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VICTORIAN GOVERNMENT'S RESPONSE TO THE ENVIRONMENT AND NATURAL RESOURCES COMMITTEE

INQUIRY INTO FLOOD
MITIGATION INFRASTRUCTURE
IN VICTORIA



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BACKGROUND

The Environment and Natural Resources Committee (ENRC) commenced an Inquiry into Flood Mitigation Infrastructure in Victoria in February 2011.

The decision to hold this inquiry followed the record flooding in late 2010 and early 2011 across Victoria. The committee was also interested in the views of stakeholders affected by flooding throughout the state at other times.

The Inquiry was tabled in Parliament in August 2012.

The Victorian Government thanks individuals, industry representatives and other stakeholder groups for their contributions to the ENRC in both written and oral submissions. State Government agencies and their officers have also supported the Inquiry through submissions, providing evidence at hearings and hosting site visits for the Committee across the state.

TERMS OF REFERENCE

To the **Environment and Natural Resources Committee** – for inquiry, consideration and report no later than 30 August 2012 matters relating to flood mitigation infrastructure in Victoria, with particular reference to:

- (a) identifying best practice and emerging technology for flood mitigation and monitoring infrastructure including river gauges;
- (b) the management of levees across Victoria, including ownership, responsibility and maintenance on both public and private land;
- (c) waterways management, including the nature and extent of vegetation clearing activities within waterways and their general maintenance;
- (d) identifying those entities and individuals having ownership of waterways and the responsibility for their clearing and their maintenance; and
- (e) the extent to which, if any, local knowledge of residents is employed in effecting waterways clearing and maintenance.

GLOSSARY

Beneficiaries	Those who receive a reasonable level of protection from the flood mitigation works. Those immediately adjacent to the flood mitigation works are not necessarily the only beneficiaries.
BoM	Commonwealth Bureau of Meteorology
CMA/MW	Catchment Management Authority/Melbourne Water. These are regional authorities with floodplain management functions under the Water Act.
DEPI	Department of Environment and Primary Industries
Development	The erection of a building or the carrying out of works, or the use of land for such purposes, including the subdivision of land.
DTPLI	Department of Transport, Planning and Local Infrastructure
ENRC	Environment and Natural Resources Committee. A committee of Parliament.
Flood hazard	The potential for loss or damage to property or harm to persons due to flooding.
Flood management	The implementation of a wide range of activities to prevent, respond to and recover from floods. The activities overlap and responsibilities are shared.
Flood mitigation	Actions or works to reduce the impacts of flooding on the community.
Floodplain	In general terms, an area of land that is flooded from time to time. The Government's response is mainly directed to areas subject to flooding from rivers and streams.
Floodplain management	The preventative activities of flood management together with the related environmental activities.
FloodSafe	A community-specific flood awareness program aimed at engaging local communities about their flood risk.
Levee	In general terms, a raised embankment that prevents a watercourse from overflowing.
Local floodplain management plan	A plan that documents agreed arrangements for managing a floodplain or part of a floodplain. It represents the considered opinion of the local community, local agencies and state agencies on how to best manage flood-prone land and provides a long term path for the future development of the community.
Municipal emergency management plan	A plan that identifies, at a municipal scale, emergency management risks, the resources available to manage those risks, and how those resources are to be used, for emergency prevention, response and recovery.
Priority levee	A levee which is formally being managed by an authority to a standard that is appropriate for the assets it protects. Essentially, this means that an authority has accepted responsibility for maintaining the levee, formal arrangements are in place to manage the levee, revenue is being collected to manage the levee, and the levee is listed on an asset register. Non-priority levees become priority levees when the above steps are met.

Public levee	A levee built for a public good. This may be a priority levee or a levee to protect land having a public purpose (such as a caravan park or oval, or a levee with a history of government funding and/or resources. It does not include privately constructed levee systems on, or partly on, Crown land.
Residual risk	The remaining level of risk after risk treatment measures have been taken. If a levee protects property, the residual risk would include the likelihood and consequences of levee failure if a flood occurs that exceeds the design capacity.
Temporary Levee	<p>A removable flood protection system (including sandbags) that is wholly installed shortly before or during a flood event.</p> <p>Demountable levees are a form of temporary levee. They are usually proprietary products, such as water-filled tubes or mobile barriers, that have been adapted to suit a specific location. Demountable levees often require part-installation into pre-installed guides or sockets within a pre-constructed foundation.</p>
VICSES	Victoria State Emergency Service.
Waterway	A river, creek, stream or watercourse; or other channel in which water regularly flows, whether or not the flow is continuous; or a lake, lagoon, swamp or marsh.

INTRODUCTION

This document provides the Victorian Government's response to the Inquiry into Flood Mitigation by the Environment and Natural Resources Committee.

The Inquiry makes 40 recommendations about:

- > Levees: Ownership, management and maintenance responsibilities
- > Waterways: Ownership, management and maintenance approaches
- > Legal issues
- > Water storage
- > Flood monitoring infrastructure
- > Local knowledge, community engagement and education.

The Victorian Government supports fully, or in principle, all of the ENRC's recommendations. In responding to each recommendation, the Victorian Government expresses its position in the following terms:

- > Support: the Victorian Government agrees with the committee's recommendation.
- > Support in Principle: the Victorian Government agrees with the intent of the recommendation, but not necessarily with the method proposed by ENRC for achieving that outcome. Alternatively, the Victorian Government believes that while the recommendation has merit, further analysis of aspects of the proposal is required.

Floods are more predictable than most other types of emergency. They are characterised by measurable probabilities of occurrence, predictable extents and predictable depths of inundation. Knowledge of these things is critical to the design and operation of flood mitigation infrastructure.

Arrangements for managing flood mitigation infrastructure have been applied in the past, but not consistently across the state. Many previous management arrangements lapsed into disuse through periods of drought and the significant institutional changes that occurred particularly to local government in the 1990s. Consequently, there are many ad hoc legacy arrangements for levee management and, in some areas, no effective arrangements at all.

The Government will remove this uncertainty and will provide a clear management framework within the Victorian Floodplain Management Strategy to deal with these legacy issues.

OVERVIEW OF THE IMPLEMENTATION APPROACH

The Victorian Government's response to the 40 ENRC recommendations addresses three key areas for improvement. The actions required to bring about improvement in each area are outlined below.

Action Area 1 - Improve the management framework

- > Clarify roles and responsibilities at the State, regional and local levels.
- > Clarify cost sharing arrangements.
- > Support the beneficiary pays principle.
- > Clarify the processes for managing both private and public flood mitigation infrastructure, including regulatory mechanisms.
- > Consider protecting authorities from legal liability for work done in good faith.

Action Area 2 – Outline the arrangements for planning for and managing flood mitigation infrastructure

- > Outline requirements for assessing and prioritising flood mitigation infrastructure.
- > Specify the institutional arrangements.
- > Require priority levees to be formally managed as a matter of policy.
- > Streamline approvals processes for levees and flood mitigation activities on waterways, including the assessment of environmental values and threats and cultural heritage consideration.
- > Provide better guidance to emergency services to support decision-making for breaching a levee or constructing a temporary levee during a flood event.
- > Require all priority levees to be subject to regular inspection and maintenance.
- > Clarify arrangements for using temporary levees for flood mitigation.
- > Encourage use of local knowledge in waterway management planning and flood monitoring.

Action Area 3 – Provide better information

- > Update spatial information of levee location, height, condition and viability for flood protection.
- > Update levee design, construction and maintenance manual.
- > Provide best available flood information to inform municipal emergency management planning.
- > Provide guidance for flood debris removal.
- > Provide better policy guidance for stream management activities aimed at mitigating the flood risk.
- > Encourage Melbourne Water to continue to work with relevant councils to develop best practice models for the management of urban drainage systems.
- > Consider a range of flood events in decision-making, including rarer events than the 1% probability flood event prescribed in the Water Act.
- > Provide better information to communities downstream of dams on their potential to mitigate flooding.
- > Review flood warning systems, including funding mechanisms.
- > Continue to support flood education programs.

Note: Beneficiaries are defined as those who receive a reasonable level of protection from the flood mitigation works. Those immediately adjacent to the flood mitigation works are not necessarily the only beneficiaries, and therefore are not necessarily the only ones responsible for contributing to the ongoing operation and maintenance costs of the works.

POLICY CONTEXT

Victorian Floodplain Management Strategy

Central to the response, particularly the first action areas, is a revised Victorian Floodplain Management Strategy (last prepared in 1998), which will mark a new era in the management of flooding in Victoria. The Department of Environment and Primary Industries (DEPI) will coordinate the development of the new Victorian Floodplain Management Strategy in consultation with the other agencies involved in floodplain management. It will focus on prevention and mitigation activities that align with water portfolio functions under the Water Act but it will also specify the linkages with enhanced emergency management planning.

