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Department of Environment and Resource Management  
EMG BRIEFING NOTE

TO: The Executive Management Group

SUBJECT: Queensland Government Flood Risk  
Management Activities Audit Report

Meeting No:  
Agenda Item No:  
Date:  
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Approved Not Approved Noted

EMG .....  
Dated / /

**TIMEFRAME**

- This briefing note is for consideration at the meeting scheduled for 22 November 2010.

**RECOMMENDATION**

It is recommended that EMG:

- note** the findings and recommendations of the Queensland Government Flood Risk Management Activities Audit draft report (the report)—Attachment 1; and the list of flood-risk management activities undertaken by DERM (Attachment 2); and
- endorse** further scoping of potential projects that fall under DERM's portfolio as outlined below (see Issues section).

**BACKGROUND**

- Flood risk management in Queensland is a complex matter. The roles and responsibilities related to managing flood are shared across state agencies with complex governance arrangements. This has resulted in lack of ownership at the state government level.
- It is likely that Queensland is heading into a period of several wet years, therefore establishing who has responsibility for the different aspects of flood risk management, planning and policy across the Queensland Government should be a high priority.
- DERM has undertaken an audit of flood risk management related activities across the Queensland Government, in consultation with key agencies, to understand the full nature of the state's flood risk management framework and to establish where gaps in policy activities exist. The report summarises the findings of the audit and identifies where possible enhancements to the state's flood risk management framework may be made.
- The Draft report has been approved in-principle by the Minister for Natural Resources, Mines and Energy, and Minister for Trade; and the Minister for Climate Change and Sustainability (the Ministers) in terms of progressing a letter from both Ministers to the Minister for Infrastructure and Planning (DIP Minister). The letter requests that DIP consider taking the lead for Queensland's flood risk management framework and represent Queensland on the National Flood Risk Advisory Group (NFRAG). A formal response from the DIP Minister is yet to be received.
- Following recent discussion at EMG it was agreed that DERM's role in flood risk management is principally technical in nature. For example, DERM has a lead role in managing coastal hazards; regulating referral dams, wetlands management; and in operating a network of flow gauging and rainfall-stations which provides real time stream flow information to the Bureau of Meteorology for flood warning purposes.
- In this respect, EMG recently agreed, on 27<sup>th</sup> September 2010, that the Assistant Director-General Environment and Resource Sciences (ADG ERS) will be DERM's flood coordinator. Dr Williams attended the NFRAG meeting in Brisbane in November as DERM's coordinator of flood management related matters; however no official state representative for Queensland has been determined.

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- DERM is currently participating in the review of State Planning Policy 1/03: *Mitigating the Adverse Impacts of Flood, Bushfire and Landslide*—with the Environmental Planning Team coordinating DERM's input with regards to flood. The Department of Community Safety (DCS) is leading the review.
- The Inland Flooding Study was publicly released on 10 November 2010 following extensive consultation with key stakeholders. The study provides guidance to local councils on planning for increased flood from extreme events resulting from climate change. The study was prepared jointly by DERM and the Local Government Association of Queensland.
- *Consultation:* Significant consultation with key water business groups within DERM has taken place during development of the report including groups such as the Water Quality and Ecosystem Health Policy and Coordination Group. Some consultation has also taken place with other agencies such as DCS and the DIP and Transport and Main Roads. It is intended that the report be more broadly circulated across Government to finalise content and further scope potential enhancements to the existing framework.
- Legislation: N/A

## CURRENT ISSUES

- The report identifies a number of potential enhancements to the state's existing flood risk management framework, in particular: the determination of a lead agency within the Queensland Government to 'champion' the overall development of a strategic Queensland flood risk management policy (it is anticipated that this will be DIP); the determination of a lead agency to represent Queensland on the NFRAG (also DIP); and a more coordinated strategic investment strategy for the administration of flood related subsidies and grants i.e. Natural Disaster Recovery Relief Arrangements (expected DCS will lead).
- In terms of potential enhancements to the framework that DERM could lead and that require further scoping, recommended enhancements include:
  - Consideration for regulatory requirements for the integration of climate change projections into flood management policy or planning;
  - Greater alignment with groups such as the regional NRM bodies in flood management activities;
  - Further investigation into a regulatory focus for the management of pollution events that arise as the result of flooding;
  - Development of a greater understanding of the probability of coincident riverine flooding and storm tide inundation and/or dam break in planning;
  - More consistent data collection standards and information sharing protocols across the state in relation to flood risk management data;
  - Identification of point of truth flood data and mapping, which can be updated as new data becomes available and which can be made publicly available;
  - Better integration and dissemination of information across all levels of government regarding the positive (e.g. environmental benefits) and the negative impacts of flood;
  - Greater information dissemination and education about flood risk (DERM, DCS & DIP);
  - A review of the construction standards associated with the building and management of non-referable dams.
- EMG's in-principle endorsement for further scoping of these possible projects is sought. Pending endorsement project scoping material will be provided to EMG by 30 June 2011. It is expected that business units with responsibilities in these areas (see Attachment 2) would scope the projects, under the oversight of the ADG ERS.

## RESOURCE/IMPLEMENTATION IMPLICATIONS

- Pending EMG endorsement, resourcing requirements for each of the potential DERM projects will be identified.

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**ATTACHMENTS**

- Attachment 1: Queensland Government Flood Risk Management Audit Report.
- Attachment 2: DERM Business Units with Flood Management business activities

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**ATTACHMENT 1**

**Queensland Government  
Flood Risk Management Activities Audit**

**Prepared by the Department of Environment and Resource Management  
In consultation with Queensland Government agencies**

**November 2010**

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### Executive summary

Flood risk management is a complex policy matter that spans across a number of Queensland Government jurisdictions. As a result the arrangements associated with the various flood related projects are multifaceted. The Department of Environment and Resource Management (DERM), in consultation with other Queensland Government agencies, has undertaken an audit of flood risk management related activities in an attempt to understand the full nature of the State's flood management framework currently implemented by the Queensland Government.

Part one of this report sets the policy context for flood management in Queensland and outlines the key roles and responsibilities for flood risk management across the Queensland Government. More detail can be found in Appendix A.

Part two of this report summarises where possible enhancements could be made to the current State flood risk management framework including where new policies and projects might be scoped in the future. More detail can be found in Appendix B.

It should be noted that the scope of this report is limited to Queensland Government and does not include in-depth analysis of Commonwealth, local government or regional natural resource management (NRM) activities. Part one however, does make mention of the Commonwealth, local governments and NRM activities and their respective roles in order to set the context for the Queensland Government.

### Summary of the flood risk management activities – part one

By way of summary for part one, the Departments of Community Safety (DCS), Infrastructure and Planning (DIP) and DERM have significant responsibilities for flood risk management. Other agencies including the Departments of Transport and Main Roads (DTMR), Communities (DoC) and the Department of the Premier and Cabinet (DPC) also play a role.

The DCS has a very public role as it leads disaster prevention, preparedness and response and recovery. DCS ensures that the state and local governments have disaster management plans, and prepares the *State Counter Disaster Plan* that provides a blueprint for the prevention, preparedness, and response and recovery arrangements for disasters in Queensland. DCS coordinates and leads the states response in the event of a disaster including the provision of short, medium and longer term recovery strategies and services. DCS also has the role of administering the main flood mitigation funding available to Queensland local governments.

The DPC assists with whole-of-government coordination during emergencies and plays a key role in managing the State's response to disasters and major incidents, including flood.

DIP has responsibilities related to planning, infrastructure and local government matters of flood risk management. DIP ensures that state and local government planning instruments adequately address flood and flood risk issues. For example, planning instruments set minimum floor levels in drainage areas. In conjunction with DCS, DIP also oversees the funding of local government to facilitate the provision of flood management infrastructure and services which includes administering a number of flood related grants.

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DERM has a lead role in managing coastal hazards; wetlands management; water quality and riverine protection, managing the take and interference with water and overland flow; and maintaining the physical integrity of watercourses and lakes; as well as recognising the beneficial aspects of floodplain management. The department also collects data and operates a network of flow gauging and rainfall-stations for operational, management and assessment purposes which also provides real time stream flow information to the Bureau of Meteorology (BoM) for flood warning purposes; and regulates the safety of referable dams.

Queensland Health (QH) mitigates the health impacts associated with flooding, such as mosquito borne diseases. This is implemented through the *Queensland Health Disaster Plan* that provides for a comprehensive whole-of-government approach to emergency management.

DTMR ensures that roads within the States jurisdiction are both flood resistant and do not contribute negatively to the effects of flooding or minimise interference with natural flow.

The Queensland Rural Adjustment Authority provides flood assistance to primary producers and small businesses.

