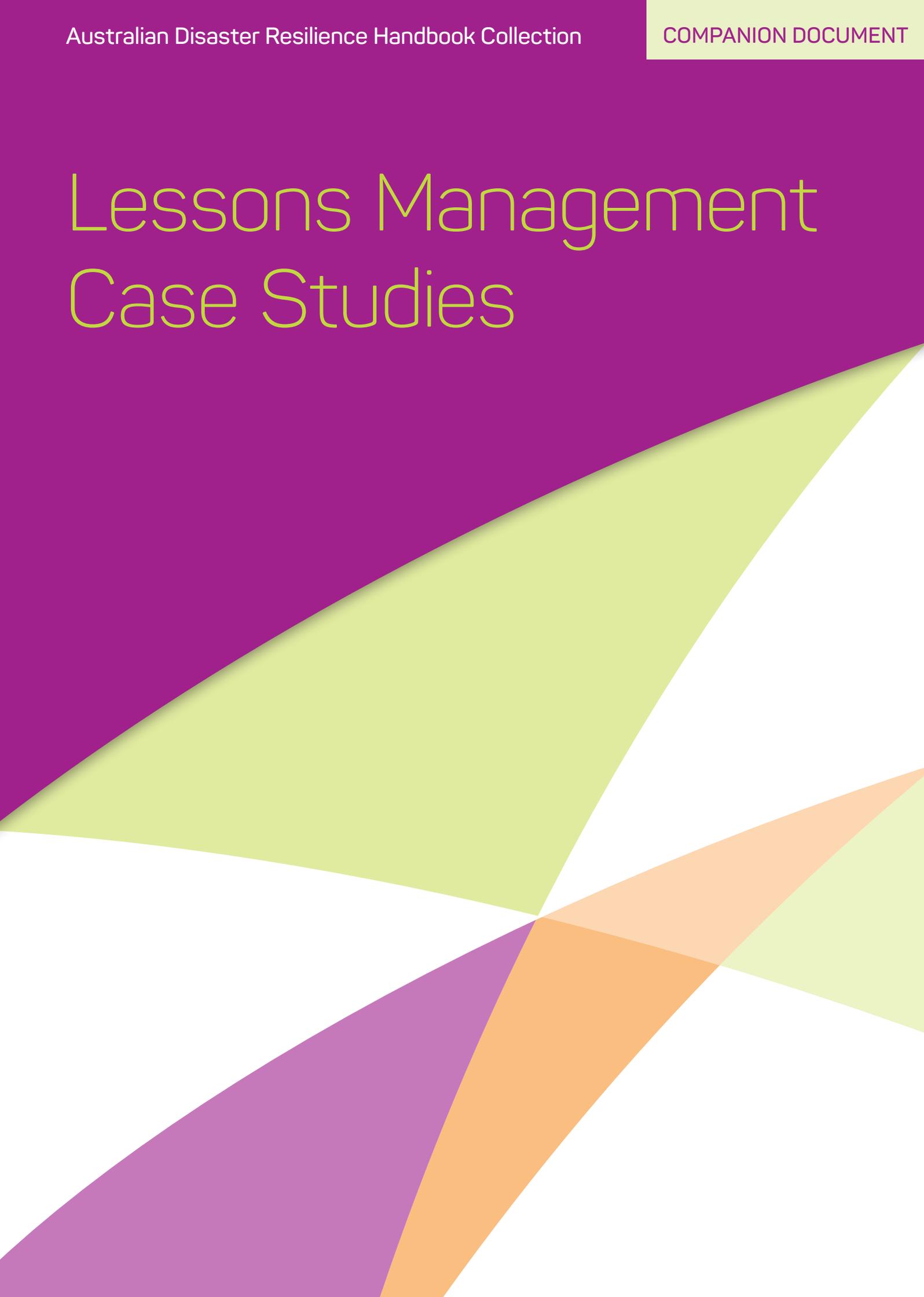


# Lessons Management Case Studies

The background of the cover features a series of overlapping, semi-transparent geometric shapes. A large purple triangle is at the top left. Below it, a light green triangle overlaps the purple one. Further down, an orange triangle overlaps the light green one. At the bottom, a purple triangle overlaps the orange one. The overall design is modern and abstract.