The new Victorian Floodplain Management Strategy will:

- > enable effective floodplain management for the next 10 years, by:
 - providing a consistent state-wide framework for the management of flood-related issues on floodplains by relevant authorities, agencies and stakeholder groups
 - setting out relevant objectives to guide decision making
 - clarifying roles and responsibilities for all aspects of flood management, not just prevention, but also response and recovery
 - establishing priorities for state-wide action with regard to flood mitigation infrastructure
 - ensuring that flood mitigation works are underpinned by an assessment of flood risk, and there are mechanisms in place to prioritise risk treatment measures and to manage any residual flood risk
 - providing a state-wide policies and best-practice principles, making it clear that, while flood mitigation infrastructure may be appropriate for the protection of existing dwellings, it should not be used to justify new development in areas of high flood risk
 - promoting and supporting best practice flood mitigation guidelines
 - providing guidance material, in the form of principles, to assist local councils with identifying beneficiaries and deciding on rating mechanisms, where appropriate
 - supporting an audit framework for flood mitigation infrastructure so that priority works are maintained into the future in a manner consistent with their original objectives
- > provide an important linkage to land use planning and emergency management by:
 - explaining how floodplain management activities governed through the *Water Act 1989* will dovetail with those activities required under other Acts including the *Emergency Management Act 1986* and the *Planning and Environment Act 1987*
 - enable floodplain management to be integrated with flood management under an all-hazards, all-agencies, emergency management planning framework
 - encouraging flood information to be collected and shared for a variety of purposes (e.g. land use planning and development, flood mitigation infrastructure, emergency management planning, flood response, flood recovery planning and flood awareness)
 - developing appropriate planning provisions to improve the resilience of essential infrastructure and services
- > provide the state-wide context for the development of regional floodplain management strategies, floodplain management plans and guidelines
- > provide a process of continual assessment and improvement for floodplain management in Victoria through the implementation and periodic revision of the strategy.

The Victorian Floodplain Management Strategy will also promote better interaction with Traditional Owners and ensure that their views on the values of rivers and floodplains are given due recognition. DEPI will ensure that organisations with business units representing the interests of Traditional Owners (for example the Native Title Unit within the Department of Justice) are also adequately consulted to ensure the rights and views of Traditional Owners are respected.

Regional floodplain management strategies

Regional floodplain management strategies detail the agreed outcomes of negotiations between the CMA, local councils and other flood management stakeholders about local floodplain management priorities, funding requirements and cost sharing arrangements for individual projects. The strategies provide the necessary bridge between the state-wide policies and principles that govern the future management of flood mitigation infrastructure in the Victorian Floodplain Management Strategy, and the implementation of local projects.

The regional floodplain management strategies will require extensive consultation with stakeholders. These will include traditional owner representatives. Consideration of traditional knowledge (along with other local knowledge) in flood mitigation planning is also encouraged.

Land use planning

Land use planning is a valuable tool for minimising or avoiding increases in flood risks. It also helps to reduce existing flood risk over the medium to long term. DEPI is currently working with DTPLI to establish efficient and effective systems and processes to incorporate the best available flood risk information into municipal planning schemes.

To improve resilience the State Planning Policy Framework in municipal planning schemes already includes a policy to "locate emergency and community facilities (including hospitals, ambulance stations, police stations, fire stations, residential aged care facilities, communication facilities, transport facilities, community shelters and schools) outside the 1 in 100 year floodplain and, where possible, at levels above the height of the probable maximum flood".

New critical infrastructure should not be dependent on the protection of flood mitigation infrastructure. It too should also be built outside the 1 in 100 year floodplain and, where possible, at levels above the height of the probable maximum flood.

Linkages to other initiatives and programs

National Strategy for Disaster Resilience

The *National Strategy for Disaster Resilience* (Council of Australian Governments, 2011) describes a disaster resilient community as one that works together to understand and manage the risks it confronts. The role of government in the context of this strategy is to help individuals and communities prepare for, respond to, and recover from, extreme events.

Victoria already has robust policies for land use planning. The national strategy identifies further opportunities to build on these policies to reduce the impacts to people and assets in areas where risk profiles have increased over time. These areas were often settled when the flood risks were not fully understood. A national review of land use planning and building codes is considering ways to enhance disaster resilience in the built environment.

The Victorian Floodplain Management Strategy will respond to the National Strategy for Disaster Resilience by:

- > Considering appropriate changes to land use planning and building codes where the National Strategy calls for such changes
- > Developing systems and processes to improve the standards and quality of flood mapping, including mapping a range of flood severities, to more effectively regulate development in areas liable to flooding.

Emergency Management Reform White Paper

The Victorian Government's response to the ENRC inquiry fits within the broader context of the Victorian Emergency Management Reform White Paper. This white paper promotes an all-hazards all-agencies approach to emergency management. Strategic priorities include building community resilience and streamlining governance arrangements.

The white paper calls for the establishment of clear and effective response and control arrangements. The white paper also states that Ministers will retain their portfolio responsibilities. The Victorian Floodplain Management Strategy will therefore clarify the roles and responsibilities concerning prevention and mitigation activities. It will also clarify the interfaces between those activities and emergency management.

Living Victoria

Flood mitigation links with urban drainage; floods occur when drains get overloaded. Living Victoria is the government's 2010 election commitment to urban water reform. The policy is a whole of system approach to planning and servicing our urban water needs including potable water, stormwater, wastewater, the environment and urban amenity. The government has established the Office of Living Victoria to consider the urban drainage system holistically to ensure that urban water systems focus on improvements to the quality of local waterways as well as reduced risk of flooding. The Victorian Floodplain Management Strategy will link with the strategic intent of Living Victoria.

Rural drainage reform

Flood mitigation also links with rural drainage, which is the focus of a separate ENRC inquiry. The Government will consider its response to the ENRC inquiry into rural drainage separately.

Climate change adaptation

Even though the impacts of floods are more manageable than most other types of emergency, a changing climate means that they are potentially less predictable and more extreme than previously thought. The influence of known climate variability is now being combined with improved understanding of long-term climatic cycles and the potential impacts of climate change.

For example, *Australian Rainfall and Runoff*, a key reference that underpins all flood studies, is currently being revised by Engineers Australia. Among other things it will provide guidance on how the effect of climate change on rainfall and runoff is to be addressed in flood studies. This will influence design and planning decisions in response to flood hazards.

Sea levels are also predicted to rise as a result of climate change. This may draw increasing attention to infrastructure such as sea walls, which are often (but not always) associated with drainage systems, or with protecting urban communities. The existing State Planning Policy Framework calls for authorities to 'Plan for possible sea level rise of 0.8 metres by 2100, and allow for the combined effects of tides, storm surges, coastal processes and local conditions such as topography and geology when assessing risks and coastal impacts associated with climate change'. 'In planning for possible sea level rise, an increase of 0.2 metres over current 1 in 100 year flood levels by 2040 may be used for new development in close proximity to existing development (urban infill)'. This approach will be reviewed and updated as new scientific data become available.

Regional approaches to flood mitigation

Catchment Management Authorities (CMAs) and Melbourne Water Corporation are responsible for the development of regional floodplain management strategies. (Within Melbourne – Port Phillip and Westernport Region – Melbourne Water is the floodplain and waterway management authority, which is a role undertaken by CMAs elsewhere in the state. Therefore, throughout this document a reference to CMAs in the context of floodplain management should be taken to be a reference to Melbourne Water as well).

CMAs are responsible for quantifying flood risks and communicating those risks to people and organisations with responsibilities for flood management. Importantly, they are responsible for communicating those risks in ways that enable communities to make informed decisions and to take effective action.

Best practice flood mitigation and floodplain management

Flood mitigation infrastructure will yield greatest benefits when the following occurs.

- > Communities are engaged, able to understand their flood risk and accept their role in flood mitigation.
- > Communities have access to, and understand, high quality information about the risk of flooding and about the impacts of flood on property, safety, the environment and community resilience.
- > Risk management principles are used to underpin sensible floodplain management decisions.
- > Decisions about managing flood risk are made at the appropriate state, regional or local levels.
- > The natural function of healthy floodplains to convey and store floodwaters is taken into account in managing the flood risk.
- > Both the benefits and costs of flood mitigation infrastructure are considered against economic, social and environmental outcomes.

In terms of making decisions about managing the flood risk:

- > The State is responsible for setting the overall policy framework, and for providing guidance on managing the flood risk. The Victorian Floodplain Management Strategy will be a key document to promote consistency regionally and locally.
- > Regional floodplain management strategies detail the agreed outcomes of negotiations between the CMA, local councils and other flood management stakeholders about floodplain management priorities, funding requirements and cost sharing arrangements for individual projects.
- > Local governments will have the primary role in addressing flood risks to communities, assisted by the flood advice provided by CMAs and the informed views of local communities.

Wherever possible, agreed flood management measures will be formally documented in local floodplain management plans. These measures may include flood mitigation infrastructure and, where appropriate, arrangements for regularly clearing debris or vegetation to improve flow capacity.

Local floodplain management plans are the end product of a series of steps, in which flood behaviour is modelled, options to manage the identified flood risk are explored, the input and needs of the local community are considered, and the optimal mix of flood mitigation measures is recommended, based on the willingness and capacity of the local community to pay. These processes also provide an opportunity to think through the requirements of Municipal Emergency Management Plans.

Local councils and CMAs are expected to work together to prepare local floodplain management plans. Local councils generally prepare the plans, and provide the interface for local communities to make informed decisions about the optimum mix of flood management measures for their community. CMAs assist by providing technical knowledge and advice.