### **Summary of the audit findings – part two**

The audit has identified a number of areas where enhancements could be made to the current flood risk management framework. For example, the State does not have an overarching strategic Queensland flood risk management framework or policy encompassing both the planning for and response to a flood event. While the disaster management response is generally well coordinated across the Queensland Government; the flood mitigation issues are often not well coordinated.

Similarly, there is no clearly identified lead agency that can champion the responsibility for overall strategic coordination of flood management across Queensland or provide input into the national flood management agenda.

In addition, there is no regulatory requirement or methodology at present for the integration of climate change projections into flood management policy or plans. However, the revision of *State Planning Policy SPP 1/03 Mitigating the Adverse Impacts of Flood, Bushfire and Landslide* (SPP1/03) and an *Inland Flood Study* will go some way towards addressing these issues.

Appendix B documents other shortcomings and provides a list of potential enhancements to the existing framework identified through consultation which are listed below.

### **Possible enhancements to the existing Queensland flood risk management framework**

- Determination of a lead agency within the Queensland Government to 'champion' the overall development of a strategic Queensland flood risk management policy;
- Identification of a lead agency within the Queensland Government to represent Queensland on the National Flood Risk Advisory Group;
- A more coordinated, strategic investment strategy for the administration of flood related subsidies and grants i.e. coordinating investment in flood mitigation with funds made available to recover from floods (i.e. the Natural Disaster Recovery Relief Arrangements);

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- Enhanced implementation of a 'catchment approach' to flood-risk and floodplain management across the State and local government levels i.e. integration of NRM activities, Land and Water Management Plans, water resource plans etc;
- Greater alignment with groups such as the regional NRM bodies in flood management activities;
- Greater incorporation of flood risk impacts in state planning instruments;
- Development of comprehensive guidelines to facilitate local government in their flood planning;
- Development of a process to audit local government floodplain management plans;
- Further investigation into a regulatory focus for the management of pollution events that arise as the result of flooding;
- Development of a greater understanding of the probability of coincident riverine flooding and storm tide inundation and/or dam break in planning;
- More consistent data collection standards and information sharing protocols across the state in relation to flood risk management data;
- Identification of point of truth flood data and mapping, which can be updated as new data becomes available and which can be made publicly available;
- Better integration and dissemination of information across all levels of government regarding the positive (e.g. environmental benefits) and the negative impacts of flooding;
- Greater information dissemination and education about flood risk;
- A review of the construction standards associated with the building and management of non-referable dams; and
- Establishment of an inter-departmental committee that can further investigate possible enhancements to the current flood risk management framework.

These possible enhancements are not exhaustive and serve to create further discussion about how the Queensland Government might drive flood risk management in the future.



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### Background

Flood management is a complex matter that spans many Queensland Government jurisdictions and involves a number of activities including: land and water planning; urban and regional planning; disaster management and recovery; infrastructure design; and environmental protection. Accordingly a number of Queensland Government agencies have a role in flood risk management and as a result there are complex arrangements and some confusion over these roles.

This audit attempts to open further discussion about this issue and address where possible better integration of flood risk management at the state government level by clearly defining the Queensland Government's roles and responsibilities.

The audit consists of two key elements. Part one is a review of the roles and responsibilities of each Queensland Government department. Part two provides a gap analysis of the implementation of flood responsibilities; particularly in terms of their scope and adequacy. This section also puts forward proposed recommendations for discussion.

### Audit objectives and methodology

The objectives of part one of the audit were:

- To clarify the roles and responsibilities of each Queensland Government department with respect to flooding activities.

The objectives of part two of the audit were:

- To identify any gaps and/or duplications in the current flood risk management framework including the capacity of the framework to acknowledge climate change and associated flood risk as a result of climate change; and
- To identify the Queensland Government agencies that may have responsibility to address the gaps based on the roles and responsibilities as identified by the audit.

It should be noted that the scope of this audit is limited to Queensland Government and does not include in-depth analysis of Commonwealth, local government or regional natural resource management (NRM) activities. Part one however, does make mention of the Commonwealth, local governments and NRM activities and their respective roles in order to set the context for the Queensland Government.

The audit used criteria developed by the Associated Program on Flood Management<sup>1</sup> --a joint initiative of the World Meteorological Organisation and the Global Water Partnership<sup>2</sup>-- to evaluate the effectiveness of flood management activities in the Queensland Government.

The criteria is consistent with both Australian and international trends and took the position that effective flood management is an integrated approach that must consider land and water use planning as well as the beneficial aspects of flooding.

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<sup>1</sup> Associated Program on Flood Management (2004) "Integrated Flood Management, Concept paper", World Meteorological Organisation and the Global Water Partnership, Geneva, Switzerland

<sup>2</sup> Associated Program on Flood Management (2006) "Legal and Institutional Aspects of Integrated Flood Management", World Meteorological Organisation, the Global Water Partnership and the International Water Law Research Institute, Geneva, Switzerland.

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Data used in the audit was collected from a literature search, two workshops and feedback from experts across the Queensland Government spanning from 2009 to 2010. The initial workshop involved DERM representatives only, the second workshop involved representatives from DCS, DIP and DTMR.

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### **Part one – Audit of Queensland Government flood risk management activities**

Flooding by its nature in Australia can be both beneficial and destructive. There are significant ecological and economic benefits caused by flooding. The sustainable management of this resource and associated floodplains is an important objective for the community and governments. Queensland Government flood management activities in terms of the beneficial effects of flooding include: the management of overland flow and the allocation of water; the sustainable management of floodplains (alongside landholders); and the sustainable management of water ways and wetland environments.

Flooding can also be destructive causing significant economic loss and threatening human lives and property. The Queensland Government has a broad objective to reduce and / or mitigate the impact of the destructive effects of flooding. Queensland Government flood management activities in relation to reducing the negative impacts include: providing leadership in, and establishing priorities for, disaster mitigation; flood risk management and planning; flood mitigation (including works such as dams and levees); flood warning; and emergency response dam safety (to prevent catastrophic failure and severe flooding). It also sets the policy parameters for investment in infrastructure and for many funding programmes associated with flood management.

#### **The broader policy context**

The Queensland Government operates a flood management framework in a broad policy context involving the Australian and local governments, and regional natural resource management bodies.

The Australian Government provides national leadership on flood mitigation strategies and provides financial assistance to the States, Territories and local government to assist them in meeting requirements for priority disaster risk management and disaster mitigation responsibilities. The Australian Government also provides tactical, rapid response satellite data and information as required through Geoscience Australia, and activates defence forces to support flood response or disaster management.

Primary responsibility for effective flood risk management in Queensland rests with local government. Local governments have an important role at the community level in assessing flood risk; determining local investment priorities; planning and implementing disaster mitigation measures to achieve more sustainable communities; stormwater management and reducing the loss of life, damage and cost to communities from flood events.

Natural Resource Management (NRM) groups are funded by the Australian Government for the purpose of managing significant catchments and bioregions identified within each State and Territory. There are currently 14 regional NRM groups in Queensland, some of which represent areas of vast and highly productive floodplains. However, flood management is largely addressed as an indirect priority under the regional NRM plans through water quality, riparian and land management planning or as a monitoring activity.

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### The Queensland Government policy context

#### Legislation

The extent to which flood issues are managed in Queensland relies on measures implemented under a range of legislation and associated planning and policy instruments.

#### *Principle Legislation:*

- The *Sustainable Planning Act 2009* (SPA) and associated SPA planning instruments including State Planning Policies— State Planning Policy for Natural Disaster Mitigation, including flood mitigation (SPP 1/03); Section 706 limitations on compensation for loss of value of land; State Planning Policy Protecting Wetlands of High Ecological Significance in the Great Barrier Reef Catchments; Strategy for the Conservation and Management of Queensland's Wetlands; and works in or on a watercourse for the mitigation of floods.
- Statutory and non-statutory Regional Plans; and
- The *Disaster Management Act 2003*.

#### *Other legislation:*

Other Acts and subordinate legislation that have relevance for specific flood-related activities, such as: habitable floor levels for development; works in tidal waters; and development on coastal floodplains, are:

- The *Local Government Act 2009* and *Local Government Transitional Regulation 20010*
- The *Building Act 1975* and Building Regulation 2006;
- The *River Improvement Trust Act 1940* and River Improvement Trust Regulation 1998;
- The *Water Act 2000*, Water Regulation 2000 and associated Water Resource Plans;
- The *Water Supply (Safety and Reliability) Act 2008*;
- The *Environmental Protection Act 1994* and Environmental Protection Regulation
- Environmental Protection Policy (Water);
- The *Coastal Protection and Management Regulation 2003*;
- The *Vegetation Management Act 1999* and associated Development Codes; and
- The *Rural and Regional Adjustment Regulation 2000 (Part 22 Special Disaster Flood Assistance Scheme)*.

The Queensland Government has a comprehensive range of compulsory acquisition of land powers relating to the access rights for authorities responsible for flood mitigation, defence, operation and maintenance, over private property. These are contained within the Local Government; River Improvement Trust and the Disaster Management Acts.