This collection of lessons management case studies accompanies the Lessons Management Handbook (2019) in the Australian Disaster Resilience Handbook Collection. It is available as an online resource on the Australian Disaster Resilience Knowledge Hub:

[www.knowledge.aidr.org.au/resources/lessons-management-handbook/](http://www.knowledge.aidr.org.au/resources/lessons-management-handbook/)

The case studies presented in this companion document provide insight and prompt reflection on ideas related to lessons management in practice.

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# Logan City Council's lessons management program

In 2018, Logan City Council (Queensland) won the inaugural AFAC Lessons Management Award. In the following case study, the disaster management program from Logan City Council share their team's experience with establishing a formal lessons management program, the benefits the program to internal and external stakeholders, and how the council's experience contributes to the development of lessons management capability.

In 2016 the disaster management program (DMP) at Logan City Council decided to commence a formal lessons management program (LMP), a key component of Queensland's Emergency Management Assurance Framework (also known as EMAF or The Standard), and something that our team was passionate about and saw a need within our program and organisation.

The initial success in establishing our lessons management program came from the support of our director and local disaster coordinator, who was not scared to have our gaps identified. His philosophy was that we need to know them in order to fix them. Since implementing the program, he has had a keen interest in our progress in this space. Not just the improvements we've made but how we have evolved lessons management within the program.

The development of this program is the first formal lessons management program at Logan City Council. We commenced our formal program with a local disaster management group (LDMG) exercise, working with a consultant to design and establish the base for a lessons management register, recording observations, theming these into insights and finally identifying lessons.

In the proceeding 20 months we have continued to document and analyse observations from activation debriefs (including Logan's largest activation in recent history) and exercises. This has led to 486 observations and 51 lessons identified that the DMP is now actively working to treat.

Logan City Council is committed to maintaining and enhancing the capability to respond and recover effectively from events in our community and it is the job of the DMP to facilitate this.

By actively working to determine treatment options for our lessons identified and implementing these through

projects, combining into business as usual activities and engaging with our internal and external stakeholders, the DMP has already been able to show improvements of how we as an organisation can respond to future disaster events.

We have openly shared our exercise and debrief reports, observations and recommendations with our internal and external stakeholders, providing them an opportunity to contribute and get on board with implementing the treatments to the recommendations.

Sharing our observations with stakeholders has also allowed them to look at how they operate and how we work together to implement changes of their own, improving more than just DMP's ability to assist Logan City Council to respond.

By having a formal lessons management program embedded into our work unit we are better placed to develop our program and track our work, ensuring that the changes we are implementing are not ad-hoc, but rather evidence based. As our lessons management program matures, we will be better placed to facilitate improvements and manage the change management process across the organisation.

An established lessons management program within our unit can also provide a base for other business units within Logan City Council to model their programs on.

Implementation and maintenance of a lessons management program is a large piece of work for our small team to commit to, but the potential impacts and improvements for Logan City Council and our LDMG will be wide reaching as we are better able to respond to events and support our community. Already we have seen improvements in how our local disaster coordination centre operates after the implementation of just some of the recommendations coming out of our debriefs from Ex-Severe Tropical Cyclone Debbie.

As we strengthen and mature our program, the effects of the changes we implement to treat our lessons will continue to be felt across the organisation and sector. This has been evidenced by the improvements we have seen in relationships between organisations within the LDMG.

For more information on Logan City Council's lessons management program, contact:

[disastermanagement@logan.qld.gov.au](mailto:disastermanagement@logan.qld.gov.au)