The beneficiary pays principle recommended by the ENRC Inquiry will help to strengthen those local solutions. Schemes to formally manage levees are not viable unless the responsible authority has the capacity to implement the scheme and to pay for ongoing management.

Usually the Victorian and Commonwealth Governments will consider contributing to the construction costs of these schemes from funding assistance programs. Importantly though, they will only do so where the beneficiaries have made a commitment to meet the ongoing operation and maintenance costs associated with the schemes. These costs are met by the local community through council rates or special charges.

Levee management

The government acknowledges that there are many levees in Victoria that are adequately managed by local governments, water corporations and other agencies. It is not the Government's intention to override arrangements in which levees are already managed appropriately.

In the context of the ENRC's recommendations, the Government considers that a priority levee is one that is formally being managed by an authority to a standard that is appropriate for the property it protects. Essentially, this means:

- > an authority has accepted responsibility for maintaining the levee;
- > formal arrangements are in place for that authority to manage the levee;
- > a revenue stream is dedicated to levee management; and
- > the levee is listed on the authority's asset register.

Other levees may become priority levees subject to a process for establishing that most of the beneficiaries are in favour of the levee, and that the levee can be managed in accordance with the criteria outlined above for managing priority levees.

The government's preferred mechanisms for formal management of priority levees are Water Management Schemes under the Water Act. Under these arrangements, the Minister appoints a community-based committee. The committee represents the flood-affected community and provides the community's views on proposed works. Following an approvals process the Minister then appoints an authority, usually the local council, to manage the scheme.

That authority is expected to manage the levee on behalf of the beneficiaries, with costs being recouped through a rating mechanism (e.g. through municipal rates or a special charge). The management arrangements must include regular inspection and maintenance to ensure that the levee continues to provide the necessary level of protection.

RESPONSE TO RECOMMENDATIONS

Levees: Ownership, management and maintenance responsibilities

Recommendation 4.1

A revised Victoria Flood Management Strategy is needed and should clearly articulate the principles, roles and responsibilities for the ownership, management and ongoing maintenance of Victoria's levees. Neither land tenure nor prior government involvement will dictate ownership of public levees:

- > the beneficiary pays principle will determine ownership and management;
- > outside Melbourne, the ownership of, and responsibility for, the management and ongoing maintenance of all urban levees, including modern urban levees created under formal schemes, is assigned to local councils;
- > in all other non-metropolitan areas, CMAs are confirmed as the responsible authority for the management and ongoing maintenance of priority rural levee systems, where such levees,
 - (a) have clearly identified beneficiaries who are willing to fund ongoing maintenance, and
 - (b) are located, at least in part, on public land;
- > in situations where there is a clear benefit and the majority of stakeholders are in agreement, consideration should be given to a special charge scheme, as determined by the Water Act 1989 (section 196); and
- > privately built rural levees on private land remain owned and managed by the landholder.

Support in principle

The new Victorian Floodplain Management Strategy will include the following roles and responsibilities for the management and ongoing maintenance of Victoria's levees and associated flood mitigation infrastructure:

- > Privately built rural levees on private land will remain the responsibility of landholders and will be owned and managed by them.
- > Priority levees will be managed by local government, unless already formally managed by another authority. They won't become priority levees until there are arrangements in place to formally manage them.
- > CMAs will not have a role in the management and ongoing maintenance of levees, other than to regulate the maintenance of structures on Crown land by private individuals through the Water Act.
- > As potential beneficiaries, the State and Commonwealth Governments may contribute to the cost of construction, but will not contribute to the cost of management.
- > Within Melbourne, priority urban levees will remain with their current managing agencies and will be funded through the existing arrangements.

The new Victorian Floodplain Management Strategy will include a number of principles for the management and ongoing maintenance of Victoria's levees and associated flood mitigation infrastructure. These are articulated in the government's response to specific recommendations below (e.g. cost sharing, regulating levees on private land, inspection and maintenance requirements and removing non-priority levees).

More general principles are:

- > The beneficiary pays principle will be used to determine the management and funding arrangements for levees. In the case of priority levees it will be up to local government to decide how to recoup its costs.
- > Levees are not the primary response to mitigating flood hazards, particularly for new development.
- > Management arrangements for priority levees must include provision for access, inspection, maintenance and a periodic review of the condition of the levee.
- > Prior government involvement will not dictate ownership or management of levees on public land.
- > Priority levees must provide a clear benefit and have, or lead to, arrangements in place to pay for the associated costs of construction and the ongoing costs of management.
- > Any new or alterations to non-priority levees must be managed in a way that does not impact on third parties.

Approach to levee management and maintenance

The Government's policy position on levee management and maintenance will be based on the following approach:

- > Local floodplain management plans, and the studies leading up to these plans, will enable local government and the communities they represent to identify priority flood risks and the appropriate standard of protection.
- > CMAs will contribute to the information at the heart of these studies, but local councils will be responsible for undertaking the studies.
- > Existing priority levees – that is, those levees that provide a clear benefit to beneficiaries, and the majority of the benefiting landholders are willing to pay for levee upkeep –will also be required to have appropriate formal management arrangements.
- > All priority levees will be subject to an appropriate asset management and auditing regime.
- > For non-priority levees in rural areas, arrangements will be put in place to allow landholders to maintain these levees themselves either individually or collectively.
- > Unmanaged, non-priority flood mitigation infrastructure will, subject to relevant flood studies, and community acceptance, be removed on a priority basis as funds permit.

Urban levees outside Melbourne

Existing urban levees outside Melbourne include levees currently managed under water management schemes under the Water Act, and those without any formal management arrangements.

For existing urban levees without formal arrangements, CMAs will work cooperatively with local councils to evaluate flood risks. Where appropriate, local floodplain management plans will determine whether local communities requires particular levees and if so, to what standards they should be managed. Once this has been established, formal management arrangements will be put in place to enable local government to manage these effectively and to rate beneficiaries to do so. These arrangements will enable management across both public and private land.

Rural levees (outside Melbourne Water's responsibility)

Existing levee systems servicing rural areas may be partly or wholly on public land.

The process of bringing priority levees into formal arrangements is described in the response to Recommendation 4.3.

For systems where stakeholders do not want formal management arrangements but are prepared to undertake maintenance themselves, DEPI will work to streamline approval processes to enable this to occur where required on public land (see response to Recommendation 4.6).

It is expected that, over time, many rural levee systems that protect multiple owners will become a legacy of history and will gradually be allowed to weather away. Private landholders will be expected to develop alternative arrangements to protect valuable assets. New private levees will be regulated through planning schemes.

Prioritising Victoria's levees

Recommendation 4.2

The revised Victoria Flood Management Strategy should provide a strategic framework for the management and ongoing maintenance of Victoria's levees. The Victoria Flood Management Strategy will provide criteria for a consistent state-wide approach to the prioritisation of the state's levees for future management and investment:

- > as part of their revised Regional Flood Strategies, CMAs will identify and prioritise levees within their catchments;
- > that the Statements of Obligations for CMAs under the Water Act 1989 be amended to reflect these assigned roles and responsibilities; and
- > prioritisation will be underpinned by the beneficiary pays principle.

Support in principle

The Victorian Government will establish a levee management framework articulating the principles, roles and responsibilities for the ownership, management and ongoing maintenance of Victoria's levees. The framework will be embedded in the revised Victorian Floodplain Management Strategy. (See response to Recommendation 4.1).

CMAs will be responsible for the development of regional floodplain management strategies. These will document the agreed outcomes of regional negotiations between the CMA, local councils and other flood management stakeholders about future floodplain management priorities, funding requirements and cost sharing arrangements for individual projects.

The government's preferred funding model is explained in the response to recommendation 4.8. The government will, where appropriate inject capital funding aimed at encouraging beneficiaries to pay for the ongoing maintenance of levees. It will also ask the Commonwealth Government to contribute to the cost of capital works for approved projects as part of its recently announced commitment to invest \$100 million on flood mitigation activities across the nation. Government will not contribute to ongoing maintenance costs.

It is important to note an important principle however, while levees and other flood mitigation works and measures have a clear role in flood management for existing dwellings, it is not acceptable to rely entirely on levees as the primary response to mitigating flood hazards. An integrated suite of flood management measures is essential for avoiding unacceptable increases in flood risk. The revised Victorian Floodplain Management Strategy will therefore develop an integrated response to Victoria's flood hazards.

Additional provisions such as land use planning and building responses are still required to treat the residual risk left by the levee in a manner acceptable to the community. When a levee is overtopped by floods higher than those it was designed for, or if it is breached, the area protected by that levee still needs to be resilient enough to cope with inundation.

Priority public levees

Recommendation 4.3

All priority public levees not currently the subject of approved schemes, will become subject to approved schemes under Division 5, Part 10 of the Water Act 1989. Such schemes will articulate an agreed set of terms, including:

- > the public authority with ownership and management responsibilities for the levee;
- > the beneficiaries of the levee;
- > clear standards and expectations for the levee's performance and its maintenance;
- > where appropriate, a rationale for the rating of beneficiaries for ongoing maintenance; and
 - all ad hoc township levees deemed to be permanent priority levees must be brought under an approved scheme.