Other issues associated with flood risk and its mitigation that fall outside existing legislation include:

- liability arising from taking certain actions (including providing information and works);
- state-wide oversight of flood risk and flood risk management practice; and
- coordination across local government boundaries.

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### **Key elements of flood management**

The key elements of flood management, for the purposes of this report, can be classified into 5 interlinked roles:

- 1. Flood disaster management planning and recovery**
  - Covers aspects of disaster management and response
  - Key agencies –DCS with DoC, DERM, QH and local government
  - Flood recovery is a whole of government response with DCS and DoC in conjunction with local governments
- 2. Flood mitigation planning and strategic planning relating to flood**
  - Covers state planning tools under the *Sustainable Planning Act (2009) (SPA)* i.e. State Planning Policy (SPP1/03) *Mitigating the Adverse Impacts of Flood, Bushfire and Landslide*, Regional Plans, and development conditions for infrastructure under the SPA Integrated Development Assessment System (IDAS) to reduce future risk as well as existing flood risk. Government funding for mitigation works to address existing flood risks.
  - Key agencies – DIP, DCS; local government and DERM as an advice agency
- 3. Environmental, natural resource and health planning/regulation relating to flood**
  - Covers a range of regulatory and policy instruments under the *Environmental Protection Act (1994)*, *Environmental Protection Regulation (2008)*, and *Environmental Protection Policy Water (2009)*, water quality planning, Great Barrier Reef water quality and Wetlands policies and programs
  - Key agencies – DERM and QH (minor role)
- 4. Provision and adequacy of data/information, research & modelling relating to flood**
  - Covers water data and other information which informs flood modelling and management e.g.: stream flow data, topographic information, flood modelling
  - Key agencies – DERM, Bureau of Meteorology, some local government, research bodies and the insurance industry. Note: flood modelling is generally undertaken by the relevant local government using a specialist consultant.
- 5. The planning and management of flooding – beneficial and negative impacts**
  - Covers the planning and management of riverine, wetland, floodplain and overland flow through a range of regulatory and policy tools including provisions under the *Water Act 2000*, *Water Regulation (2002)* and statutory water planning e.g. State Planning Policy Protecting Wetlands of High Ecological Significance in the Great Barrier Reef Catchments and the Strategy for the Conservation and Management of Queensland's Wetlands
  - Key agencies – DERM

### **Summary of flood related activities by Department**

The key activities across the Queensland Government are summarised below. For more detail refer to Appendix A.

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### **Department of Communities (DoC)**

The DoC has lead agency responsibility for the coordination of community recovery efforts after disasters. This includes the provision of short, medium and longer term recovery strategies and services.

### **Department of Community Safety (DCS)**

The DCS is the coordinating agency for disaster management through Emergency Management Queensland (EMQ). While EMQ's role is focussed on response, it is also involved in the coordination and policy development across the spectrum of prevention, preparedness, response and recovery. DCS also has the role of administering the main flood mitigation funding available to Queensland local governments.

### **Department of Employment, Economic Development and Innovation (DEEDI)**

DEEDI coordinates a range of financial assistance to primary producers affected by flooding and cyclone events. This includes one off grants as well as ongoing programs.

### **Department of Environment and Resource Management (DERM)**

DERM's role is principally technical in nature. The department has a lead role in managing coastal hazards; wetlands management; water quality and riverine protection, managing the take and interference with water and overland flow; and maintaining the physical integrity of watercourses and lakes; as well as recognising the beneficial aspects of floodplain management. The department also collects data and operates a network of flow gauging and rainfall-stations for operational, management and assessment purposes which also provides real time stream flow information to the BoM for flood warning purposes; and regulates the safety of referable dams. DERM also provides specialist advice to DCS on flood mitigation projects seeking funding through programs administered by DCS; and the local government planning schemes with respect to the implementation of SPP 1/03 and "natural hazard management areas - flood"

### **Department of Infrastructure and Planning (DIP)**

DIP has responsibilities for maintaining a planning and regulatory framework that allows local governments to manage flood risks. As a result, the mechanisms available to local government include:

- obligation to prepare planning schemes and SPP 1/03 that precludes development from flood prone areas
- Building regulations allowing local government to set habitable floor levels in designated natural hazard management areas-flood; and
- Powers to allow local government to construct and levy charges for infrastructure – including flood mitigation works.

DIP also has a role in administering the Natural Disaster Relief Arrangement funds for flood disaster recovery from the Queensland Treasury.

### **Department of the Premier and Cabinet (DPC)**

DPC assists with whole of government coordination during emergencies and plays a key role in managing the state's response to disasters and major incidents, including flooding.

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### **Department of Transport and Main Roads (DTMR)**

DTMR has the responsibility for ensuring roads within the states' jurisdiction are both flood resistant, do not contribute negatively to the effects of flooding and minimise interference with natural flow.

### **Queensland Health (QH)**

QH plays an important role in mitigating and responding to the health impacts associated with flooding, such as mosquito-borne diseases.

### **QRAA (formally Queensland Rural Adjustment Authority)**

QRAA administers a range of natural disaster—including flood—assistance and recovery measures for primary producers. QRAA Natural Disaster Relief & Recovery Assistance (NDRRA) includes measures for small businesses and primary producers.

### **Other projects identified**

During the audit a number of projects recently announced, in progress or under development were identified that sit within, or have relevance to, the flood management framework and may potentially impact on the state's flood management regime. These include:

- The remake of the SPP 1/03 (DIP lead);
- Proposed transition of the River Improvement Trusts from the Queensland Government to local government (DERM lead) and associated review of the River Improvement Trust Act;
- Review of state and national flood-related guidelines (DSC to review Emergency Management flood manuals);
- A review of the effectiveness of existing planning tools in addressing the increased risk from climate change (DERM – Office of Climate Change);
- Investigation of greater integration between groundwater and flood water management (DERM);
- Revised Coastal Plan and development of an associated new SPP (DERM);
- Development of an integrated waterways quality monitoring framework for Queensland (shortly to be submitted to the Premier for endorsement) (DERM/DEED/GBRMPA);
- *Great Barrier Reef Protection Amendment Act* and supporting implementation package (DERM);
- A project to look at both the climate change science and the planning and development responses to inland flooding (joint State government – *DERM* and *LGAQ*); National Council of Australian Government (COAG) guideline under development to incorporate climate variability and change into assessment of future flood risk; and
- Preparation of the SPP Healthy Waters and remake of the EPP Water dealing with stormwater quality management (DERM).

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### Part two - the current flood management framework in the Queensland Government

The second part of the audit identified possible gaps in the Queensland Government's current flood risk management framework. A detailed description of the existing approach (including relevant legislation and policies and programs) and all identified gaps and comments on the approach is located in Appendix B. This next section below outlines key gaps according to the five key flood management roles

#### Summary of gaps

By way of summary, the state does not have an overarching strategic 'Queensland flood risk management policy' encompassing the planning to avoid or mitigate flood risks and the response to flood events. While the disaster management response is generally well coordinated across the Queensland Government; the flood mitigation issues are often not well coordinated.

Similarly, there is no clearly identified lead agency that champions the responsibility for overall strategic coordination of flood management policy across Queensland. The roles and responsibilities of departments and institutions are not clear; with many overlapping interests and gaps. There is no integrated strategic approach to mitigating all types of flood risk—existing, future and residual.

The audit also identified the need for Queensland to have clear and appropriate (e.g. policy &/or technical) representation at the national level (e.g. the National Flood Risk Advisory Group). A lead agency is required to take responsibility for the development and oversighting of strategic policy and planning responses relating to flood risk management from a national perspective.

The audit also identified that the majority of agencies involved in flood and flood risk management are heavily committed to delivering their 'non-flood' responsibilities and often lack the resources to commit to flood management roles. There appears to be the need for a more strategic approach to resource allocation to flood risk issues across the Queensland Government.

In addition, there is a need to develop a methodology to ensure the integration of climate change impacts into flood risk assessments so that the subsequent actions taken to manage that risk are appropriate. The *Inland Flood Study* project is aimed at endeavouring to address this issue and the revision of *State Planning Policy SPP 1/03 Mitigating the Adverse Impacts of Flood, Bushfire and Landslide* (SPP1/03) may also be of some assistance.

There is no readily available uniform flood mapping and data for Queensland that could inform Queensland Government decisions that affect flood risk and flood risk management; or that can be easily updated and made publicly available.

#### 1- Flood disaster management planning and recovery gaps

On the whole disaster management is effectively managed by DCS through the Disaster Management Act and associated committees. However, a number of gaps and other issues have been identified by the audit as detailed below.