# Logan City Council's lessons management register

EVENT ID	SOURCE	SUSTAIN OR IMPROVE	OBSERVATION	POSTTITE	NATIONAL	NATIONAL 2	INCIDENT
051ALDCC06BREF	Disaster Operations	IMPROVE	It was found during the Ex-TC-Debbie LDDC Debrief held in May 2017, that when the operational vols depart went offline including phones due to power outage etc. that there were team delays with inputting the live data for road closures etc. into IBS. Staff had to come into the LDDC, do this which impacted information flow and timing.	Technology	Response	Critical infrastructure	DEB06LDDC - 10 Logan City Council (LCCIT) reformulated its support function during the event to reflect the requirements of the room, with the residual issues being ones of policy in nature such as network access to systems for non-Business as Usual operations.
051ALDCC06BREF	Disaster Operations	SUSTAIN	It was found during the Ex-TC-Debbie LDDC Debrief held in May 2017, that the Incident Controller (IC) noted that they received a good handover and was able to direct to key people within the Centre to be able to understand where the operation was being run.	People	Response	Information management	DEB06LDDC - 16 The Local Disaster Coordination Centre (LDDC) took a positive for handover, and also provided a guide for future to occur. There is plenty of evidence that this was used, and this could be linked to the requirement to improve in this area.
051ALDCC06BREF	Disaster Operations	SUSTAIN	It was found during the Ex-TC-Debbie LDDC Debrief held in May 2017, that the Incident Controller (IC) noted that they received a good handover and was able to direct to key people within the Centre to be able to understand where the operation was being run.	People	Response	Incident management	
051ALDCC06BREF	Disaster Operations	IMPROVE	It was found during the Ex-TC-Debbie LDDC Debrief held in May 2017, that not everyone was wearing their tabard all the time so it was often difficult for members of the Local Disaster Coordination Centre (LDDC) to identify who was who.	People	Response	Incident management	
051ALDCC06BREF	Disaster Operations	IMPROVE	It was found during the Ex-TC-Debbie LDDC Debrief held in May 2017, that there was some confusion and conflicts between the use of IBS vs. standard Council process and what was to be used when and where.	Technology	Response	Incident management	DEB06LDDC - 11 Due to the casual nature of the Local Disaster Coordination Centre (LDDC) workforce, IBS Training (which was planned for the time this event impacted) was lacking which in-turn impacted the initial use of the software. This then had flow-on effects to GIS and other operational functions of the LDDC.
051ALDCC06BREF	Disaster Operations	IMPROVE	It was found during the Ex-TC-Debbie LDDC Debrief held in May 2017, that there were issues identified with document management when IBS wasn't being used. There were issues with document access and multiple live versions of documents, and was very dependent on where in council members of the Local Disaster Coordination Centre were located as to who could access what.	Technology	Response	Incident management	DEB06LDDC - 12 Due to the casual nature of the Local Disaster Coordination Centre (LDDC) workforce, Guardian Training (which was planned for the time this event impacted) was lacking which in-turn impacted the initial use of the software. This then had flow-on effects to GIS and other reporting functions of the LDDC.
0517SPV06BREF	Disaster Operations	SUSTAIN	It was found during the Ex-TC-Debbie Spontaneous Volunteering Debrief held in September 2017, that there was consistent messaging going to the volunteers and that all agencies involved were willing to work together to get the message right and promote it (e.g. at bowling). It was noted that the messaging was often developed by an external agency, with input by others and developed as the response and recovery process evolved.	Process	Recovery	Interagency operations	DEB06SV1 - Agencies worked well together under the leadership of the Spontaneous Volunteering Coordinator to affect a good outcome. However, there was a lack of deep understanding of the roles and responsibilities of agencies involved and this impacted the response.
0517SPV06BREF	Disaster Operations	IMPROVE	It was found during the Ex-TC-Debbie Spontaneous Volunteering Debrief held in September 2017, that because volunteers weren't debriefed a lot of information regarding what houses had been attended etc. wasn't being captured.	Process	Recovery	Information management	DEB06SV8 - Much of the ongoing coordination of the spontaneous volunteering effort was done 'on the go' and unrecorded, this led to lost opportunities for coordination and collation of information for planning.
1017DPLANM	Exercise	SUSTAIN	It was observed during Exercise Planman that the Chair, LDRG in the initial stages of a rapid onset event requires a comprehensive understanding of where the LDRG is at and within 60 mins be able to give facts to media/public, assure that people are across the situation and the LDRG that moved to STAND UP.	People	Response	Incident management	EX06PLANM - That Logan City Council formalise arrangements each season with members of the Local Disaster Management Group in relation to pre-set teleconference facilities so members can rapidly meet when access or availability to attend physical meetings are impacted.