Support in principle

The Victorian Government supports the need to bring priority levees into formal arrangements covering ownership and management responsibilities, design standards, performance standards, audit requirements and funding arrangements.

As part of revised technical guidelines for levee design, construction and maintenance (see response to Recommendation 4.11) the government will develop auditing requirements for the flood mitigation infrastructure covered by water management schemes. These auditing requirements will require periodic third-party inspections to ensure that those responsible for managing mitigation infrastructure are able to demonstrate that the works are always capable of meeting their original objectives.

Melbourne Water and local councils will be free to determine how to bring the levees that become their responsibility into appropriate schemes. The government will only contribute to the upgrading of urban levees if they are covered by, or in the process of being covered by, appropriate formal arrangements.

DEPI and the CMAs will work together with the relevant local councils, using an agreed list of priority levees as pilot schemes, to investigate the most appropriate way to formalise the arrangements.

Historically the Water Act (Division 5 of Part 10) has been used for the preparation of Water Management Schemes for new levees. In some instances levee management has been undertaken through provisions within the Local Government Act 1989. To ensure consistency, it is preferable for all priority levees to be managed under a Water Management Scheme where appropriate implementation arrangements, including maintenance and auditing requirements are prescribed.

Local councils will continue to be free to bring levees into formal arrangements under the Local Government Act. However, the government will not contribute funding to build or upgrade priority levees that protect private property unless those levees are part of a formal water management scheme.

Low priority levees

Recommendation 4.4

Where a levee has been identified as low priority, and beneficiaries are not willing to contribute to its maintenance, public authorities will inform levee beneficiaries that they will not fund the repair of their levee following a flood event.

Support

The Victorian Government supports the need for landholders and communities to make informed choices about the level of flood protection that levees give them. Beneficiaries must have the opportunity to think through affordable ways in which they might contribute to levee upkeep. The processes and principles established under Recommendations 4.1, 4.2 and 4.3 will ensure those opportunities exist.

There will be many situations where levees are not formally managed by an Authority. The government will not contribute to the repair of these non-priority levees. This policy will be reinforced in the Victorian Floodplain Management Strategy. Unless the beneficiaries of such levees maintain them (informally on private land, or under licence on Crown land), over time, they will become a legacy of history and will gradually weather away.

These arrangements are considered sufficient to achieve the intent of recommendation 4.4. It will not be necessary to inform beneficiaries that funding will not be available to repair non-priority levees.

Recommendation 4.5

Responsible authorities will identify low priority levees for potential removal, and have them removed when funding becomes available.

Support in principle

The Victorian Government supports the removal of non-priority levees where:

- > there is strong justification on social and environmental grounds for their removal
- > the impacts on third parties have been properly considered through a technical investigation
- > the community has been consulted.

It will be up to the authority recommending levee removal to undertake the relevant investigations and to remove the levee (or part of the levee). In many cases it may be more cost effective simply to allow non-priority levees to gradually weather away.

Existing levees are among the many fixtures of the landscape affecting the nature of floods. Levee removal should not take place without a detailed assessment of third party impacts and questions of liability.

Access to levees

Recommendation 4.6

Streamlined processes to enable access to levees for the purposes of conducting works, including maintenance, must be implemented. Where a levee is managed by a public authority as part of a formal scheme, and is sited on either private land, or on a mixture of public and private land, access to private land for works will be negotiated as part of any scheme agreement. Where a levee is sited on public land, but is not managed by a public authority, local beneficiaries willing to conduct maintenance will be given access to do so, provided:

- > the public land manager and beneficiaries reach agreement on types of access and upgrading or maintenance works to be performed, and the limits to such access; and
- > the land manager consults with the floodplain manager to ensure reasonable standards are adhered to – modification of the levee will require a permit.

If required, legislation, such as the National Parks Act 1975, be amended to allow access to public lands by local landholders.

Support in principle

The Victorian Government agrees that access to private land for works needs to be negotiated as part of any scheme agreement where a levee is managed by a public authority (including a municipal council) as part of a formal scheme, and is sited on either private land or on both public and private land.

The Government agrees in principle that where a levee is not going to be maintained by a public authority and is sited on public land, local beneficiaries should be entitled to enter the land to maintain the levee. If this is not possible under existing legislation and governance processes, DEPI will investigate the most appropriate way for maintenance to occur safely and to have regard for the conservation or preservation of certain historic, Indigenous and natural values for the different types of Crown land. Consideration will be given to the need for such work to be undertaken in consultation with the land manager and the appropriate degree of regulation. (See the responses to Recommendation 4.1 and 4.7).

The public values of national parks require stricter controls over activities that could result in damage to those values. Levee maintenance activities in national parks would need to be carried out in accordance with a management plan to the satisfaction of the national parks manager, and to comply with relevant legislative requirements.

Streamlining the approval process

Recommendation 4.7

The Department of Sustainability and Environment will develop guidelines for streamlining the permitting system for conducting works on levees for incorporation in the revised Victoria Flood Management Strategy, in order for maintenance on all levees to occur more quickly. The guidelines will outline circumstances in which exemptions from current approval processes are appropriate. Councils will be permitted to obtain exemptions within their planning schemes for:

- > the construction of appropriately designed rural ring levees around private assets;
- > maintenance works on existing levee banks that do not exceed the original height of the levee, or alter the footprint of the levee; and
 - where exemptions are granted, councils will ensure that an inspection regime remains to ensure new levees do not adversely impact others, and are not raised above their original height. The state government to also consider changing the referral role of CMAs under the *Planning and Environment Act 1987*, to that of an advisory role.

Support in principle

A risk-based approach to the assessment of environmental values and threats will be an important element of the Victorian Floodplain Management Strategy. This would allow some routine management activities to be exempted from getting permits, but would identify areas of high value under high threat, that would require protection and permits.

A clear, risk-based, balanced approach to the environmental approval process is required. This approach should facilitate the maintenance of levees where necessary, while also protecting environmental values. Where the risks to waterway health are low the licensing will be light-handed.

Conditions on licences or permits will take into account the need to avoid unnecessary habitat destruction. The conditions will also ensure that the height and length of the levees are not increased, and that the levee is subject to appropriate auditing requirements. They may also include standards for environmental protection and the protection of cultural heritage.

The Government agrees that where appropriate, local councils should allow exemptions from the requirement for planning permits for ring levees around habitable buildings and their immediate surroundings for land zoned rural. Permit arrangements would need to take into account the total possible impacts on flood storage and flow distributions. Exemptions should not apply where levee creates significant risks to other properties.

The Victorian Government also agrees that maintenance works on existing levees – provided they do not exceed the original height or alter the length of the levee – should be subject to minimal regulation. The inspection regime should focus on ensuring the original height is not exceeded and the footprint generally remains unchanged.

DEPI will work with the Department of Transport, Planning and Local Infrastructure (DTPLI) to develop guidance and communications material for key stakeholders to clarify arrangements for vegetation removal, and to streamline the time and effort required to process planning permits for levees and native vegetation controls. DEPI will also work with the CMAs to determine an appropriate inspection regime for levees on Crown land.

DEPI will investigate how Indigenous and cultural heritage requirements can be addressed more efficiently. The basic principle will be to allow simplified permit processes provided the planned works do not have an adverse effect on others and that they comply with cultural heritage regulations.

Consideration will be given to

- > the need to protect heritage places, shipwrecks and sites regulated by the *Heritage Act 1995*;
- > proposed legislative reforms to replace the *Environmental Effects Act 1978* that will provide risk-based assessment pathways, and an opportunity for streamlining approvals under the applicable legislation; and
- > processes to streamline requirements under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*
- > procedural rights pursuant to the *Native Title Act 1993* or the *Traditional Owner Settlement Act 2010*.

Preferred funding model

Recommendation 4.8

The funding model for works on levees and their ongoing maintenance be revised, to be primarily based on the beneficiary pays principle. The state government should give consideration to wholly funding, or contributing to, the initial upgrade of high priority levees to an agreed standard. The construction of any new public levees will be the subject of a cost benefit analysis to be undertaken by DSE and the public authority, and be supported by a floodplain management study. Levees deemed low priority will be wholly the responsibility of the beneficiaries.

Support

The Victorian Government agrees that, where there are levees that require upgrading or new levees, there is a need for funding models that encourage sustainable management of levees. And this should be to a standard agreed by those contributing to the cost of construction and maintenance. High priority levees will be maintained by an authority on behalf of all beneficiaries (see the response to recommendation 4.1)

Levees often have benefits that extend beyond protecting private land. For example, roads and irrigation infrastructure will incur less repair costs over time if they are protected by a levee. The government's role as a beneficiary will be recognised through it choosing to contribute to the cost of capital works where appropriate.

DEPI will develop a transparent funding model based on the following principles:

- > The government may contribute to the cost of constructing new urban levees but will not contribute to annual maintenance.
- > Government contributions to the repair of proposed priority rural levees will be considered on a case-by-case basis.
- > Where the government contributes funding to repair levees or to construct new levees, agreements will be required that clearly identify the beneficiaries, the entity managing the levee on their behalf and the responsibilities placed on that entity. This will ensure that each levee system continues to function to an agreed standard.
- > Government funding will not be provided without clear evidence that the works are cost effective and that a reasonable majority of property owners support the proposed works.
- > New levee projects will only be eligible for government funding if they are justified through a local floodplain management plan, which considers a number of options for mitigating flood risk, and they have a favourable cost benefit analysis.
- > The government will not fund private levees.