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### Integration of stakeholders in disaster preparation/planning and response

There is no overarching, strategic coordination between local government and the Queensland Government for disaster response when a flood event occurs. Local disaster management plans, developed by local government, for emergency response, are generally in place (as a requirement of the Disaster Management Act) but such plans do not address the coordination elements of managing a response to a flood; nor do they adequately reflect the planning necessary associated with flood. There is also little recognition of flood events rarer than the 1% AEP<sup>3</sup> (or 1 in 100 year) flood event.

### Post flood community recovery

A Memorandum of Understanding between the DoC and the DCS is in operation for post emergency operations. This structure is operating well. The DoC provides short, medium and longer term flood recovery strategies and services including personal support services and community engagement and development services.

### Roles of authorities in disaster response, triggers for evacuation, and public security in temporary shelters and evacuated areas

There is a need for greater clarity around evacuation processes; however there is a guideline that will deal with this matter under development at present.

### Flood Disaster Recovery/reconstruction (NDRA) mitigation grants

Each year the Queensland Government invests in the order of \$600M through the Natural Disaster Recovery and Relief Arrangements (NDRRA) program in response to flood and cyclone related events. Given impacts of climate change and the likelihood for more extreme weather events and the forecast increased wet seasons over the next few decades, the audit has identified that it would be advantageous to review the NDRRA arrangements to ensure the funding is better used to future proof the state against flood related impacts.

This might mean that local governments and other recipients of funding are required to prepare more in-depth flood management plans or documents to minimise the risk of flooding as a precondition of eligibility for the maximum amount of support under NDRRA. It might also mean changing the rules to ensure agencies receiving funds to reinstate infrastructure do so to an improved level of resilience to future flood events. Further investigation into a coordinated approach for the administration of flood mitigation grants should be undertaken to maximise impact on Queensland's flood risk—investing in areas where there is the greatest need.

### Disaster response and recovery implementation

The DSC has identified that there are variances between information held at the state and local government level with regards to response and recovery implementation. There are gaps in arrangements for transitioning between response and recovery and a gap in arrangements that reflect current expectations for re-supply of isolated communities, particularly under periods of long isolation.

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<sup>3</sup> **Annual exceedance probability (AEP):** the likelihood of occurrence of a flood of a given size or larger in any one year; usually expressed as a percentage. For example, if a peak flood discharge of 500 cubic metres per second has an AEP of 5%; it means that there is a 5% risk (i.e. probability of 0.05 or a likelihood of 1 in 20) of a peak flood discharge of 500 cubic metres per second or larger occurring in any one year. The AEP of a flood event gives no indication of when a flood of that size will occur next.

## **Not Government Policy**

### *Erosion protection - reducing the likelihood of mudslides or landslides with floods*

SPP1/03 sets the policy for reducing the likelihood of mudslides and landslides—often associated with flood events. However, there is little technical expertise in the Queensland Government to assist development proponents on this matter.

## **2 - Flood mitigation planning / strategic planning relating to flood - gaps**

### *Land use planning—control of development on floodplains*

The Queensland Government has a comprehensive planning regime implemented through the Sustainable Planning Act and associated State planning instruments.

The key planning tool related to flood risk management is 'State Planning Policy 1/03 on Mitigating the Adverse Impacts of Flood, Bushfire and Landslide' (SPP 1/03) which is reflected in statutory regional plans and local government planning schemes.

The audit has found that although there is a framework in place it is subject to the quality of flood information. Where SPP 1/03 is fully integrated into local government planning schemes new development is generally well controlled. However, SPP1/03 only applies when triggered, for example: for new works or for a material change of use. The SPP deals with future risk. Existing and residual risk are not managed. For example some of the existing developed areas are below 1:20 year or 1:50 year flood levels. Estimates of these levels vary with time as more information becomes available.

Infrastructure built before the commencement of the SPP1/03 may be in areas of high flood risk. Similarly where planning decisions have balanced the risk and cost of locating infrastructure in a hazard management area infrastructure may be located in areas of higher risk.

The audit also noted that the control of development on rural floodplains is considered very patchy, varying from one local government area to the next. This is often due to the capacity of local governments to commit resources to undertake adequate modelling and administration of floodplain development controls – particularly when required to sustain their position against legal challenges.

The construction of main roads and related infrastructure is managed by DTMR who consider flood management and drainage issues in accordance with the SPA and a range of design manuals and guidelines.

Other land planning related tools regarding flood—both at the property scale and regional scales—includes the *Land Act 1994* (mainly through the "Delbessie Agreement") and Regional Natural Resource Management (NRM) plans.

### *Flood Mitigation subsidies*

There is a need to continue to ensure that projects submitted for government funding are subjected to an equitable and robust evaluation. This is to ensure best value (in mitigation terms) is achieved, to allow prioritisation for funding (where funds are limited), and to ensure transparency/probity.

Currently there are arrangements between DCS and DERM with respect to DERM providing technical assistance in the evaluation of projects seeking funds under

## **Not Government Policy**

programs administered by DCS. These may need to be reviewed to ensure they are achieving the objectives.

Further investigation into a coordinated approach for the administration of flood disaster recovery/reconstruction grants and flood mitigation subsidies should be undertaken to maximise impact on reducing Queensland's flood risk—investing in rebuilding damaged infrastructure to higher levels of flood immunity and/or areas where there is the greatest need.

### *Building control standards*

The Building Act and the associated Building Regulation can be used by local government to regulate habitable floor levels in designated "natural hazard management areas-flood".

In addition, the performance of (domestic) structures is "regulated" using codified wind design load cases, however there is no similar requirements in relation to loads on structures 'flood flow'. This may be an area for future consideration.

### *Dam construction, management and safety*

Referable dams are actively regulated in Queensland. A referable dam is one that would, in the event of failure, put a population at risk. This is determined by conducting a failure impact assessment. Such a dam is assigned a Category 1 or Category 2 failure impact rating, and is considered 'referable' under the provisions of the Water Supply (Safety and Reliability) Act.

Dams that have not already been assessed as having a Category 2 failure impact rating must be periodically reassessed at least every five years if they are more than eight metres high and have:

- a storage capacity of more than 500 mega litres; or
- a storage capacity of more than 250 mega litres and a catchment area more than three times the maximum surface area of the dam at full supply level.

If there is no population at risk, a dam is not referable and is not subject to the referable dam provisions of the Water Supply (Safety and Reliability) Act. Development permits are required for all new referable dams and for all modifications to existing referable dams which increase the storage capacity by more than 10%.

### *Standards for new dam construction and maintenance*

While safety conditions (the ANCOLD<sup>4</sup> guidelines) apply to the design and construction of referable dams, no such conditions apply to non-referable dams. There is also an absence of knowledge about dams that fall outside of the referable category but that could still cause community impact if they fail. The number of instances in recent years of actual or threatened collapses of non-referable dams is not known.

### *Integration of basin flood risk in drainage planning/design*

There are a range of legislative and policy tools available for the management of drainage basins between the state and local governments. They range from the

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<sup>4</sup> Australian National Committee on Large Dams – guidelines include risk assessment, dam safety management and construction and operation etc

## **Not Government Policy**

Sustainable Planning Act (including state planning instruments such as SPPs) and the *Queensland Urban Drainage Manual*—a guideline to assist local governments in planning urban drainage. Primarily drainage in urban areas is a local government responsibility and its effectiveness varies from jurisdiction. The manual does promote an integrated basin approach however.

The Soil Conservation Act affects drainage on agricultural land. The Act is limited to the conservation of soil resources and facilitates the implementation of soil conservation measures by landholders for the mitigation of soil erosion. Where it does apply it is usually in rural settlements. In certain circumstances it can control or directing run-off water flow. This Act is geographically limited in its application.

### *River basin planning institutions*

Water Authorities and River Improvement Trusts (RITs)—created under the Water Act)—whilst not specifically established for managing flood, do have a broad range of powers and responsibilities including: stormwater drainage; flood prevention; and floodwater control, as well as flood mitigation construction works.

The water authorities and RITs are currently being transferred to alternative institutional arrangements, primarily local government. This may allow for greater integration of flood planning and management, however, the institutional boundaries of local governments are not based on river catchments as are the RITs. This means some catchments are likely to cross several local government areas, which might prove problematic in terms of coordination of flood management planning and recovery.

### *Location of critical infrastructure on flood plain/prevention of flooding of infrastructure*

The Sustainable Planning Act, with SPP 1/03, is the main legislative tool for the prevention of flooding when planning for infrastructure. Local governments are required to reflect SPP1/03 in their planning schemes and take SPP1/03 into consideration when assessing development applications in flood prone areas.

Where SPP 1/03 is fully integrated into local government planning schemes new development including critical infrastructure - should be well controlled. However, SPP1/03 relies on the designation of "Flood Hazard Management Areas" and these in turn rely on good flood data modelling for the mapping.

### *Wetland protection*

The recently introduced temporary State Planning Policy: Protecting Wetlands of High Ecological Significance in Great Barrier Reef Catchments requires anyone conducting high risk earthworks activities within a wetland protection area and which may interfere with the hydrological regime of the wetland to make an application for assessment under the SPA.

