

# **JANUARY 2011 VICTORIAN FLOODS:**

*Lessons and a plan for improving future performance*

*Supported by: Institute of Public Works Australia & Consult Australia*

**Echuca, Tuesday 15 - Wednesday 16 March 2011**

## **Summary**

A forum convened by Engineers Australia supported by the Institute of Public Works Engineering and Consult Australia has reviewed the experience of the January floods in Victoria and developed a seven-point plan to improve future flood planning and management.

The Forum noted that the performance of Government agencies, Local Government, community groups, and private bodies during the Floods had been very good, overall, with a low level of injury and only one lost life. This was despite the unprecedented scale of the floods, which meant there were few benchmarks by which to frame the management response.

Nevertheless, such a massive event provides many opportunities to learn and prepare for future events. The Forum's seven-point plan was prepared with this in mind, and comprises:

1. Improvements to risk-based planning for disaster management at State, Catchment and Local Government levels, including planning floodways through communities that minimise damage;
2. A communication strategy during flood events that delivers more relevant, better targeted information to the community by more effective use of technology;
3. A streamlined, upskilled chain-of-command, with clearer team accountabilities and increased training for both professional and volunteer staff;
4. Infrastructure improvements, especially to the network of flood gauges;
5. More flexibility for Councils to respond to the needs of recovery, including in procurement of goods and services during both the disaster and the recovery and options for 'building back better' rather than simply replacing assets with like infrastructure that proved inadequate during the flood;
6. Better knowledge resources, including clearer responsibilities for and record-keeping on water assets and levees and better catchment drainage models for flood planning; and
7. Improving public understanding of disaster risk and factoring potential flood liabilities into any assessment of approvals for land use, especially for urban development and farm settlements.



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## Background

The purpose of the Forum was to review the recent experience of the unprecedented 2011 Victorian floods and draw out lessons for the future. Participants included Council engineers and other asset managers.

While Council engineers do not have lead responsibility for either disaster planning or response, they do manage engineering works and public assets and advise Councils on planning and development issues for private assets. They, therefore, have a major stake in the effectiveness of the response floods and other natural disasters and make key inputs to the planning, management and recovery of disaster episodes.

The Forum was held in Echuca, 15-16 March and was attended by 50 participants from 16 Shire Councils and other agencies. The Forum was supported by Consult Australia. The Program for the Forum is attached and comprised presentations from the Councils represented, Government agencies and private experts. Those presentations are available at a later date.

Following the presentations, discussions at the Forum identified seven key areas for action. These are outlined below.

### Action 1: Improving risk-based planning for floods

The Forum noted that, unlike bushfires, floods had a high degree of predictability. The response to floods could, in principle, therefore be far better planned. Yet, floods still cause far more damage than bushfires.

The Forum concluded that planning for future floods should be risk-based, with assets identified both in terms of their exposure to the severity of flooding and the value of the asset. This would facilitate planning for protection of key assets and minimisation of total economic, environmental and/or social loss.

Specifically, the Forum recommended that:

- 1.1 *The State Government should develop a broad, State-wide flood management plan, which devolves to more detailed plans prepared by Catchment Management Authorities (CMAs). The plans developed by CMAs should be audited, with the risk-based flood plan developed by Melbourne Water used as the 'best-practice' model.*
- 1.2 *This flood plan should also identify 'floodways' that provide known-volume capacities for taking floodwaters. Best practice approaches are available in the Netherlands, where 30% of land is subject to flooding. Commercial, industrial or residential development on these floodways should only be undertaken if the benefits outweigh and can finance the flood risk (see Action 7).*



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- 1.3 *All existing levees should be identified in this plan, the historical purpose of the levee should be reviewed and then a long term associated plan developed for the maintenance and/or re-engineering of the levee system within a catchment to optimise overall water management, including future floods.*

## **Action 2: More effective communication during flood events**

The Forum noted that while communication problems could be expected in a disaster situation, many towns had good notice of the impending floods but many in the community were uninformed both on the progress of the flood and on the measures they should take for defending against or evacuating from the flood. There were also many instances of misinformation, either because of misinterpretation of information provided or rumours that started in the absence of definitive information.

The Forum identified measures for better targeting of information in language that gave clear instructions to affected people, as well as better use of communication technologies, including:

- 2.1 *More precise geographic targeting of information - using the risk-based plan developed under Action 1 to target specific neighbourhoods for rather than simply broadcasting about whole towns being under threat. This would also facilitate more direct and relevant advice to individuals.*
- 2.2 *SES staff should make greater use of local knowledge in formulating communication plans, including targeting not only neighbourhoods at risk but also identifying special needs households such as the elderly or socially-isolated.*
- 2.3 *Using the Internet to provide real-time information on the progression of the floods, including updates from VicRoads on the status and threats to roads. The sites provided in North-eastern NSW provide a best-practice model for this. Responsibility for the site should be a joint responsibility for the SES and CFA, as the underlying geographic data could be shared.*



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### **Action 3: Clearer chain of command and organisational co-ordination and capacity**

Although the overall flood response had been good, many Councils felt that the current divide between the Incident Team and the Municipal Emergency Co-ordination Committee (MECC) that marshals local resources on behalf of the Incident Team could be improved. Community capacity to respond to disaster had been patchy, with skills and systems less well-developed than for bushfires.