The construction or significant restoration of priority urban levees is also expected to be strongly supported by the Commonwealth Government, which recently announced that \$100 million would be invested in flood mitigation works across Australia.

Commonwealth funding has historically been provided for technical investigations and flood mitigation works through established programs such as the Natural Disaster Resilience Grants Scheme. These programs have agreed cost sharing arrangements between the Australian Government, the Victorian Government and relevant local councils.

The Victorian Government will not contribute to the restoration, operation or maintenance of non-priority levees.

Inspection and maintenance regime

Recommendation 4.9

A regular inspection and maintenance regime will be undertaken for all high priority levees managed by a public authority. All such levees will be inspected by the relevant public authority on an annual basis, and after a flood event. All levees will have a regular maintenance schedule.

Support

The Victorian Government agrees that regular inspection and maintenance should be a requirement for all priority levees. Where local councils or Melbourne Water manage and maintain levees on behalf of beneficiaries, the cost of regular inspections and maintenance will be factored into their rates and charges. The need for regular inspection and maintenance will also be factored into appropriate auditing requirements. As stated in recommendation 4.3, the State will develop auditing requirements for those responsible for levee management to ensure that the works are maintained consistent with their original objectives.

The Government has arranged for visual assessments and surveys of significant urban and rural levees to be undertaken outside Melbourne.

Improving data reliability

Recommendation 4.10

That the Department of Sustainability and Environment continue to invest in the auditing of Victoria's levee systems, both public and private, so that the Victoria Flood Database contains reliable and up to date data, including information on levees' location, height, condition and ongoing viability for flood protection.

Support in principle

The Victorian Government acknowledges that more comprehensive information about levee systems is required to improve emergency management planning and develop a better understanding of flood behaviour. This task must be approached strategically as audit costs are high. More comprehensive information will become available as local floodplain management plans are developed.

When high priority levees are proposed to be upgraded, DEPI will require detailed information and geotechnical assessments to help ascertain the standard of the levee.

When new levees are constructed or levees upgraded, spatial information on the standard and location will be incorporated into the Victorian Flood database. Information from this database is used to inform emergency management activities.

Additional levee audits will be carried out and funded as need or opportunity arises to provide information for emergency response. It is unlikely there will ever be sufficient funds to check the height and condition of all private levees.

Technical guidelines for levees

Recommendation 4.11

The current technical guidelines for the construction of levee systems will be reviewed. A revised Levee Design, Construction and Maintenance technical guidelines will include guidelines for the construction of both priority public levees, and private levees on private land, such as ring levees, which protect key assets. These guidelines will be made available to all rural councils, who will make landowners constructing new levees on their property aware of the principles and specifications contained in the guidelines and encourage construction based on them.

Support

The Government supports the need to update material that provides guidance for building and maintaining levee systems, and to include guidance for the construction of ring levees around buildings and their immediate surroundings. DEPI will revise the *Levee Design, Construction and Maintenance technical guidelines* by 2014.

Yarriambiack Creek levee ownership

Recommendation 4.12

The Department of Sustainability and Environment to review ownership of Grampians Wimmera Mallee Water's Yarriambiack Creek levee, with a view to the appointment of a more suitable public managing authority/authorities.

Support in principle

DEPI has confirmed that Grampians Wimmera Mallee Water continues to own its disused infrastructure. Changes to the management of that infrastructure should be subject to detailed flood studies.

Levee construction and modification in an emergency

Recommendation 4.13

In consultation with local communities, local councils will develop flood response plans as sub plans to their current Municipal Emergency Management Plans. As part of the flood risk assessment process, these plans will be informed by the best available flood mapping and modelling, and will identify agreed activities to be undertaken during floods including, where appropriate, the construction of temporary levees. The condition of levees will be incorporated into such plans to enable improved emergency response.

Support

The Victorian Emergency Management Reform White Paper broadly outlines the role of local councils in municipal emergency management planning. The white paper provides for hazard specific sub-plans such as municipal flood response plans. Municipal flood emergency management plans are being prepared by VICSES and municipal councils as sub plans to the Emergency Management Plans.

As part of the flood risk assessment process, flood sub-plans, under Municipal Emergency Management Plans, will be informed by the best available flood mapping and modelling, and will identify agreed activities to be undertaken during floods.

Recommendation 4.14

The Department of Sustainability and Environment will develop guidelines for the management of levees in emergencies, during and after a flood event, which can be incorporated into local flood response plans. The department will also provide, as part of these guidelines, a set of criteria for assessing the ongoing viability of ad hoc levees post-flood. The Emergency Management Act 1986 will be amended to support the implementation of these guidelines. A more effective means for councils to remove illegal levees will also be examined by the Department of Sustainability and Environment.

Support in principle

The Victorian Government supports the need for more efficient and effective processes to allow emergency management authorities to make informed decisions on the management of levees during floods. This is particularly important regarding temporary levees that may be hastily erected without understanding the implications for others.

The aim will be to have no new levees unless they are either planning scheme compliant ring levees around existing dwellings and curtilages or purpose-built public levees with clear and transparent management arrangements in place. (See the responses to Recommendations 4.3, 4.11 and 4.13.) Ad-hoc levees are not regarded as best practice for flood mitigation.

It is recognised however that it may sometimes be necessary for temporary levees to be constructed during an emergency or for existing levees to be temporarily breached to divert floodwaters away from houses or assets at risk.

The government will develop a policy to support decision-making by Incident Controllers who may need to breach a levee – or put temporary works in place – where this action might adversely affect individuals even though it is for the overall public good. These decisions will remain the preserve of Incident Controllers, not field operatives.

The state will assume vicarious liability for the consequences of decisions made by Incident Controllers and Control Agencies during an emergency. It is important to ensure that the affected individuals are able to seek redress.

Other infrastructure impacting on floods

Recommendation 4.15

Where flood investigations show positive and cost effective outcomes, infrastructure providers, such as VicRoads, will consider enhancing their infrastructure to act as levees. Any development of this nature will require collaboration with, and the approval of, the relevant floodplain authorities.

Support

The Victorian Government encourages collaboration between infrastructure providers, local councils and CMAs where new infrastructure or maintenance of existing infrastructure has the potential to affect flood behaviour.

The Government also encourages collaboration where new or updated infrastructure has the potential to provide flood mitigation benefits. This has been achieved at the Western Freeway bypass of Ballarat where flood-retarding basins have been incorporated into the freeway embankment reducing the potential for flooding in the Ballarat urban area.

CMAs, local councils and the owner of the infrastructure will be encouraged to work together to develop mutually satisfactory solutions to mitigate flood risk.

Recommendation 4.16

The state government will work with Grampians Wimmera Mallee Water and stakeholders to determine ongoing ownership and associated responsibilities for redundant channel infrastructure in the Wimmera and the Mallee.

Support in principle

The Victorian Government notes that this is a significant but complex issue involving a number of stakeholders. DEPI will work with Grampians Wimmera Mallee Water, local councils and CMAs to consider the implications of the current approach and to determine the most appropriate way forward.

Cross border issues

Recommendation 4.17

The Victorian Government should work with the New South Wales Government and the Murray Darling Basin Authority to establish an appropriate floodplain management committee and to develop a floodplain management strategy for the Murray River. The strategy will define priority regions for the development of floodplain management plans, address ways of improving the management of all levees on the Murray River, and seek agreement in relation to improved approvals processes, levee heights and maintenance regimes.

Support in principle

DEPI will work with its NSW counterparts and the Murray Darling Basin Authority (MDBA) to identify what can be done to ensure that authorities on both sides of the border work cooperatively to manage flood impacts. This may take the form of an agreement or it may build on current arrangements to ensure that flood impacts along the Murray River are managed fairly and appropriately.

Existing cross border planning arrangements encourage active engagement at the local level. For example, the Hume to Yarrawonga Advisory Committee includes all the relevant local councils and government agencies on both sides of the border. It played a significant role in the recent acquisition of flood easements. Similar arrangements above Torrumbarray are also working well.

Protecting essential services

Recommendation 4.18

The Victorian Government to implement the recommendations of the Victorian Floods Review in relation to the development and implementation of appropriate flood mitigation and protection strategies for essential services.

Support

The Victorian Government supports Recommendation 85 of the Victorian Floods Review. This allocates overall responsibility for developing appropriate risk management strategies to the state but also requires the responsible authority or owner/operator of essential services to develop and implement specific strategies to mitigate any risk to service continuity. This position is reflected in the Victorian Emergency Management Reform White Paper.

The relevant control agency for each type of infrastructure (e.g. power, water, telecommunications) will be responsible for developing fit-for purpose arrangements to ensure there is no loss of service as a result of any hazard, including flooding.

It will be up to the relevant owner or operator of each piece of critical infrastructure to develop and implement appropriate risk mitigation strategies for that infrastructure; they cannot and should not rely on support from VICSES or local government during flood incidents. Flood studies and local floodplain management plans will help to quantify and communicate the relevant flood risks.