Figure 1: A snapshot of just some of our observations. Each observation is given a unique ID, noted which source it came from, classified into 'sustain' or 'improve' and then coded at three levels in order to be able to theme them. The first coding level is the elements of capability in PPOSTTE, then again against PPR and the national capabilities. Once coded and themed, the insights are developed and applied against relevant observations.

	B	C	D	E	F
<b>P2OST2E</b>	<b>National Level 1</b>	<b>National Level 2</b>	<b>Source</b>	<b>S/I</b>	
People	Prevention	Aviation operations	Disaster Operations	SUSTAIN	
Process	Preparedness	Biosecurity	Exercise	IMPROVE	
Organisation	Response	Border protection	Training		
Support	Recovery	Business continuity	Other		
Training		Canine operations			
Technology		Communications			
Exercise Management		Community engagement			
		Counter-terrorism			
		Critical infrastructure			
		Disaster victim identification			
		Emergency medical response			
		Evacuation			
		Firefighting			
		Flood operations			
		Hazardous materials			
		Health			
		Incident management			
		Information management			
		Intelligence			
		Interagency operations			
		Investigation			
		Marine operations			
		Media			
		Planning			
		Preparedness			
		Preventive health			
		Public order			
		Recovery			
		Rescue			
		Research			
		Search			
		Storm operations			
		Traffic management			
		Vehicle operations			
		Weapons			

Figure 2: A snapshot of our coding sheet. This allows us to select the appropriate choice within the cell on the observations worksheet.

Recommendations Register					
Recommendation	Recommendation Code	Responsibility	Treatments	Comments	Status
<b>TRAINING AND EXERCISES</b>					
<b>Recommendation 1:</b> That a desktop exercise be held with the aim to explore the various triggers that exist for the Logan LDMG to move to activation level STAND UP to increase the knowledge of key members and document findings to ensure that all parties have a clear expectation on how this will occur.	LDMG1	DM Program	Conduct Exercise (completed) LDMG Exercise 05/10/2017 to practise activation levels	Refer to Exercise Planum Control Document Refer to Exercise Planum Report. Await testing in an activation	Commenced
<b>Recommendation 2:</b> That work is conducted on the format of operational LDMG Meetings to ensure that they focus on strategic outcomes and decisions to filter to the LDCC to carry out those directions.	LDMG2	DM Program	LDMG Exercise 05/10/2017 to practise strategic outcomes	Refer to Exercise Planum Control Document Refer to Exercise Planum Report. Agenda template updated Await testing in an activation	Commenced
<b>Recommendation 4:</b> Work continues in relation to the Recovery Sub-Plan and the use of spontaneous volunteers to ensure an integrated, coordinated and effective response across the City. Include CLC Debrief items relating to recovery	LDMG4	DM Program	Conduct Recovery Exercise - Recovery Exercise 05/10/2017 Refer to Management of Spontaneous Volunteers Project Plan Develop MoU with Volunteering Queensland	Refer to Debrief Report Spontaneous Volunteers. Incorporated into Management of Spontaneous Volunteers Project	Commenced
<b>Recommendation 1:</b> That the current Local Disaster Coordination Centre (LDCC) training and exercising regime continue to expose staff to skills relating to working in the LDCC. That a focus be put on specific functional training and exercising in the next 12 months to bring the capacity and capability to an advanced level for the Local Disaster Coordination Centre (LDCC) workforce.	LDCC1	DM Program	Develop RFQ for training service provider Conduct TNA Develop training calendar Develop exercise calendar Rollout calendars	Disaster Management Training Continuum is currently being rolled out to LDCC Staff (DM# 10702885). This includes functional group/role training, mandatory QFES disaster management training, customised incident management training and an annual exercise for the LDMG and LDCC. Training will be ongoing.	Commenced
<b>Recommendation 3:</b> That a focus be put on Guardian training and exercising in the next 12 months to bring the capacity and capability to use the software up to a useable level for the Local Disaster Coordination Centre (LDCC) workforce.	LDCC9	DM Program	Refer to Training Calendar Refer to Exercise Calendar	Disaster Management Training Continuum is currently being rolled out to LDCC Staff (DM# 10702885). This includes functional group/role training, mandatory QFES disaster management training, customised incident management training and an annual exercise for the LDMG and LDCC. Training will be ongoing  Completed transfer of Guardian to the cloud - now enables external users to utilise Guardian (eg QPS, QAS). System changes to Guardian imminent, options analysis underway.	Commenced
<b>Recommendation 10:</b> Consideration is made in relation to providing more staff in the Planning Team during the first shifts to ensure that a more measured and planned response for the Local Disaster Coordination Centre (LDCC) can be effected in the following days.	LDCC10	DM Program	Refer to Training Calendar Refer to Exercise Calendar	Training has commenced Meeting to be held with ST on 20/09/2017 to address current staffing number concerns  02/02/18 - ELT Report drafted yet to be finalised Tested in Exercise Bushfire Alert (June 2018). To be implemented as able and tested in next activation	Commenced