### *Regional NRM group flood management planning*

Regional NRM groups have significant planning benchmarks, monitoring activities, partnerships and forums for flood management. For example, the Condamine Alliance Regional Investment Strategy prioritises risk analysis of built infrastructure to flooding and salinity and the delivery of a digital elevation model assessment to improve planning and management across the highly productive Condamine floodplain.

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However, there is a tendency for flood management to be addressed reactively due to the acute nature of these events and more from a NRM rather than flood risk management perspective. This is evident in the significant flood management activities undertaken by the Northern Gulf Region in 2009, when many areas in the lower gulf catchments were inundated for over 2 months. For example, one of the steps undertaken by the Northern Gulf NRM Group included designing a monitoring program to undertake with graziers to measure the impact and the recovery of the landscape. Accordingly, there is an identifiable gap in the role of NRM bodies towards flood management although significant planning, coordination and activities are undertaken by these groups.

### 3 - Environmental, natural resource and health planning matters relating to flood - gaps

#### Water resource use management – a catchment approach

The Queensland Government has a range of legislative and statutory planning tools and a number of policies for the management and use of water resources. This is primarily achieved through the Water Act. The Act allows for a range of subordinate legislation and statutory instruments such as:

- Water Resource Plans (WRP) and Resource Operation Plans (ROP)—which manage water to achieve environmental flow and water allocation security objectives; and
- Water Use Plans (WUPs).

Outside of water resource plan areas, water is also managed through water licences to take or interfere with water in a watercourse, lake or spring.

Other legislation such as the River Improvement Trust Act and Wild Rivers Act also has a role in the management of rivers and catchments.

Generally the Water Act focuses on water resource planning and water allocation and use but not on flood management or the active management of the beneficial elements of flooding. Chapter 4 of the Water Act has provisions to create water authorities whose activities include flood prevention and floodwater control. Apart from incorporating the broad management of the beneficial effects of flooding such as overland flow, generally there is little integration of flood management into water management planning regime.

There is currently no integrated catchment approach to flood management in Queensland. While River Improvement Trusts have some powers to manage flood issues at a catchment scale these only operate east of the Great Dividing Range and have had limited success. Professor Barry Hart in the *"Review of the Fitzroy River Water Quality Issues"* report to the Queensland Premier (November 2008)—the Hart review—recommended that *"the Queensland Government appoint a lead agency to be the responsible 'caretaker' of river health in the Fitzroy catchment...and for DERM to develop a 'catchment management plan' and coordinated monitoring and assessment program for the Fitzroy catchment"*. The report noted similar limitations in management and governance structures of catchments are likely to be found throughout Queensland.

## **Not Government Policy**

### *Integration of surface and groundwater management (relating to flood events)*

The Water Act has a number of provisions which can allow the Queensland Government to integrate the management of ground and surface water if required. These include "Declared Catchment Areas" provisions, Water Resource Planning, Resource Operation Planning and Chapter 4 Water Authorities (at present there are a number of Water Authority that manage ground water resources).

The integration of surface and groundwater management as it relates to flooding is generally not a consideration of water resource planning. This overlooks the importance of flood events in recharging some aquifers. It should be noted however the North Burdekin and South Burdekin Water Boards (water authorities) do oversee the management of replenishment of subterranean water in order to secure adequate supplies for irrigation, domestic, stock and industrial purposes.

### *Pollution/discharge control provisions during flood*

There are a significant number of policy and legislative tools to deal with pollution. Point and non-point source water quality issues and pollution management are mainly dealt with through the Environmental Protection Act and a range of other legislation and policies including the Vegetation Management Act and to a limited extent the Soil Conservation Act. In recent years there has been a significant focus on run-off and pollution into the Great Barrier Reef. This has culminated with the Great Barrier Reef Protection Amendment Act (which amends the Environmental Protection Act). This includes a range of policy and planning initiatives including Reef Wise program, the Reef Water Quality Protection Plan, Reef Water Quality Partnership, Reef rescue process.

The 2008 Encham Mine (Fitzroy River Flood) incident review (DERM 2009) noted a range of limitations in the management of pollution discharge during or after flood events. The independent 'Hart' review also recommended that the Queensland Government develop a set of 'Emergency Response Principles' relevant to the mining industry to be applied in future situations. These principles could include the identification of a lead agency that would be responsible for risk assessment, coordination of other key agencies, development of action and communications plans, and the nomination of a key spokesperson.

### *Authorisation of works in or on watercourses*

There are a range of tools to regulate works in or on watercourses. The Water Act, associated Water Regulation, water resource plans, resource operations plans and the Sustainable Planning Act regulate the "take and interference of water". The Water Act, in conjunction with the Sustainable Planning Act, also regulates (to extent of these Acts) flood mitigation and operational works in drainage and embankment areas (the latter in a very limited spatial extent). The Water Supply (Safety and Reliability) Act regulates safety conditions for referable dams and sets out flood mitigation responsibilities for dam owners, including the preparation of flood mitigation manuals. The *Transport Infrastructure Act 1994* also has provisions for the diversion and construction of watercourses to carry out road works.

A limitation of the existing regime is that hydrological works are authorised only where work is in a watercourse or for the safety of referable dams. There is a view that flood management implications for referable dams are generally not taken into consideration when these works are authorised however flood mitigation is sometimes a factor (e.g. Wivenhoe Dam). Flood management implications are not normally a factor for authorising works to take or interfere with water as the

## Not Government Policy

implications for beneficial flooding and watercourse integrity are matters for consideration in the licensing and planning aspects and works cannot be approved under the Sustainable Planning Act unless the consent of the chief executive administering the Water Act has been obtained. Consent is given only when the development is consistent with a water entitlement or when the chief executive is satisfied an application for development approval can proceed in the absence of a water entitlement.

### Quarry and dredging in riverine ecosystems

Quarrying and dredging is generally well managed under the Water Act in association with the Sustainable Planning Act. However, flooding is considered mainly from a stream integrity point of view – not a flood risk mitigation perspective.

### Land use practices that increase flood-related pollution risks

Some land use practices can exacerbate pollution caused by flooding (for example, storage of chemicals, use of pesticides/other compounds, slurry disposal). A range of legislative tools are available to Government to manage this type of pollution, through the Environmental Protection Act and associated Environmental Protection Regulation which regulates the storage of chemicals other than crude oil, natural gas and petroleum products. The safe storage and handling of dangerous goods are also regulated through the *Dangerous Goods Safety Management Act 2001* and *Dangerous Goods Safety Management Regulation 2001* and associated *Guidelines for Industry*.

The effectiveness of these regulatory tools may be weakened by inadequate flood modelling and appropriate application of risk management. The approvals for Environmentally Relevant Activity licences (e.g. chemical storage) are often based on the land zoning as set by the local government. The quality of the local area plans often influences such decisions. If local government modelling does not adequately reflect areas at flood risk, chemical storage could be granted in areas which may lead to environmental impact. Risk assessment should ensure that areas at high risk of flood events are subject to more stringent licensing control.

### Aquatic ecosystems

The audit has identified that the protection of aquatic ecosystems from pollution associated with floods is patchy across the state.

### Wetlands and floodplains

The Water Act, Wild Rivers Act, and Sustainable Planning Act have a role in the management of these areas. The Queensland Wetlands Program specifically deals with wetland management issues. DERM also has wetland mapping including the impact of overland flow. This focuses on environmental protection rather than flood mitigation. For wild rivers, flood plans are managed through 'floodplain management areas' as required by the Wild Rivers and Sustainable Planning Acts.

Operational works (in wetlands in a watercourse, lake or spring) are regulated to extent specified in the Water and Sustainable Planning Acts. Vegetation clearing in and around wetlands is controlled by vegetation code assessment. Under the *Coastal Protection and Management Plan* there is a policy for coastal wetlands that states that further loss or degradation of coastal wetlands is to be avoided and impacts on coastal wetlands prevented, minimised or mitigated.

## **Not Government Policy**

There was a view expressed during the audit that the environmental management floodplains has not been adequately addressed. Some believe that adopting a comprehensive approach to integrated water cycle management involving the infrequent high /flood flows to recharge wetlands and ground water is required.

### *Riparian management and protection*

A framework exists for the management of riparian areas, namely through the Water; River Improvement Trust; Wild Rivers; Vegetation Management; and Sustainable Planning Acts.

This framework however is patchy through out Queensland. Declared wild rivers are protected through some prohibited development within the riparian zone. River Improvement Trusts (with the power of the River Improvement Act (*RIT*)) can also manage elements of riparian areas within a RIT catchment (but not always) and the Water Act (in association with the Sustainable Planning Act) manages works approvals in drainage embankment areas. There is however no coordinated approach to manage riparian vegetation throughout Queensland.