The Victorian Floodplain Management Strategy will identify roles and responsibilities for developing and implementing flood risk mitigation strategies for critical water and sewerage infrastructure. These are water portfolio functions under the Water Act.

Temporary levees

Recommendation 4.19

When developing flood mitigation options in lowland areas, local governments should give consideration to the use of temporary levees as an alternative or addition to permanent structures. To maximise the use of these structures and limit flood damage, and aid affordability, consideration should be given by local governments to the sharing of temporary levees among different townships and different council areas.

Support in principle

Temporary levees should only be used as part of a recognised plan or when authorised by a central authority. For example, some existing permanent levee systems incorporate demountable components as integral parts of the overall structure. Benefit cost analysis carried out under a local floodplain management plan, in consultation with the community, should be used to determine when and if portable components should be used to overcome operational constraints within a levee system, or to address community concerns about alternative options such as permanent levees. (See response to Recommendations 4.13 and 4.14.)

The Victorian Government does not support the sharing of temporary levees. There are significant risks associated with the logistics of moving portable levees including the risk that they will need to be transported through floodwater. There are also significant issues around seepage, the amount of flood protection that such systems can provide (which will vary from location to location) and storage arrangements. On-site constraints, such as sandy or muddy soils, also limit the potential to place temporary levees on a safe footing.

All levees should be designed and approved for specific applications under formal management arrangements. DEPI will prepare guidance for the use of the various forms of demountable levees as part of the revision of the Victorian Floodplain Management Strategy.

Waterways: Ownership, management and maintenance approaches

Recommendation 5.1

A revised Victoria Flood Management Strategy should identify and assign roles and responsibilities for the management and ongoing maintenance of Victoria's waterways, for the purposes of flood protection and flood mitigation:

- > CMAs are confirmed as the responsible authority for the management and ongoing maintenance of waterways, including vegetation management, for the purposes of flood protection; and
- > CMAs will negotiate with landholders, councils and other authorities, and conduct agreed flood mitigation works on the basis of beneficiary pays.

Support in principle

Through the Victorian Floodplain Management Strategy, DEPI will provide guidance to enable CMAs to develop approval arrangements for managing waterways for flood protection and mitigation.

Consideration will be given to:

- > ensuring that different views are considered and respected
- > identifying the economic, social and environmental benefits and dis-benefits
- > identifying the beneficiaries and negotiating cost sharing arrangements
- > establishing suitable arrangements for managing waterways for flood protection in urban and rural areas that reflect the beneficiary pays principle.

For example, for site-specific, small-scale obstructions in a waterway, individual landholders will be able to apply for authorisation from the CMA to carry out works to remove the obstruction under the Water Act. As beneficiaries of the works, they will be required to undertake the works under appropriate arrangements. CMAs may choose to contribute to the cost of the works if there are clear river health benefits and if the CMAs are funded for such activities. CMAs will not be expected to contribute to ongoing maintenance works for flood mitigation purposes.

The Victorian Floodplain Management Strategy will explain that CMAs will be directly responsible, on a priority basis, for works to manage large-scale erosion and works to minimise the risk of avulsions. Where appropriate, they may also assist the clearing of debris from public assets during and immediately after a flood. The managers of public assets will be directly responsible for the ongoing management of those assets including the risks associated with waterway morphology.

Shared responsibilities in risk management planning

Recommendation 5.2

The role of flood risk management planning rests with CMAs and Melbourne Water (under the Water Act 1989), and is a shared responsibility with local government. Shared responsibilities for flood risk management planning and implementation will be consistently reflected in government policy.

Support

The Victorian Government agrees responsibilities for flood risk management should be shared. Shared responsibilities will be articulated in the revised Victorian Floodplain Management Strategy.

Melbourne Water, the CMAs and local councils carry duties relating to flood risk and will be expected to be proactive in flood risk identification, assessment and planning. A flood risk assessment and management process was described in Chapter 3 of the ENRC Inquiry report. This process will enable the effectiveness of a number of flood mitigation options, including waterway management activities, to be evaluated and compared, and for management responsibilities to be demarcated.

Managing vegetation and debris in waterways

Recommendation 5.3

The revised Victoria Flood Management Strategy should clearly articulate the policy guidelines for the management of vegetation and debris in Victorian waterways, for the purposes of flood protection and mitigation, taking into account the localised potential flooding effects of in stream vegetation in townships.

To that end:

- > the Victoria Flood Management Strategy will provide flood risk criteria for identifying specific reaches of rivers and streams that require ongoing vegetation management and maintenance, and to be subject to a revised permitting system;
- > in their Regional Flood Strategies, CMAs will identify specific reaches of rivers and streams in their catchments, that require ongoing vegetation management and maintenance, and to be subject to a revised permitting system;
- > each CMA will develop an In stream Management Policy to clarify responsibilities for the management of all waterways, including vegetation management. This will clearly articulate the circumstances under which the CMA will approve the removal of vegetation. This policy to be reviewed every three years; and
- > where appropriate CMAs will develop agreements with local regional councils.

Support in principle

The Victorian Government agrees that there needs to be improvements in the way vegetation and flood debris are managed in, or removed from, waterways where such actions have been justified by flood studies. This requires clearer articulation of government policy and in some cases a flexible approach when considering community interests. It may not always be practicable or feasible to undertake detailed investigations to evaluate the ecological benefits of retaining woody debris or to demonstrate the impacts on local flood levels.

The Victorian Floodplain Management Strategy will:

- > draw on the approach outlined in response to Recommendation 5.1 to help articulate policy guidelines for in stream management activities which are aimed primarily at mitigating flood risk
- > include guidance on the flood risk management assessment process, also described in Chapter 3 of the ENRC report, to help evaluate the effectiveness of vegetation removal as a flood mitigation measure when technical studies are undertaken
- > provide guidance on making timely decisions on merit about vegetation and flood debris removal without the need for a technical study.

This will not extend to emergency management or disaster recovery. Separate government policies apply to these areas. Nor will it be sufficiently detailed to focus on specific reaches of rivers and streams.

Revised regional floodplain management strategies will provide a framework for investing in urban and rural flood studies and floodplain management strategies over time. CMAs will not be required to determine specific reaches rivers and streams in their catchments that require ongoing vegetation management and maintenance. (See response to Recommendation 5.4 about proposed revisions to the permitting system).

Where CMAs are required to make timely decisions about vegetation and flood debris removal without the need for a technical study, they will be expected to develop transparent local guidelines and policies. The objective of these guidelines and policies will be to simplify the decision-making processes for priority areas based on need.

Action will be approved where:

- > There is a clear, demonstrable and unacceptable risk.
- > The risk can be effectively mitigated by in-stream management works that are acceptable to the CMA.
- > Local knowledge has been considered.
- > There is agreement over cost sharing arrangements if required.
- > In situations where it is appropriate for the CMA to contribute to the work, there is adequate funding (some activities may need to be prioritised).

As a general principle, local government, as the representative of the beneficiaries, will be responsible for carrying out such works in urban areas. CMAs will be responsible for carrying out large-scale works in rural areas. Landholders will be responsible for small-scale works in rural areas – either individually or collectively.

Streamlining permits and guidelines for work on waterways

Recommendation 5.4

The Department of Sustainability and Environment should develop guidelines for streamlining the permitting system for works on waterways for incorporation in the revised Victoria Flood Management Strategy. An exemption process will be introduced, with particular application to identified reaches of rivers and streams that require ongoing vegetation management and maintenance:

- > that government will amend the Victorian Planning Provisions to create a new exemption for native vegetation removal under clause 52.17, for the purpose of 'flood protection'; and
- > Catchment management authorities will amend their respective 'Works on Waterways' bylaws to reflect these changes.

Support in principle

The Victorian Government agrees on the need to simplify the process of obtaining authorisation from the CMAs for works and activities on waterways, as well as planning permits from relevant councils for native vegetation removal. DEPI will investigate the most effective way of doing this in consultation with DTPLI and the CMAs. As indicated in the response to Recommendation 4.7 consideration will be given to

- > the need to protect heritage places, shipwrecks and sites regulated by the *Heritage Act 1995*;
- > proposed legislative reforms to replace the *Environmental Effects Act 1978* that will provide risk-based assessment pathways, and an opportunity for streamlining approvals under the applicable legislation; and
- > processes to streamline requirements under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

Subject to the principles outlined in the response to Recommendation 5.3 and the requirements of the Commonwealth Environment Protection and Biodiversity Conservation Act, consideration will be given to:

- > introducing an exemption process for planning permits for vegetation removal in urban flood prone areas that are recognised as having low environmental value
- > enabling CMAs to license local councils, other authorities, incorporated associations (such as Landcare groups) or individual landholders, as appropriate, to carry out agreed works and activities (e.g. vegetation management) to agreed standards

- > simplifying the authorisation processes for regulating works or activities on waterways under the Water Act
- > developing guidance and communications material for key stakeholders to clarify how works on waterways are regulated.

An important element of the Victorian Floodplain Management Strategy will be the requirement for each CMA to prepare a Regional Floodplain Management Strategy. Through the regional strategies, CMAs will be encouraged to identify opportunities and processes to make it simpler to regulate some routine management activities, as well as to identify areas of high value under high threat that would require more stringent regulation.