- 3.1 *Local Government should be automatically represented on the Incident Teams to ensure efficient and effective use of local resources and knowledge during operations.*
- 3.2 *In smaller municipalities, the option should be available for the Incident Team and the MECC to be combined to streamline decision-making and communication.*
- 3.3 *SES should be resourced to provide training of key individuals, in disaster response including Agency staff, elected officials (especially mayors) and volunteers. SES and Councils should be audited to ensure that they hold regular exercises/drills in responding to flood disasters. The availability of training through the SES College at Mt Macedon should be better publicised to Councils.*
- 3.4 *SES and CFA should collaborate on these exercises, especially in smaller municipalities where personnel may be common.*

### **Action 4: Maintaining Flood Management Infrastructure**

The Forum noted that many flood gauges had failed during the flood. Communities also had difficulty extrapolating flood level warnings to their local neighbourhoods - it wasn't clear, for example, how a 2m flood level at the main bridge would translate to individual households well distant from this measuring point. There is also some confusion over where responsibility for marginal water assets (levees, channels etc) lie and 'orphan assets' were among the first to fail during the floods.

- 4.1 *CMAAs should be responsible for ensuring a network of dedicated flood gauges is maintained and functional - where third party gauges with multiple uses are included in the Network, CMAAs should have responsibility for ensuring their operability to AHD standard.*
- 4.2 *Flood levels should be indicated at neighbourhood level - eg 2m flood could be indicated on a local power pole - to allow householders and local businesses to relate the threat directly to their properties*
- 4.3 *Ownership of all water assets should be made clear - either via legislation covering different classes of assets or audited registers of assets, with responsibility for those assets agreed between State agencies, CMAAs, Councils and private owners.*



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## **Action 5: Flexibility during response and recovery and building back better**

During the disaster and the recovery, local resources are stretched. Consequently, normal procurement and purchasing approaches cannot be applied. Sometimes the easiest way to respond is for Councils to use their own staff and equipment rather than external contractors. But this is currently discouraged because State authorities will not fund work undertaken by Council staff, even if it is clearly disaster related. They fear Councils are 'double-dipping', although it usually means that other Council work is delayed and so Contractors will subsequently be needed to make up the lag on routine work.

- 5.1 *Councils and State/federal authorities should develop procedures that allow Council resources to be used and funded for disaster-related work where this leads to the best long term community outcomes, with safeguards against Councils using this to their own financial benefit.*

*State and Federal funding bodies also usually only provide funding for the replacement of an asset with an equivalent asset destroyed during a flood. But the failure of these assets during a flood may mean that it makes more economic or environmental sense to upgrade rather than just replace them. The possibility of 'building back better' should be available. Consequently, the Forum recommended that:*

- 5.2 *Councils and State/Federal agencies should develop guidelines to allow for destroyed assets to be 'built back better' where this makes economic or environmental sense, with an equitable sharing of additional costs.*

## **Action 6: Developing the knowledge base**

Given that floods are far more predictable than other natural disasters, their impact could be significantly reduced through the capture and application of knowledge on flood behaviour. The Forum recommended that the knowledge base could be upgraded by the following measures:

- 6.1 *CMAAs should be funded by the State Government to upgrade drainage models to provide enhanced prediction of flood behaviour at local neighbourhood level.*
- 6.2 *The Dept of Sustainability and Environment should produce a reference document or web resource on best practice flood management for use by all responsible bodies*



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## **Action 7: Public understanding and responsibility for flood liabilities**

As floods occur with irregular frequency, including long periods without flooding, the community soon forgets. The continued building and development on flood plains means that economic loss is inevitable. Many households and businesses do not take out insurance but expect government and community support when disaster strikes. This undermines those who do go to the expense of insurance.

To provide more systematic assessment of flood impacts in the planning and development process, the Forum recommended that:

- 7.1 The risk-weighted costs of floods be included in the economic, environmental and social assessment of development proposals and that where these are significant, the developer/proponent should be required to contribute to a dedicated Fund against these future liabilities*
- 7.2 Owners of public and private assets identified as at-risk in the flood management plan should be required either to take out insurance or contribute to a dedicated fund against future flood liabilities.*

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