The activities of placing fill, excavating and destroying native vegetation in a watercourse, lake or spring are managed through riverine protection permits (and exemption guidelines). This is done in terms of protecting the physical integrity of watercourses, lakes and springs. Riverine protection permits activities do not require development approval under the Sustainable Planning Act.

### *Integration of flood and storm surge*

The Coastal Protection and Management Act and the associated planning policy including the new SPP deals with flood and storm surge. However, the workshop noted that there needs to better integration of flood, storm surge and storm tide modelling to enhance the framework.

## **4 - Provision and adequacy of data/information/advice, and research & modelling relating to flood - gaps**

### *Modelling*

The audit has identified that there is no consistent approach for flood modelling and planning across the state. Some local governments have excellent and comprehensive modelling while others do not. This is often due to the size of the local government and its capacity to develop the required modelling and mapping.

Some models plot inundations for historical floods while models others adopt the 1% AEP flood<sup>5</sup>. There is virtually no recognition of rarer flood events which may have a catastrophic impact. There is no central register of flood modelling or mapping. There is also a difficulty in determining the risks to individual properties from flooding with any precision. Some local governments do offer tools to the community to assist individuals in determining flood risk (e.g. Brisbane City Council's Flood Flag Map<sup>6</sup> and FloodWise Property Report<sup>7</sup> programs) however.

<sup>5</sup> Annual exceedance probability 1% e.g. 1 in 100 year flood event

<sup>6</sup> Brisbane City Council - Flood Flag Map - <http://www.brisbane.qld.gov.au/community-support/emergency-management/flooding/flood-flag-map>

<sup>7</sup> Brisbane City Council - FloodWise Property Report - [http://flood.brisbane.qld.gov.au/floodwise\\_property\\_report](http://flood.brisbane.qld.gov.au/floodwise_property_report)



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Flood modelling also varies from one regional planning area to another resulting in flood planning that can not be integrated across regional boundaries. In most case the statutory regional planning could be one vehicle to address these issues.

Similarly, there are no comprehensive guidelines to help local government facilitate flood planning and no audit framework for local government flood management plans. At present, some local governments do not have comprehensive flood management plans while others have effectively addressed both existing and future flood risk (e.g. Brisbane City Council).

Some flood modelling needs to incorporate storm surge and storm tide data. The audit also identified that there is a need to incorporate climate change projections into flood modelling and planning.

### **Availability of hydro-meteorological and other related data**

DERM collects data from approximately 460 water flow monitoring sites around Queensland. The Bureau of Meteorology has approximately 770 sites and uses DERM's sites for its flood warning network across regions of Queensland. Other hydrological data is collected by local government (approximately 320 sites) and SunWater (80 sites) and SEQ Water (120 sites). DERM makes its data available to the public through its website.

There are no data collection standards or clear information sharing protocols across the three levels of government. The audit also identified that there is a need for spatial information on flood heights (i.e. flood level and ground level contours with property boundaries from flood models). Such information would better assist local government in preparing planning schemes and in making development decisions where flooding is an issue.

### **Incorporation of climate variability and change into assessment of future flood risk**

While the Office of Climate Change continues to address matters associated with climate variability, there appears to be more work required to incorporate climate variability into the assessment of future flood risk. A national guideline is currently under development through Council of Australian Governments (COAG) but this is not anticipated to be available for some time. In the meantime, Queensland will need to consider adopting interim measures.

Climate variability will also have implications for the existing Natural Hazard Management Areas (NHMA). Climate variability may result in a greater number of properties being at risk from the defined flood event (e.g. 1 in 100 ARI). These matters are likely to be addressed in the review of SPP 1/03.

### **Public awareness and stakeholder participation in decision-making**

Generally local government plays a key role in informing the public about flood risk. The effectiveness of this process is dependent on the resources available to local governments (e.g. Brisbane City Council has a very well resourced public awareness program). Many Queensland Government departments carry out some public awareness activities; however there is no coordinated approach.

The audit noted that there is need to educate the community to plan for floods in excess of the 1:100 year floods and understand what a 1:100 year flood means in

## **Not Government Policy**

terms of an individual's chances of experiencing one during his lifetime. There is also need to educate the community with regards to acceptable, tolerable and intolerable risks and risks associated with climate variability and the possible increased risk of severe flood events across Queensland due to the predicted increase in extreme rainfall events.

### **Access to flood risk/hazard data**

The Sustainable Planning Act requires local government to ensure floodplain management matters are reflected in planning schemes and that natural hazard management areas (flood) are mapped. The SPA also requires local government to keep registers of resolutions about land liable to flooding, made under the Building Act, and development information relating to flooding. Information generally contained in registers includes: site characteristic information; flood level, limitations on the capacity of sewerage, stormwater and water supply services; location of any erosion control districts; location of contaminated land; location of land-slip areas. This is a useful resource for flood planning.

There is a general view however that there is a poor availability of flood data to the general public. In cases there is also limited access to some local governments flood modelling data by the Queensland Government.

## **5 - The planning and management of the beneficial aspects of flooding - gaps**

Gaps identified in relation to the beneficial aspect of flooding include the lack of coordinated management of flood plains. It is thought that better management of floodplains with regards to trapping and assimilating sediment, nutrients and other contaminants during flood/overland flows could be achieved. Adopting a comprehensive approach to integrated water cycle management involving the infrequent high /flood flows to recharge wetlands, groundwater etc was also identified.

## **Conclusions**

In drawing conclusions for the audit, it is apparent that there is a requirement to clarify the Queensland Government's role in strategic policy and planning responses to flood risk management. There is a clear need to identify a lead agency who can take on the responsibility for managing flood risk and offer or coordinate jurisdictional representation at the national level (e.g. on the National Flood Risk Advisory Group) with the appropriate expertise . There is also a clear need to better integrate the administration of flood related funding.

This report recommends that the issues and gaps raised by the audit be further analysed across the Queensland Government. As Queensland enters into a wetter period (El Nina), it is imperative that a strategic, coordinated approach for flood planning and mitigation is established.

This report recommends that an interdepartmental committee is established to further scope out the issues and potential enhancements to the current flood risk framework; and prioritise a series of actions over the coming months. A number of other recommendations for possible enhancements, along with potential lead agencies, are provided below.

## **Not Government Policy**

### **Recommendations**

- Determination of a lead agency within the Queensland Government to 'champion' the overall development of a strategic Queensland flood risk management policy (DCS, DIP);
- Identification of a lead agency within the Queensland Government to represent Queensland on the National Flood Risk Advisory Group (likely to be DIP);
- Consideration be given to developing a more coordinated approach between the state and local government for disaster management planning including for example evacuation processes (DCS);
- A more coordinated, strategic investment strategy for the administration of flood related subsidies and grants i.e. coordinating investment in flood mitigation with funds made available to recover from floods (i.e. the Natural Disaster Recovery Relief Arrangements); (NDRRA and flood mitigation subsidies (QT, DIP, DCS);
- Enhanced implementation of a 'catchment approach' to flood-risk and floodplain management across the State and local government levels i.e. integration of NRM activities, Land and Water Management Plans, water resource plans etc (DERM);
- Consideration for regulatory requirements for the integration of climate change projections into flood management policy or planning; (DERM, DIP, DCS)
- Greater alignment with groups such as the regional NRM bodies in flood management activities (DERM);
- Greater incorporation of flood risk impacts in state planning instruments (DIP);
- Development of comprehensive guidelines to facilitate local government in their flood planning (DIP);
- Development of a process to audit local government floodplain management plans (DIP);
- Further investigation into a regulatory focus for the management of pollution events that arise as the result of flooding (DERM);
- Development of a greater understanding of the probability of coincident riverine flooding and storm tide inundation and/or dam break in planning (DERM);
- More consistent data collection standards and information sharing protocols across the state in relation to flood risk management data (DERM);
- Identification of point of truth flood data and mapping, which can be updated as new data becomes available and which can be made publicly available (DERM);
- Better integration and dissemination of information across all levels of government regarding the positive (e.g. environmental benefits) and the negative impacts of flooding (DERM);
- Greater information dissemination and education about flood risk (DCS, DERM, BoM); and
- A review of the construction standards associated with the building and management of non-referable dams (DERM).