Vegetation management for asset protection

Recommendation 5.5

The Department of Sustainability and Environment will develop a code of practice on the removal of vegetation around critical public assets, in consultation with councils, CMAs and asset managers. Regional Flood Strategies will support this code of practice as part of shared flood risk management planning.

Support in principle

The Victorian Government accepts that it is difficult for CMAs and asset managers to decide where to remove vegetation or flood debris to avoid future flood impacts. As the Wimmera CMA pointed out in its submission to ENRC, it is difficult to know whether a log that is 2000 metres away from a bridge could mobilise during a flood event and damage the bridge.

DEPI will develop guidelines in consultation with CMAs to help them and the managers of public assets to make timely decisions on vegetation removal. The guidelines will be drawn from the collective experience of waterway managers. They will be informed by a risk assessment framework (likelihood and consequences) and document any relevant processes to streamline any required permits (see Recommendation 5.4). The guidelines will not be codified as they will never be able to anticipate all conditions.

Draft guidelines will be circulated to representatives from local government and the managers of bridges and any other assets likely to be required to make decisions around preventative work to reduce potential flood impacts. Asset managers are responsible for their assets – therefore, they will still be required to identify and mitigate the risks to their assets.

Consultation and planning for waterway clearing

Recommendation 5.6

Significant modification of waterways in urban or rural areas will only be considered after the completion of a flood risk management process, undertaken in consultation with members of the community.

Support

The Victorian Government agrees that significant modifications to waterways should only occur after extensive community consultation and where such works are shown to be cost-effective in local floodplain management plans.

Recommendation 5.7

The revised Victoria Flood Management Strategy should clearly identify authorities and assign responsibilities for stream blockage and debris removal in waterways posing a high risk to public infrastructure both during and after a flood:

- > in the aftermath of a flood event, CMAs, in liaison with local councils, will manage debris posing a high risk to public infrastructure;
- > the In stream Management Policy of CMAs will guide the post flood management of debris affecting the assets of private owner beneficiaries;
- > DSE will review the woody debris removal practices of CMAs and develop new management guidelines; and
- > engagement with stakeholders, including councils and landholders will take place prior to any large scale removal of woody weeds, such as willows, is undertaken by CMAs.

Support in principle

The revised Victorian Floodplain Management Strategy will assign waterway management roles and responsibilities for the purposes of flood protection and flood mitigation. This includes stream blockage and debris removal in waterways posing a high risk to public infrastructure both during and after a flood. (See also Recommendation 5.1).

The revised Victorian Floodplain Management Strategy will:

- > draw on local guidelines and policies to simplify the decision making processes for priority areas – based on need
- > provide guidance with regard to consultation, processes surrounding the removal of woody debris, the method of disposal and, if appropriate, realigning snags to retain ecological benefits
- > provide guidance on risk based circumstances, where making timely decisions “on merit” in relation to vegetation and flood debris removal, without the need for a technical study, is appropriate.

The beneficiary pays principle will apply to these works in the same way that it applies to infrastructure costs. (See also Recommendation 5.3).

CMAs will continue to play a significant role, shortly after floods, to provide surge capacity as directed by DEPI and in accordance with Natural Disaster Relief and Recovery Arrangements (NDRRA).

Using local knowledge

Recommendation 5.8

Local knowledge on the management and ongoing maintenance of waterways, including vegetation clearing and debris removal, needs to be incorporated in the development of regional flood mitigation strategies and local flood plans.

Specifically:

- > the process of flood risk assessment must include community consultation, and these views will inform development of both floodplain management studies, and floodplain implementation plans;
- > in the absence of a formal planning process, councils and authorities undertaking significant ad hoc works on waterways for flood mitigation and protection must involve the local community; and
- > the revised Victoria Flood Management Strategy and Victorian River Health Strategy will clearly articulate this process.

Support in principle

The Victorian Government agrees that local knowledge should be utilised wherever possible to add value to information and processes for managing and maintaining waterways. Following the Government's response to a similar recommendation from the Victorian Floods Review (Recommendation 22), CMAs and local councils are required to consult local communities to inform and validate floodplain management studies.

When preparing regional floodplain management strategies, CMAs will continuously improve their community engagement processes. The revised Victorian Floodplain Management Strategy will include requirements to consult with local communities at all major phases of the development of regional floodplain management strategies.

The Victorian Waterway Management Strategy recommends that communities will have opportunities to be engaged in waterway management planning at State, regional and local levels. Communities will have opportunities to provide information on the values of waterways to inform regional priority setting during development of the Regional Waterway Strategies.

Wherever possible those involved in management and ongoing maintenance of waterways will plan their work rather than develop ad hoc arrangements. Planned activities will require local consultation processes (see Recommendations 5.1, 5.3, 5.4, 5.6 and 5.7). The Government acknowledges that there may be some instances (such as might occur immediately after a flood) in which emergency response actions or flood recovery actions might occur without the opportunity to consult locally.

Rural drainage

Recommendation 5.9

The Department of Sustainability and Environment will develop clear policy for the coordinated management of rural drainage, clarifying the legal framework, and identifying authorities with responsibility for the management and ongoing maintenance of formal schemes, and their development:

- > where appropriate, an expedited approvals process for works be applied in line with recommendation 5.4; and
- > a central component of policy will be the principle of beneficiary pays.

Support in principle

The Victorian Government's full response to this recommendation will be informed by its response to the ENRC's separate inquiry into rural drainage.

Melbourne drainage

Recommendation 5.10

Within the jurisdiction of Melbourne Water, it shares with local councils the responsibility to manage local drainage systems as outlined under the *Water Act 1989* and the *Local Government Act 1989* respectively:

- > Melbourne Water, in conjunction with metropolitan councils, will undertake an audit of drainage infrastructure to identify drains that are not currently managed by a public authority; and
- > following this audit Melbourne Water will work with relevant councils to develop best practice models for the management of the drainage asset.

Support in principle

Melbourne Water and the 38 Councils within its region have developed Floodplain Management Plans. These plans each include Action Improvement Plans that identify any drainage infrastructure without appropriate management arrangements. All actions coming out of the Improvement Plans are entered into an action-tracking database. Melbourne Water reviews the database to see which drainage assets have not been assigned to a managing authority. Melbourne Water then develops a work program with the relevant council to resolve management responsibility. Plan implementation is reviewed annually with a view to updating the documents every five years. Melbourne Water will review the suite of actions required to prioritise the actions for resolution.

Councils and Melbourne Water also undertake an electronic data exchange annually to share geographical asset information. The exchange ensures that the organisations are each aware of the other's assets.

Flood studies

Recommendation 5.11

Flood studies will be undertaken to determine the flood extent on the basis of a greater than 1 in 100 ARI, where appropriate.

- > The *Water Act 1989* to be amended.

Support in principle

The relevant provision in the Water Act is enabling. It enables CMAs to adopt a flood level, which, in their opinion, is the best estimate, based on the available evidence, of a flood event that has a probability of occurrence of one per cent in any one year. The flood level provides a means of consistently setting floor levels for dwellings and for assessing planning and development purposes.

DEPI will review the quality of flood information against the current 1-in-100-year event standard. It will also consider the situations in which a higher standard could be appropriate, for emergency and important community facilities, for example. As part of this process, DSE will consult with DTPLI, CMAs, Melbourne Water, VICSES and the Municipal Association of Victoria about the work being undertaken at a national level on flood mapping. Until this work is completed it would be premature to review the relevant sections of the Water Act that deals with this aspect.

DEPI will prepare guidelines for developing flood studies, including mapping. In priority areas, a range of flood extents for various frequencies will be mapped, including floods significantly larger than the one-in-one hundred event. For many areas this may be up to the extent of the Probable Maximum Flood. For other areas it may be a 1-in-200 or a 1-in-500 year event, depending on how the results can be applied to exploring sensible risk treatment options.

In consultation with DTPLI, DEPI will also review how property-specific information relating to flood events rarer than the one per cent probability event should be disclosed to potential purchasers of that land.

The Victorian Floodplain Management Strategy will develop systems and processes to facilitate the use of that information in land use planning.

Legal issues

Recommendation 6.1

The state government give consideration to enacting legislation to provide protection from legal liability for public authorities conducting works on priority levees in good faith, acting reasonably and responsibly in the public interest, and in accordance with standards agreed to under approved schemes. Public authorities should not be excluded from liability if they have acted negligently.

Support in principle

The government is currently undertaking a review all aspects of the *Water Act 1989* including the sections of liability of authorities. Recommendations will be put to Parliament to clarify the liability provisions.

However the current Victorian Government Statutory Immunity Policy is that immunity provisions are rarely appropriate because they remove the legal rights that would otherwise be available to a person who has suffered loss. A complete statutory immunity is not appropriate because it removes incentives for a person or body to exercise a reasonable level of care in the exercise of its functions.

Water storages

Recommendation 7.1

That statements of obligations, issued under the *Water Industry Act 1994* for water authorities, be amended to include a provision whereby managing authorities must:

- > make available to the public information designed to inform and educate local communities, particularly those communities living downstream of water storages - this information will relate to dam operations, the rules governing those operations, and the capacity, or lack thereof, of storage infrastructure to provide protection in the event of major flooding; and
- > ensure this information forms part of an ongoing program of interaction with local communities, to be conducted at a minimum of every two years, and providing community members with the opportunity to raise questions, discuss issues, and be informed on current dam operations.

