

After Action Review

Report

Victorian Floods (October 2022)

DEECA WCG

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1 Executive Summary

In October 2022, and continuing through to December 2022, Victoria experienced one of the most significant flood events on record. The Victorian State Emergency Service (VicSES) is the control agency for floods as defined in the roles and responsibilities section of the State Emergency Management Plan (SEMP).

VicSES, as the control agency for floods requested Department of Energy, Environment and Climate Action's (DEECA) Water and Catchments Group (WCG) and other agencies to activate on 16 October 2022 through state control arrangements. The DEECA Water team were active in the State Control Centre (SCC) for 41 days providing control and support roles such as Deputy State Response Controller – Water, Water Services Specialists, Senior Advisors and Executive Officers. While the water team was activated, 24 staff contributed to a total of 191 shifts.

In respect to floodplain management, DEECA is the lead agency for the development and implementation of the Victorian Floodplain Management Strategy, is an investor in flood studies, flood mitigation measures including infrastructure and warning systems, is responsible for the development and maintenance of the State's flood intelligence model (FloodZoom) and is the coordinator of the Victorian Regional Water Monitoring Partnership that covers flood gauges.

Victoria's water agencies, being the water corporations and water catchment authorities, also have their own roles and responsibilities in flood management. Under the SEM, water corporations are responsible for activating emergency management plans and business continuity plans when there is a foreseeable or actual impact to assets or disruption to services. Water corporations support and work with the VicSES to minimise the impacts on essential water supply and wastewater services affected by flooding. Water corporations also assist the VicSES in the protection of critical infrastructure and support the BoM by providing information about the operation of water storages.

In December 2022, Resilient Services was appointed to plan and facilitate a Victorian Flood Event 2022 After Action Review (AAR) – DEECA Water Emergency Operational Response (round 1), which included 16 AAR stakeholder workshops between January and March 2023, focusing on control and support arrangements, collaboration between agencies and the management of resources during the Flood Event.

Following that, Resilient Services was appointed to facilitate additional AAR's across 12 thematic areas (round 2). Between the 31 May and 28 June 2023, 13 online workshops were conducted via Microsoft Teams (MS Teams), with a further two individual sessions for participants unable to participate in the workshops.

This report highlights the findings from across both round one and round two AAR processes and can be grouped into 13 thematic areas:

- Control and support arrangements (Round 1) Victorian Flood Event 2022 After Action Review – DEECA Water Emergency Operational Response Report)
- Storage Managers' Actions
- Waterway Management
- Levee Policy
- Dam Safety
- Asset Management

- Sustainable Irrigation Program
- Flood Intelligence
- River Gauges
- Floodplain Management Strategy
- Blackwater and Fish Deaths (including learnings from a separate AAR facilitated by Emergency Management Victoria)
- Blue Green Algae
- Residual Water

Participants at the workshops included representatives from:

- DEECA
- Water Corporations
- Catchment Management Authorities (CMA)
- Local Councils
- VicSES
- Victoria Police
- Parks Victoria
- Victorian Fisheries Authority (VFA)
- Consultancies
- Other Government Agencies & Departments

The collaboration between agencies and the dedication of those agencies and their people to respond during events was evident with commitment displayed towards discharging the legislative responsibilities. Other strengths shown across the AAR's and areas that are working well include:

1. The willingness of staff and other agencies to participate in AARs, demonstrating a strong commitment to continuous improvement.

Overall, AAR participants were on time, prepared and very open to share their experiences about the emergency event. The participants' openness and transparency allowed for fruitful discussions and the impetus for this report to provide an accurate assessment of WCG and other agencies performance regarding the event. The engagement demonstrates a commitment to the community, State, and continuous improvement.

2. WCG coordination and collaboration with control and support agencies throughout the event was significant.

A significant level of inter-agency coordination was displayed throughout the event at state, regional and the incident management levels of the emergency response. Such coordination can only be achieved through the investment in systems, processes, training, exercising, developing strong relationships, and gathering respect and understanding amongst control and supporting agencies. The participating agencies included (but was not limited to) VicSES, CMAs, numerous Water Corporations, Parks Victoria, Victorian Fisheries Authority (VFA), Bureau of Meteorology (BoM), the Department of Transport (DoT) as well as representatives from agencies across the state borders as required. The inter-agency coordination and collaboration delivered many benefits for government agencies and ultimately the community.