**Figure 3:** A snapshot of six examples of how we record recommendations. These have been grouped into different sections (Training and Exercising, Legislation and Policy, LDCC Operations, Technology and Systems, Communications, Recovery, Spontaneous Volunteers, and LDMG) maintaining the recommendation code from the appropriate report. This allows us to reference the original report if required to link back to the insight and observations that lead to that recommendation. Each recommendation is assigned a responsible party, basic notes around treatment options are recorded and then we link as appropriate to relevant project plans, calendars and documents (e.g. debrief reports).

## Local disaster coordinator



Logan City Council LDC Silvio Trinca sharing lessons with relevant key internal stakeholder and external partner agencies. Image source: Logan City Council.

# Restorative practice

Restorative practice is a facilitated group process that supports people to share their stories, take collective ownership and responsibility, and collaboratively reach an understanding of what happened in an event. It has direct relevance when reviews and investigations have broken down and healing is required, however, the principles and processes involved in restorative practices are equally valuable as a collection process.

Restorative practice allows the people involved in an incident to speak, listen to the stories of others, ask questions, and for everyone involved to be heard. Facilitated learning analysis is an example of a restorative practice.

Restorative practices are increasingly used in education, counselling, criminal justice, social work and organisational management. It has its roots in restorative justice, because it focuses on repairing the harm done to people and relationships instead of punishing offenders. As with any facilitated group process, people with appropriate training should lead restorative practices.

**Restorative practices have been developed for particular purposes, but the principles have broad application. 'Practices' that are 'restorative' mimic good lessons collection processes because they use sound group facilitation processes based on the principles of a 'just culture'. Participants are empowered to share, trust in and have some control over the process.**

## The evolution of inquiries and reviews

In 2013 the United States Forest Service abandoned its *Serious Accident Investigation Guide* in favour of its recently developed *Coordinated Response Protocol* (CRP). This aims to coordinate the collection of accident data in such a way that further harm to survivors and witnesses by the inquiry process is minimised. It assumes that their part in the incident is one of a whole network of influences. Data collection, analysis and development of learning products are implemented in a collaborative process called the learning review involving contribution from all key stakeholders. (Pupulidy, I. & Vesel, C. 2017). The aims and principles of CRP and learning review fit

closely with those of just culture and the emerging practice of restorative justice (Eburn M. & Dovers S. 2016). Nova Scotia Canada is holding its first public restorative inquiry, called The Nova Scotia Home for Colored Children Restorative Inquiry, planned to finish in March 2019. The inquiry website states:

"...we need a process shaped by restorative principles that does no further harm, includes all voices and seeks to build healthy and just relationships so we can learn and act together."

Effecting cultural change in organisations or society is notoriously difficult. An advantage of using restorative practice to effect change is that it engages all the stakeholders in arriving at solutions. The improvements are more likely to be implemented since all involved are invested in them. More efficient ways of learning from failure in order to adapt to a rapidly changing world are needed. Restorative practices appear to be the next development holding out the possibility of meeting that need.