Support in principle

The owners and operators of large irrigation dams with gated spillways have revised their storage operations and operating manuals to reflect the learnings of the 2010–11 floods and explicitly state their policies on dam surcharging and pre-release. This was outlined in the Victorian Government's response to Recommendation 25 of the Victorian Floods Review.

A statement of obligation is a regulatory instrument between the Minister for Water and each water corporation that specifies obligations (such as risk management and emergency responses). DEPI has revised the statement of obligations to include, among other things, a requirement for dam owners and operators to develop, implement and make available to the public a policy on pre-releasing water from a dam, and on surcharging the water level in response to flood events.

Revised summary operating manuals are now available for public perusal on the relevant water corporation website. Water corporations will make any future change to storage operating manuals publicly available.

Recommendation 7.2

The state government accept recommendations 25 to 28, inclusive, of the Victorian Floods Review.

Support

As outlined in the Victorian Government's response to the Victorian Floods Review, Recommendations 25 to 28 of that review have been accepted.

Flood monitoring infrastructure

Recommendation 8.1

The state government implement the Victorian Floods Review recommendation 8, to review the flood gauging network. As part of the review, consideration should also be given to the use of portable telemetered river gauges, and to the replacement of manual gauges with telemetered gauges over time and where appropriate.

Support

In consultation with stakeholders, including the Bureau of Meteorology (BoM), flood warning system upgrades are being investigated systematically, and revised where appropriate, as outlined in the Government's response to Recommendation 8 of the Victorian Floods Review. The Commonwealth will provide assistance through the Bureau of Meteorology (BoM) in supporting assessment of the adequacy of flood gauging networks, and in any required remedial action to be undertaken by the responsible state and local government agencies.

The beneficiary pays principle will be extended to the ongoing operation and maintenance of the flood-gauging network.

- > DEPI will be responsible for those gauges that constitute the streamflow data collection network for the purpose of natural resource management.
- > Water corporations will be responsible those gauges deemed to be essential for the purposes of operating water storages.
- > Local councils will be responsible for other gauges deemed to be an essential part of the Total Flood Warning System.

Flood monitoring and prediction

Recommendation 8.2

The state government establish a well-coordinated and formalised system for the reading of river gauges by local people, including flood wardens. Furthermore, the knowledge of local people in predicting flood heights and impacts should be considered by emergency management agencies when predicting floods.

Support

VICSES has started to scope the potential role of accredited flood observers to provide information to emergency management agencies during flood events. VICSES has also been promoting the use of local knowledge in strategic decision-making processes about emergency management planning. This follows the Government's response to Recommendation 23 of the Victorian Floods Review.

The Victorian Government supports the utilisation of appropriately accredited and trained volunteer flood monitors in the provision of flood information prior to flooding and during a flood event. Local knowledge will be captured through flood studies and mapping being undertaken through FloodZoom, which will then be incorporated into VICSES flood emergency plans.

VICSES will develop a strategy to incorporate local knowledge in its flood response operations and investigate options for its implementation.

River gauge network

Recommendation 8.3

The state government review the current funding approach used for the operation, maintenance and upgrade of river gauges, with a view to improving the river gauge network.

Support in principle

The Victorian Government supports the continuing development of flood warning systems for Victorian Communities. This recognises that a flood warning system consists of a number of elements. An effective system relies on the strengths of each element and the interactions between them. This includes data collection systems, flood prediction, interpretation of the information received to determine likely flood impacts, message construction and dissemination, response, community education/awareness and reviews of the flood warning system performance after a flood. Implementation of these elements is spread across a number of Commonwealth and Victorian Government agencies and local councils.

Flood warning gauge networks are one of these elements. Like levees they need to be maintained in a sustainable manner based on the capacity of the beneficiaries to pay. The beneficiaries vary in accordance with the primary role being played by each gauge in the network. (See response to Recommendation 8.1.)

DEPI is evaluating the adequacy of flood warning systems at the regional scale. This was outlined in the Victorian Government's response to Recommendation 3 of the Victorian Floods Review. Documentation of the flood warning systems for each river basin will be complete by the end of 2013. This will enable strategic assessment and refinements to occur through implementation of regional floodplain management strategies.

Past flood warning system improvements have mainly been funded through Commonwealth initiated programs such as the Natural Disaster Resilience Grants Scheme, which require the State and Commonwealth to pay for the capital component of the work, in exchange for local beneficiaries to pay for the costs of operating and maintaining the gauges.

The government will generally expect these arrangements to continue but may look at specific instances of hardship, where a local government with a small rating base is unable to pay for the upkeep of specific gauges whose primary role is to contribute to the Total Flood Warning System. The government will work with the relevant municipal council to develop sustainable options that are affordable to the council. This may mean compromises in the number of gauges (or dispensing with gauges if alternatives to providing information can be found). It may also lead to compromises in the way information on the gauges is disseminated.

Terminology for river and stream heights

Recommendation 8.4

The state government implement the Victorian Floods Review recommendation 10 in relation to the datums used to describe river and stream heights.

Support in principle

The BoM will continue to provide local datum in its flood warning messages. This was explained in the Victorian Government's response to Recommendation 10 of the Victorian Floods Review. However, the BoM will update the part of its website that relates to information on the gauges to include both local datum and Australian Height Datum where this information is available. This will enable emergency service organisations, agencies or community members to convert to Australian Height Datum flood levels provided in local datum.

As the BoM has observed (taking into account its experience in issuing flood warnings nationally), the difference between local river heights and the river levels adjusted to the Australian Height Datum is generally misunderstood. Changing the local gauge datum to Australian Height Datum could lead to further misinterpretation.

This lack of understanding can be addressed through programs like FloodSafe where the meaning of gauge heights at locations remote from settlements can be better explained. During a flood event, more tailored and appropriate responses can be given by value-adding flood warnings put out by the BoM through community messaging.

Local knowledge, community engagement and education

Local knowledge about flood management

Recommendation 9.1

Public authorities such as councils and CMAs should continue to seek local knowledge in relation to flood management issues. In particular, councils will collaborate with VICSES and other key stakeholders in reviewing the system of flood wardens. Roles and responsibilities of flood wardens, and the process for their recruitment, should be formalised and clearly articulated in relevant flood management plans.

Support

The Emergency Management White Paper outlines actions to ensure the participation of relevant stakeholders in emergency management planning, particularly at the municipal level. In implementing the reform actions contained in the White Paper, hazard specific planning for flood at the municipal level may be the appropriate level to prescribe the details for flood wardens for a particular municipality.

The broader emergency management arrangements contemplate organisational roles in planning, response and recovery activities. This provides an opportunity to clarify the roles and responsibilities of flood wardens, and their connection to the organisations that rely on their local knowledge.

Flood wardens who operate at the request of, or with the implied or express consent of, an emergency service organisation may also benefit from protection afforded under the injury and property damage compensation provisions in the *Emergency Management Act 1986* for volunteer emergency workers.

The government supports the utilisation of appropriately accredited and trained volunteer flood monitors in the provision of flood information prior to flooding and during a flood event in accordance with the respective municipal emergency management plan (see response to Recommendation 8.2). Local knowledge will also be utilised when validating information on flood behaviour through flood studies. The information can then be incorporated into VICSES flood emergency plans.

VICSES has developed a Local Knowledge policy and will develop a strategy to incorporate local knowledge in its flood response operations and investigate options for its implementation.

Community education

Recommendation 9.2

The state government should provide core, ongoing funding to the responsible authority for the FloodSafe community education program. Funding should be provided for education about prevention, response and recovery phases and include information on rates notices about the height of particular floods.

Support in principle

Initial FloodSafe education programs have been delivered in Melbourne, Gippsland, north-east Victoria and south-west Victoria. This was outlined in the Victorian Government's response to Recommendation 8 of the Victorian Floods Review. In partnership with Melbourne Water, VICSES is providing flood and storm education to Melbourne residents. This has involved door-knocking at some 4000 properties in high-risk areas. VICSES has given information to libraries and schools across the state about how residents can be better prepared for emergencies.

The Government has funded VICSES to employ 12 community resilience coordinators and 12 command and control managers over three years from 2011–12. Funding from a variety of sources is being used to prepare community flood guides and FloodSafe programs.

VICSES will continue to work closely with these communities to improve community preparedness and for the delivery of emergency warnings and information during floods.

The government will ensure the continued delivery of a flood education program focused on flood prevention, response and recovery and community preparedness.

Recommendation 9.3

The state government should implement the recommendations of the Victorian Floods Review in relation to the creation of resilience committees and resilience plans, with responsible authorities.

Support in principle

The Victorian Government will ensure that the revised emergency management planning framework enables and promotes the establishment of community resilience committees and planning at the local level. Community resilience plans may form an objective or a sub set of emergency management plans at the municipal level. Considering that each community differs in terms of flood risk and capability to respond to and recover from flood, it is important that councils and local community organisations drive community level activities and planning for resilience that are appropriate for that community.