3. Safety, fatigue management and employee wellbeing were consistently prioritised throughout the event by WCG management and its staff.

WCG and the broader agencies interviewed regard safety, fatigue management and well-being, rightfully, as a core deliverable. Prudent safety, fatigue and well-being management provides the following benefits: workforce safety; optimal employee performance to discharge their responsibilities; resource efficiency; sustained response over a long period; improved mental health outcomes; better communication; ethical responsibility and the management of legal and regulatory compliance.

Safety, fatigue management, and employee well-being are fundamental aspects of emergency management. By prioritising these elements, WCG discharges its duty of care and protects staff, the community, and the state from catastrophic outcomes.

4. WCG’s continued demonstrable commitment to training exercises for leads in emergency management response and best practice emergency management in terms of cooperation, efficiency and discharging its regulatory responsibilities.

During the AAR interviews many of the organisations and WCG participants cited the importance of WCG’s commitment to emergency exercises. Those interviewed during the AARs that cited the importance of the WCG’s training exercises included Blue Green Algae (BGA), critical water assets, Dam Safety and FloodZoom. The exercises fostered understanding of their roles, responsibilities and state structures which expedited a quality response and recovery for the state and the community.

5. The FloodZoom platform provided flood intelligence to the state and aided in flood monitoring and management.

FloodZoom is a flood intelligence platform capable of providing a central source of all Victorian flood behaviour data and intelligence for agencies to access when preparing for and responding to flood events. It features 99.9% reliability and, contains massive amounts of flood-related data. The system was crucial for providing flood advice and guidance, facilitating information sharing among government agencies, and aiding in flood monitoring and management.

It was noted that FloodZoom continues to evolve with technology and funding, including improving public access to data held.

6. Long-term commitment of organisations and individuals coming together outside of flood events to build relations, knowledge and share ideas.

The Floodplain Management Team facilitates the convening of a Victorian sector wide working group known as ‘the Floodies forum’. The Floodies forums membership includes WCG, CMA’s, BoM and VICSES. The group meets quarterly to exercise, develop interfaces, and refine collaboration in preparation for flood events and was continually referenced during the AAR’s by the following groups:

- River gauges
- Sustainable Irrigation Program
- Flood Intelligence (FloodZoom)
- Floodplain Management Strategy
- VICSES

The preparatory efforts placed into ‘the Floodies forum’ is aligned with best practice and the continuation of this group is highly recommended. The efforts placed into preparedness facilitated a well-coordinated effort over multiple agencies over a prolonged period.

The floodies forum is just one example on agencies coming together outside of flood events to build relations and share knowledge. This was also highlights as strength in the River Gauges AAR, where hydrographers, water authorities, and

government agencies collaborate, through the Regional Water Monitoring Partnerships, to determine critical sites for data sharing and redundancy, ensuring accurate and timely data transmission.

According to the AIDR, "flood behaviour, its consequences, likelihood and the associated risk must be thoroughly understood to inform the development of emergency management strategies". Therefore, the multiple agencies under WCG guidance have created an essential element for effective flood emergency management planning, response, and recovery. The information provided is a critical asset for the State, its agencies and most importantly the community.

Areas for improvement

The quest to continuously improve was evident as opportunities for improvement were the focus of participants with much discussion focused on methods to optimise responses in the future. Based on our analysis the key learnings for improvement are as follows:

1. Review policy and procedure of the use of local agency Emergency Management Liaison Officers (EMLOs) in the Incident Control Centres (ICC)/Regional Control Centres (RCC) to facilitate effective collaboration between the Incident Controllers and other agencies in the emergency response frameworks.

A theme that arose from the storage manager's actions, asset management, blackwater and fish death, flood intelligence, dam safety and levee policy and waterway management workshops from agencies was the criticality of local agency EMLOs in ICCs and RCCs, where possible.

EMLOs played a crucial role in coordinating resources and ensuring prompt response activities at a local level. They also supported mutual aid mechanisms, regular communication and collaboration between all agencies and proved highly effective in an emergency event. Daily briefings and meetings and information sharing helped streamline resource allocation and response efforts between agencies.