## How restorative practice works

Restorative practices take many forms. What is common, and what makes the practices restorative, is the conscious decision to put those affected, rather than the event itself, at the centre of the process. Observations need to be focused on the performance of systems and processes on a whole, rather than on an individual's performance, so that knowledge can be shared more effectively.

This also requires that terms such as 'investigation', 'inspection' and 'assessment' and 'justice' be avoided in the lessons collection process. Being able to self-examine and self-criticise in an atmosphere where everyone can experience a just culture is essential for an honest and open discussion and sharing process.

A balance must be struck between creating an open culture that understands processes will not always work as intended or expected and that people will make less than optimal decisions, yet holds them accountable for unreasonable actions. Reckless and illegal behaviour or deliberate misconduct must be identified and dealt with through the appropriate organisational systems. Lessons management processes need to have procedures for referring inappropriate behaviours to the appropriate body, while at the same time capturing observations to ensure that such behaviours do not recur. Disciplinary processes should remain separate to a lessons management system and fall outside the ambit restorative practice.

Equally, a shift away from descriptors such as 'debriefs' towards 'learning reviews' may be beneficial. If these events are held to promote learning and not lay blame or seek punishment, then terms such as 'learning review' are more appropriate.

## Context for case studies

Restorative practices ensure that those affected are involved in designing the process and taking responsibilities for implementing the learning (BNHCRC 2017). One example of a restorative process is facilitated learning analysis (FLA).

The heart of the FLA process is a dialogue session with those directly involved with the event. This generally includes one facilitator helping a group of people think together about the incident and talk their way through what happened and what they can learn from it. (US Forest Service Facilitated Learning Analysis Implementation Guide (February 2, 2015) p. 25).

## Case study 1: Incident operations issues

### Using facilitated learning analysis (FLA)

#### Assisting fire brigade recovery

Following the long, arduous and traumatising 2009 fire season for a fire brigade in the Gippsland foothills of Victoria, the members were feeling aggrieved with elements of incident operations that impacted on each other and on how events played out. This was creating an acrimonious and emotional atmosphere that was impacting the wellbeing and morale of the brigade and inhibiting the capacity of brigade members to regain equilibrium.

#### Setting the stage

It was decided to conduct a facilitated learning analysis (FLA) based on the learnings from a 2007 workshop led by retired US Forest Service Officer Paul Chamberlin. To encourage full attendance it was important to create an inclusive and welcoming environment, so a brigade barbecue was organised for the start of the evening.

It was also crucial that all members felt included, able to speak and that they were listened to respectfully, i.e. that they felt psychologically safe. This required trust, which was achieved through a face-to-face informal meeting with the brigade management team to explain the purpose and procedure. In this way, approval of the membership was gained to hold the FLA with the following rules:

- a. The purpose of the session was solely to assist the members gain a better understanding of what happened, how the event unfolded and build their capacity to deal with future events.
- b. Blaming would not serve the agreed purpose of the session and hence would be prohibited.
- c. Everyone was entitled to speak (but not required to if uncomfortable).
- d. Nothing would be repeated outside the session unless the group authorised it. (Notes would be taken to assist the group, but not for any other purpose).
- e. The two facilitators were external staff to be approved by the membership.

These measures clearly indicated that the focus of the session was on assisting the brigade to learn for the future, not about judgement of procedural compliance.

#### Running the session

Since it was the first FLA for this brigade, it was emphasised by the facilitators that the session was for the purpose of learning for the future. It was further explained that all humans had certain biases and limitations influencing perception and memory recall, so it would be completely normal for experience and recall to differ between individuals.

Fire behaviour was analysed and wall maps showing the progress of the fire over time were shown. As each firefighter described their experience, gradually the group developed a more comprehensive picture of the event as a whole. Individuals began to see the full extent and complexity of the event (an arsonist was lighting multiple fires), understand why some radio messages were not heard (intended recipients had been called away to locations of poor reception) and requests went unanswered (the resources available were overwhelmed by multiple fires).