## ATTACHMENT 1 - APPENDIX A

### Queensland Government departments responsible for flood risk management related activities

Table 1 – major flood functions according to Queensland Government department

Department	Major functions
Department of Communities	<p><b><u>Community care</u></b> DoC assists community recovery from flood through activities such as care and comfort, personal support, counselling, mental health services, personal hardship grants, case management and temporary accommodation arrangements. They also provide psychological services, community engagement and development, and the re-establishment of social and cultural activities, systems and structures, networks and services. DoC also provides support to flood affected people in the demolition and reconstruction of homes.</p> <p>Personal support services offered by DoC include:</p> <ul style="list-style-type: none"> <li>- practical advice and support</li> <li>- child minding</li> <li>- transport</li> <li>- an interpreter service</li> <li>- help with cleaning up</li> <li>- financial assistance</li> <li>- provision of emergency and longer-term accommodation services</li> </ul> <p>Community engagement and development include:</p> <ul style="list-style-type: none"> <li>- practical assistance</li> <li>- the organisation of public forums or discussion groups</li> <li>- community activities</li> </ul> <p><b><u>Financial assistance</u></b> DoC provides assistance for people where storms and flood have damaged their property and where they do not have insurance. One-off emergency assistance and other financial assistance are available for eligible applicants in three categories.</p> <ul style="list-style-type: none"> <li>i) Emergent assistance grant: available to individuals and families who need financial assistance to meet basic needs in the first few days after a natural disaster. Grants are not means tested.</li> <li>ii) Essential household contents grant: available to help with the replacement or repair of uninsured essential household contents which have been lost, damaged or destroyed in a storm e.g. may include cooking utensils, clothing, bedding and linen, floor coverings, essential furniture and white goods and food lost due to storm damage. An income and asset test applies.</li> <li>iii) Structural assistance grant: contributes to the cost of repairing an uninsured owner-occupied residence, including caravans, to a safe and habitable condition. These grants are means tested based on income and assets.</li> </ul> <p><b><u>Disaster Planning and Preparation</u></b></p> <p><i>Planning</i></p> <ul style="list-style-type: none"> <li>• <u>State Counter Disaster Plan</u> - develop and maintain;</li> <li>• <u>District Disaster Management Plans (DDMP)</u> - Provides guidance to District Disaster Management Groups (DDMG) on their development</li> <li>• <u>Local Disaster Management Plans (LDMP)</u> - Provides guidance to local government on their development</li> </ul> <p><i>Preparation</i></p> <ul style="list-style-type: none"> <li>• <u>Disaster Managers trained</u> - Conduct disaster managers training and exercises</li> <li>• <u>Guides to Disaster Risk Management</u> – Prepare and maintain e.g. "A Guide to Disaster Risk Management in Queensland Aboriginal and</li> </ul>

## ATTACHMENT 1 - APPENDIX A

### Queensland Government departments responsible for flood risk management related activities

	<p>Torres Strait Islander Communities (2004)"</p> <ul style="list-style-type: none"> <li>• <u>Community Education</u> - Production &amp; provision of brochures, web-based information. This includes flooding check lists on the State Disaster Management Group Web Site.</li> </ul> <p><b><u>Disaster Coordination</u></b></p> <ul style="list-style-type: none"> <li>• <u>Coordinate Whole of Government Disaster Managers activities</u> - Ensure systems and processes are in place to provide disaster managers with the best information on which to base their decisions</li> <li>• <u>Coordination of disaster management arrangements</u></li> <li>• <u>Provide support for key disaster coordination groups</u> - Emergency Management Queensland (EMQ), provides the core policy and support staffing for the following State Groups; <ul style="list-style-type: none"> <li>- The State Disaster Coordination Group (SDCG)</li> <li>- The State Disaster Management Group - Note that the Executive Director of EMQ is the executive officer is group</li> <li>- State Emergency Services (SES) – Coordinate the operations of the SES. Note that the Executive Director of EMQ is also the Director of the SES</li> <li>- Major Incidents Group (MIG).</li> </ul> </li> <li>• <u>Operate State Disaster Coordination Centre (SDCC)</u> - management of flood events/operations; compilation &amp; provision of information (e.g. situation report) alongside DERM and Geosciences Australia data providers</li> </ul> <p><b><u>Disaster response</u></b></p> <ul style="list-style-type: none"> <li>• <u>Media communication during flood events</u> - Media updates/ statements during events;</li> <li>• <u>Assist Local and District levels</u> - Deployment of appropriate resources to affected area;</li> <li>• <u>Counter Disaster Operations (to alleviate personal hardship)</u> - Expenditure by the Emergency Services and other State Agencies (including Local Governments) on Counter Disaster Operations to assist community response/recovery and ensure the safety of life, health and property.</li> <li>• <u>Flood event response</u> - SES operational and emergency response to flood events including; sandbagging; flood barriers; search and rescue; recovery operations; and re-supply</li> <li>• <u>Flood event mapping</u> - Map flood event during SDCC operations to assist response planning</li> <li>• <u>Monitor impact on community</u> - Arrange for State (funded) Disaster Relief Arrangements (SDRA) or Commonwealth/State Natural Disaster Relief Arrangements (NDRA) activation.</li> </ul> <p><b><u>Disaster recovery</u></b></p> <ul style="list-style-type: none"> <li>• <u>Community assistance and recovery</u> - Re-supply of essential foodstuffs, medications, fuel etc, Re-supplying Isolated Communities Policies and Procedures.</li> <li>• <u>Disaster Recovery Planning</u> - Development of all-hazards recovery policy.</li> </ul> <p><b><u>Flood mitigation</u></b></p> <ul style="list-style-type: none"> <li>• <u>Disaster Resilience Australia Package</u> - Provides Queensland's position on the proposed new national arrangements for progressing disaster mitigation.</li> <li>• <u>Flood Warnings</u> - monitor river levels; promulgate details; and active involvement on the Queensland Flood Warning Coordination Committee (QFWCC).</li> </ul>
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	<ul style="list-style-type: none"> <li>• <u>Temporary Flood Barriers</u> <ul style="list-style-type: none"> <li>– <u>Mitigate effects of flooding through use of temporary flood barriers</u>- Coordinate deployment of flood-barriers</li> <li>– <u>Guidelines/ protocol for Temporary Flood Barriers</u> -Development of guidelines for temporary flood barriers. NB - Joint DCS/DERM/ Bureau of Meteorology (BoM)</li> </ul> </li> <li>• <u>Dam Break Plans</u> - Holding authorised copies and coordinating support activity in the event of activation (at both regional and state level). DERM's role is to ensure they are prepared. EMQ has a role to ensure they are implemented in the event of a dam break.</li> <li>• <u>State Hazard Profile</u> - Compile and manage. Also develop base profile of State flood hazard</li> <li>• <u>Local Government Hazard Profiles</u> - Compile and manage. Also develop base local government profile of flood hazard and vulnerability</li> </ul> <p><i>Mitigation Planning and Guidelines</i></p> <ul style="list-style-type: none"> <li>• <u>State Planning Policy 1/03 - Advice Agency</u> - Provide information and advice on interpreting and implementing SPP 1/03.</li> <li>• <u>State Planning Policy</u> - In conjunction with DIP, DCS is promulgating, providing information and advice, and reviewing.</li> <li>• <u>Adapting the triggers for riverine flooding planning constraints contained in SPP1/03 to account for climate change</u> - Ensure research undertaken by DIP and DERM will generate the information needed (in quality and format) to satisfactorily adapt SPP1/03 triggers.</li> <li>• <u>State &amp; national flood-related guidelines</u> - Review of Emergency Management Australia (EMA) flood manuals.</li> </ul> <p><i>Grants</i></p> <ul style="list-style-type: none"> <li>• <u>Coordinate Commonwealth Programs</u> - Manage and administer National Disaster Management Program (NDMP) – <ul style="list-style-type: none"> <li>– Lead and manage allocated projects e.g. Storm tide mapping.</li> <li>– Ensure the NDMP projects are prioritised against the State Hazard and Risk Profile.</li> </ul> </li> <li>• <u>Review of Mitigation Funding</u> - Reviews the range of national mitigation programs and their application in Queensland with an emphasis on NDMP and Bushfire Mitigation Program (BMP)</li> </ul> <p><b>Overarching flood issues</b></p> <ul style="list-style-type: none"> <li>• <u>Queensland Flood Consultative Committee (QFCC)</u> - chair</li> </ul>
Department of Community Safety	<p><b>Disaster management</b></p> <p>The DCS via EMQ responds to all types of disasters and emergencies, including those caused by floods. DCS/EMQ delivers its key policies via:</p> <ul style="list-style-type: none"> <li>- Disaster Management Act</li> <li>- State Policy Framework (SPF)</li> <li>- State Disaster Management Plan</li> <li>- State Planning Policy 1/03 on Mitigating the Adverse Impacts of Flood, Bushfire and Landslide (SPP 1/03)</li> </ul> <p>The Disaster Management Act requires that each local government, or combination of local governments, must prepare a local disaster management plan for their local government area or areas.</p> <p>The <i>State Disaster Management Plan</i> expands on the legislative requirements of the Disaster Management Act and the strategic guidance of the SPF to provide a blueprint for the prevention, preparedness, and response and recovery arrangements for disasters in Queensland. It provides for the coordination of disaster related planning, response and recovery by relevant Queensland Government departments and agencies and specifies the functions, roles and</p>

