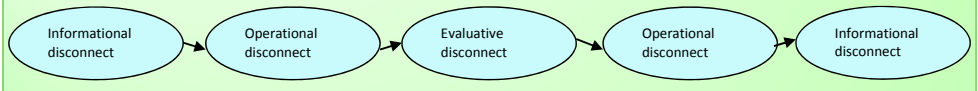
- Informational and operational disconnects were consistently left unresolved.
- Unresolved disconnects led to instances where teams did not possess important information, were unprepared for action, were developing conflicting plans and not acting in a timely way.
- Disconnects were found to disrupt the processes that underpin the formation of shared mental models: shared situation assessment, plan formulation, plan execution and learning
- Once an unresolved disconnect enters the emergency management process it will circulate, causing problems, until the disconnect is identified and resolved.
- Further research will focus on how to resolve different disconnects more effectively .

Analysis example

The disconnect chain below was developed using the above excerpt. It consists of two separate breakdown events linked by a disconnect. The first informational disconnect occurs because there is a difference in the information possessed by two incident control centres (ICC), specifically the location of the Kilmore ICC information officer. This causes a difference in expected actions, meaning one ICC does not know how to effectively act because they are assuming the other ICC will carry out their expected responsibilities, which they subsequently do not.

The evaluative disconnect occurs within the Kangaroo ground ICC, and is described as a disagreement about whether information should be sent to the community or left up to the Kilmore ICC. This begins the second breakdown event. The operational disconnect begins because of the mismatch in plans between the two ICCs, which finally results in an informational disconnect between the ICCs and the community at risk.

This is explained further in the table below.



| | Informational disconnect 1 | Operational disconnect 1 | Evaluative disconnect 1 | Operational disconnect 2 | Informational disconnect 2 |
|--|---|---|---|--|---|
| Cause | Important information about operations not shared/distributed | Management oversight, Assuming expected actions | Wanting to go against procedure (unable to contact other teams) | Procedures or responsibilities unclear/ambiguous | Important information about operations not shared/distributed |
| Consequence | Kangaroo ground did not know where to send information | Conflicting plans concerning fire response | Led to operational disconnect | Kangaroo ground do not send message | Crucial information about fire ground not sent to communities |
| Implications for shared mental models | Situation assessment incomplete | Plan formulation cannot continue without information from Kilmore ICC | Situation assessment is challenged, affecting plan formulation | Plan to execute threat message is aborted because of lack of situational awareness | Both Kilmore and Kangaroo ground have disconnected situational assessment |