Discussion moved to what the brigade itself could do to mitigate the impact of a future similar event, and a large number of practical actions were developed by the group (e.g. liaise with local food suppliers for provision of emergency meals if agency management can't deliver, plan 'get-to-know-you' events with neighbouring brigades to improve interoperability).

#### The result

The mood of the whole group changed from recrimination and frustration to awareness and positivity. For the first time, the group could see the enormity and complexity of what they were facing, removing much of the perceived need to criticise individuals. By sharing, listening, understanding and collaborating, individuals felt they had been heard and acknowledged, and the group felt that they were in a much better position to deal with future large events.

The role of the facilitators was central to keeping the discussion aligned with the purpose, ensuring all had an opportunity to speak, providing subject matter expertise where needed (e.g. human factors and fire behaviour), contributing ideas and an external 'neutral' voice.

By the end of the evening the members were considerably happier than at the start, with the beginnings of a positive action plan for the brigade and useful messages for agency management. Follow up discussions took place, including with district management. These resulted in measurable positive outcomes for the brigade, supplied below verbatim from the brigade captain:

### Short-term outcomes

- **Greater awareness of the incident overall, including fire management decisions, roles each of us played and what each of us encountered.**
- **Deeper understanding of what is and is not within our control and actions we can take to drive change.**
- **A plan to facilitate change for the better.**
- **Enhanced affection, respect and empathy for each other.**

### Long-term outcomes (ten years on)

- **A more democratic approach to brigade management and function – ideas of the brigade management team are taken to the members and discussed at meetings, then put to the vote. Note: these discussions can be robust, but are always conducted with respect.**
- **Annual secret ballot at the brigade family Christmas gathering to nominate a member who has contributed significantly to the brigade for recognition at the community Australia Day awards ceremony.**
- **The brigade has an agreed set of values (above/below the belt) that we revisit and discuss – we all know what is OK and what is not acceptable – and the phrase 'that's below the belt' is a recognised pointer to indicate when someone has overstepped the line. Apologies are issued or a discussion held to sort it out. This has reduced 'festering problems' significantly.**
- **The brigade uses after action reviews as a learning tool. No blame is apportioned and the safe environment means that stuff-ups are acknowledged and future solutions identified.**
- **Succession planning has been implemented. A mentor lieutenant position has been created to build leadership capacity in younger members.**
- **The station has been upgraded using community donations. The upgrade was planned and completed to cater for future significant events. It's a pretty flash station now.**

- **The brigade has arrangements with the local shop and pub to support catering for events as needed.**
- **We operate as professionally as we can, we train regularly and effectively, we create possible scenarios that could impact our community and practise responding to these, we value what EVERY member brings to our brigade and we have a lot of fun along the way. We still make great suppers.**
- **And we love the facilitators for the work they did to facilitate this.**

---

Prepared and approved by Country Fire Authority, Victoria.

Author: Roger Strickland, Senior Instructor, CFA.

## Case study 2: Tanker crew burn-over

### Using facilitated learning analysis (FLA)

In heatwave conditions, a tanker crew responded in the initial attack to a bushfire in the forested foothills of Melbourne in Victoria. The crew was caught by surprise on a narrow forested track when the fire overran their position. In attempting to escape the flames that were about to directly impact the tanker, they were blinded by smoke and the extremely limited view through a gap in the cabin survival curtains. The driver tried to reverse the tanker out of the fire but drifted off the track, crashing into a tree. Unable to drive further, the crew sheltered in the truck cabin as smoke and embers entered the cabin through a broken window. Survival in the cab became untenable as the atmosphere thickened with acrid smoke from the burning dashboard, forcing the crew out on the lee side. The three crew members were able to make their escape to relative safety on foot under a single woollen fire blanket, suffering only minor burns. The new fire tanker was totally destroyed. The crew had experienced a narrow escape from death in the burning tanker.