It was noted that there needs to be clarity prior to flood events in the processes and framework on how EMLOs are called-up into the ICC/RCCs as some agencies were notably not present and information sharing required alternative avenues, which could have been streamlined by EMLO personnel. Additionally, there is an inconsistency amongst the regional agencies and incident control centres of when they request an EMLO, and the process they follow to facilitate this request. The development of an agreed process and training and awareness amongst the agencies, WCG, CMA's and water corporations could prove beneficial.

2. Review and update the SEMP to articulate the roles and responsibilities for residual water management in flood response and recovery that acknowledge land use and the agency's' existing stakeholder relationships.

Familiarity with relevant policies and procedures was crucial, although only a few individuals stated they comprehended the legislation and policies of different agencies or sectors when discussed. Furthermore, existing processes were utilised by agencies, but their articulation required improvement. The major item was regarding the appropriate responsibility for residual water and in particular, which agency or agencies were best connected to those impacted (i.e. the agriculture sector) and hence best placed to work through potential resolutions. It was discussed that under the SEMP, only the response phase for residual water management is covered, and that during the recovery phase there is no directions for residual water management. This caused some issues where agencies did not have the guidance, resources or policies to support management of the issue.

3. Clarify when fish death management falls within or is elevated to an IMT response with an incident management team structure to provide clarity on when it is a state coordinated event in Water portfolio vs a local agency BAU event.

Agencies also noted at the time of fish salvage an immediate process and procedure was not available to follow and relied heavily on experts in the field, such as fish ecologists, to respond to the impending events. Documenting fish salvage plans was considered a potential useful future consideration (including which species are prioritised, water quality triggers for management, where species can be taken, interactive map of where species are and refugia locations, permits required).

4. DEECA's procedures for communications and timely approvals presented delays at times for agencies looking to provide information to the public.

Timely messaging to the public, including media releases, during emergencies is critical but can be challenging to achieve through business as usual (BAU) processes.

Agencies suggested developing pre-approved key messages or standard statements around the issues that can be released by local agencies, to alleviate pressure on communication teams during emergencies, within DEECA and other agencies.

5. Prioritise and identify all critical state infrastructure at the local, regional and state levels, including water treatment, and wastewater treatment facilities in emergency management plans. The ability to elevate the profile of water alongside power and energy concerns are crucial for efficient response.

At the regional and incident emergency levels there is an opportunity to provide more accurate strategic asset information to enable deployment of protection measures during an emergency event. Electricity assets such as zone substations and significant transmission lines are monitored and protected, whereas the knowledge amongst ICC's and RCC's of critical water and wastewater assets are largely unknown, and certainly not prioritised. There is an opportunity to ensure that critical assets are identified by water corporations and passed onto the relevant control agencies for action through the emergency line of control during an emergency event. Integration of water corporation EMLOs in regional and incident response structures would be beneficial for this. These protection measures are relevant for all emergencies including floods and fires.

6. Clarity of the responsibility of privately owned dams (or lack thereof), including provision of technical and safety advice.

Under the Water Act dams on private land are the responsibility of the landowner, including dam safety management. During the flood event there was an expectation that response agencies would manage private dams on the behalf of owners and some landowners were not cooperative when alleviating risks on their properties. During the flood, efforts were made to educate landowners and have them take responsibility prior to issuing directions.

Further legislation and education in this space would lighten the resources needed to manage privately owned dams during flood events. Participants also espoused that there is a current lack of strict requirements for property developers to consider the risks of existing dams when designing new subdivisions and that stronger regulations are needed to prevent houses from being built near dams without proper dam maintenance.

7. Levee management and ownership clarification

Levees presented challenges, regardless of whether they were public, private, or temporary levees. There is some confusion regarding the location and condition of public and privately owned levees and there is a lack of public, or at times agency knowledge of which group has the maintenance responsibility. The RCC and ICC levels of the emergency relied upon localised

information to provide levee locations in the absence of what they considered to be reliable information. At times the condition and locations of these levees were unknown.

Private levees are in varying condition and the serviceability of the levees are variable. Work should be undertaken to better document levee management, maintenance, location, and condition and design standard so this can be easily shared during flood events.