### The investigations

The survivors were subsequently interviewed by their agency, and separately by the 2009 Victorian Bushfire Royal Commission. At the end of all the questioning, the crew was so angry and bitter at how they felt they were treated in the investigation processes that they refused to discuss the incident any further with anyone. They found that the questioning did not allow them to tell their experience in all of its complexity, that parts of their reporting of their experience was not believed, and they were never provided with a draft of the report to verify its accuracy. Their angry response to a wave of criticism, blaming and shaming from numerous sources was that 'they would do the same thing again'. The purpose of the investigations, which was to learn from the event in order to mitigate the risk of future similar events, eventually delivered some engineering improvements but clearly

had not succeeded in terms of changing behaviour. The opportunity for other firefighters to learn vicariously from this close call in the best possible way, from the mouths of those with real life experience of it, had at that point been closed off, possibly for good. The only way to rescue this opportunity was to restore the crew's belief in the value of their experience for learning. Some form of restorative practice was needed.

## The FLA – restoring trust and providing a purpose

Three agency incident investigators were dissatisfied with the outcome for these aggrieved and angry survivors. Between them, these three investigators had between strong interests in human factors and expertise in fire behaviour, and began to work informally with the crew to reestablish trust. This is a necessary step to encourage the 'full and frank discussion' required to garner the full story in all its subtlety and complexity. Providing as much control as possible to the crew over the FLA procedure also advanced trust and psychological safety. Hence, the crew had right of veto over all the arrangements for the session, including time, location, the identity of the facilitators, and they were promised that nothing would be published without their verification and approval. As a result of these commitments, the crew agreed to participate in the FLA as a means of helping them answer questions about the incident from brigade members, especially new recruits, and others, including some of their critics. For the crew, this gave the FLA a worthwhile purpose and the possibility of answering some of their own questions.

## The FLA procedure: survivor-centred collaborative learning analysis

The session was held one evening in the 'neutral' territory of a nearby non-agency meeting room. The crew were entitled to leave the session at any time, individually or jointly. All were entitled to speak and blaming was prohibited. The focus was to build understanding by hearing all perspectives. When the crew discovered that they could not agree on where each of them sat in the burning tanker, they were reassured that it was normal for memory to be fallible, especially under extreme stress such as threat of imminent death. In this way, specialist knowledge was introduced to support learning. Hindsight bias was discussed, distinguishing between bias (the unfair judgement of actions and decisions based on knowledge of the outcome, knowledge not afforded the crew prior to the incident) and hindsight wisdom (learning from the incident via knowledge of the outcome).

The investigators were able to corroborate the crew's observations from the physical evidence on site (unburnt foliage at one metre height), vindicating their original reporting to the earlier investigations (low flame height on arrival on scene). In addition, a video of spot fire behaviour recorded during the scientific Project VESTA

was shown, demonstrating that multiple spot fires coalesced into a blow-up condition around 30 seconds after embers land, supporting the crew report of 'only seconds to take evasive action'.

With the aid of a topographic map, knowledge of weather and fire behaviour and the crew's observations, the group collaborated to make sense of how the situation changed from safe working to life threatening so quickly, and why they missed the few signs of threat until too late.

## The result

It was clear that the crew gained insight and understanding of how the event happened. They now understood better the spotting behaviour at the head of a bushfire and that on seeing multiple spot fires igniting around them (technically a 'mass ignition') they had only seconds to evacuate, not minutes. They expressed the view that they now wanted to tell fellow firefighters about their experience, what they had learned, and the critical importance of training under time pressure to be better prepared. They had gained not only knowledge, but also a desire to share that knowledge with their peers. They had moved from anger and shame to being champions of survival training. Since the FLA, the crew leader has delivered over a dozen motivational training sessions to more than 1000 other firefighters to share what they have learned from their experience.

Here are some quotes from firefighters responding to the sessions:

*"Everyone should hear this."*

*"The speed at which a fire situation can change... i.e. no fire observable, to fire everywhere."*

*"Time is of the essence, especially in the case of what initially seems harmless 'spotting'."*

*"The need to find out the full facts before coming to an opinion... only those who were there know the full story... we all made assumptions after the event without knowing the full story!... and that includes me."*

*"I would just like to say a huge thanks... for allowing us to understand what happened and perhaps how this could be prevented in the future."*

With the help of the FLA process, the crew has come a long way from their debilitating anger and have contributed to improving the chances of other firefighters surviving as a result of personally sharing their lessons learned.

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For further information, see recommended reading.



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