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	<p>responsibilities of disaster management advisory committees throughout the state.</p> <p>Strategic Policy Division DCS is an advice agency for the SPP 1/03. The SPP 1/03 requires all local governments to amend their planning schemes to reflect the SPP and until such time as this is done, assessment authorities must apply the SPP during assessment of specified development applications. In this way, the SPP can address future flood risks but does not address existing and residual flood risks.</p> <p>Other flood management related activities carried out by DCS include:</p> <ul style="list-style-type: none"> <li>- Compilation and management of a state and local hazard profile</li> <li>- Review of state and national flood related guidelines</li> <li>- Planning and use of temporary flood barriers</li> <li>- Manage, administer and coordinate the <i>Disaster Resilience Australia Program</i></li> </ul> <p>DCS, through EMQ, is the lead Queensland representative for Natural Disaster Relief and Recovery Arrangements and is responsible for administration and policy issues. The Natural Disaster Relief and Recovery Arrangements is a joint State/Australian Government program that provides financial assistance following natural disaster events. These include expenditure by the Emergency Services and other State agencies (including local governments) on Counter Disaster Operations to assist community response/recovery and ensure the safety of life, health and property.</p> <p>DCS is a member of several state and federal committees which give advice on a range of flood related issues. These include State Disaster Coordination Group, State Disaster Mitigation Group, Queensland Flood Warning Coordination Committee, Queensland Flood Consultative Committee and the National Flood Risk Advisory Group.</p> <p>A significant number of Queensland Government agencies play a role in disaster management. Some such as Fire &amp; Rescue Service, Queensland Police Service and Queensland Ambulance Service have a major role during disasters while other agencies have subsidiary roles. These agencies activities in natural disasters are coordinated through the State Disaster Management Group.</p> <p><b><u>Disaster recovery</u></b></p> <ul style="list-style-type: none"> <li>• <u>Coordinate community recover efforts after disaster (including flood)- Lead agency Grants</u></li> <li>• <u>Emergent Assistance Grant</u> – For basic needs in the first few days after a natural disaster. Not means tested.</li> <li>• <u>Essential Household Contents Grant</u> - For replacement or repair of uninsured, household contents. An income and asset test applies.</li> <li>• <u>Structural Assistance Grant</u> – for uninsured home that has been damaged by the storms. An income and assets test will be applies.</li> </ul>
Department of Employment, Economic Development and Innovation	<p><b><u>Financial assistance</u></b></p> <p>DEEDI administer special disaster flood assistance grants of up to \$25,000 which are made available to help small businesses and primary producers affected by floods in southern Queensland. The grants allow eligible applicants to pay for costs arising out of direct damage caused by the flood event. These grants are available under Natural Disaster Relief and Recovery Arrangements (NDRRA).</p> <p>DEEDI also administers a range of freight subsidies and concessional (low cost) loans to primary producers affected by natural disasters including flooding. The freight subsidy schemes are tailored to address specific needs or deficiencies</p>

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	<p>that may exist during and following a natural disaster event. Subsidies of up to 50% of freight cost may be approved for the movement of essential items including food, building materials, stock, fodder, water, machinery, or fuels.</p> <p><b><u>Aerial inspections</u></b> After significant flooding events DEEDI has carried out aerial inspections of the worst affected areas to assess infrastructure damage and possible stock losses (e.g. March 2010 monsoonal floods in southern Queensland). The inspections contribute to an impact assessment compiled by DEEDI to help guide the relief and recovery efforts.</p> <p><b><u>Flood workshops</u></b> During recovery periods, DEEDI may also organise flood recovery workshops and in some cases financial counsellors are made available to farmers. DEEDI also provides a range of practical information to business on the recovery after disasters (including flood).</p> <p>After significant flooding impacting on agricultural and pastoral land DEEDI establishes a fodder supply hotline to link producers with fodder providers. Primary producers can also apply for special flood assistance grants to assist with the purchase and distribution of fodder.</p> <p>DEEDI is a member of several state committees which give advice on a range of flood related issues. These include State Disaster Coordination Group and State Disaster Mitigation Group.</p> <p><b><u>Disaster recovery</u></b></p> <ul style="list-style-type: none"> <li>• <u>Special flood assistance grants</u> – e.g. <i>Special flood assistance grants for southern Queensland</i> - These grants are designed to help small businesses and primary producers affected by the March 2010 monsoonal floods in southern Queensland. The grants will allow eligible applicants to pay for costs arising out of direct damage caused by the flood event.</li> </ul> <p>NB - These grants are being made available under Natural Disaster Relief and Recovery Arrangements (NDRRA).</p> <ul style="list-style-type: none"> <li>• <u>Freight Subsidies to Primary Producers</u> <ul style="list-style-type: none"> <li>- Freight subsidy schemes are tailored to address specific needs or deficiencies that may exist during and following a natural disaster event.</li> <li>- Subsidies of up to 50% may be approved for the movement of essential items including food, building materials, stock, fodder, water, machinery, or fuels.</li> </ul> </li> <li>• <u>Aerial inspections of infrastructure damage and possible stock losses</u> – e.g. March 2010 monsoonal floods in southern Queensland.</li> <li>• <u>Flood recovery workshops- in areas impacted by flooding</u></li> <li>• <u>Information available on business on the recovery after a disaster (including flood).</u></li> <li>• <u>fodder supply "hot line"</u>- to link producers with fodder providers</li> </ul>
Department of Environment and Resource Management	<p><b><u>Coastal hazards/disaster relief</u></b> DERM has a lead role in managing coastal hazards including storm tides, cyclone effects and inundation. The Queensland Parks and Wildlife Service (QPWS) plays a role in disaster relief and community assistance alongside the SES and EMQ with regards to flood events, storm surge, coastal inundation, cyclones and tsunami responses and planning for such events. The department also provides technical advice as an advice agency to the SPP 1/03.</p> <p><b><u>Climate change</u></b></p>



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	<p>Through the Office of Climate Change (OCC) DERM leads policy and planning aspects for changing flood risk under climate change.</p> <p><b><u>Water and urban water management</u></b></p> <p>The department manages the taking or interfering with water, wetlands management and riverine protection. DERM has published the Queensland Urban Drainage Manual. DERM is also a member of the Urban Stormwater Management Working Group. flows</p> <p>Other policies, programs and strategies DERM is involved include:</p> <ul style="list-style-type: none"> <li>- Environmental Protection Policy (Water)</li> <li>- State Planning Policy (Healthy Waters) (in development with DIP)</li> <li>- Determination and scheduling environmental values and water quality objectives</li> <li>- Development and implementation of water quality improvement plans, e.g. SEQ Healthy Waterways Strategy, in partnerships (in partnership with DIP and SEQ local governments)</li> <li>- Contribution to regional NRM Plan regarding wetlands and waterways (in partnership with NRM bodies and other departments)</li> </ul> <p><b><u>Other activities</u></b></p> <ul style="list-style-type: none"> <li>- Oversight of 16 River Improvement Trusts.</li> <li>- Total water cycle management i.e. stormwater harvesting.</li> <li>- Environmental impact management of flood events via monitoring and management of point and non-point sources water quality issues.</li> <li>- Management of the impact of diffuse source agricultural pollution affecting the Great Barrier Reef via the Great Barrier Reef framework</li> <li>- Queensland Wetland Program including the management of temporary freshwater lakes and wetland formed as a result of flooding.</li> <li>- Regulatory approval of dams and flood retention basins and associated Emergency Action Plans; and the safety of referable dams through the Water Supply (Safety and Reliability) Act.</li> <li>- <i>Queensland Water Quality Guidelines</i>, a technical guideline for the protection of aquatic ecosystems.</li> </ul> <p><b><u>Data collection / research and provision of information</u></b></p> <ul style="list-style-type: none"> <li>• Collection of data and operating a network of flow gauging and rainfall stations that provides real time and historic stream flow, stream height and rainfall data.</li> <li>• Storm Tide monitoring network</li> <li>• Wave monitoring network</li> <li>• Coastal Science Projects</li> <li>• Qld Climate Change and Community Vulnerability to Tropical Cyclones study 2004 (partnership with BoM / DERM / DCS / DERM)</li> <li>• National Disaster Management Program Grants</li> </ul> <p><i>Committee's</i></p> <ul style="list-style-type: none"> <li>• Queensland Tropical Cyclone Consultative Committee (QTCCC)</li> <li>• QTCCC Coastal Inundation Subcommittee</li> </ul> <p><i>Climate Change Projects</i></p> <ul style="list-style-type: none"> <li>• Assess projected changes in patterns and trends of extreme weather events</li> <li>• Joint DERM-Australian Greenhouse Office-BoM project - assess required changes to Probable Maximum Precipitation estimates due to climate change (Climate Smart Adaptation 2007-12 Plan (CSA) action 19)</li> </ul> <p><i>Information</i></p> <ul style="list-style-type: none"> <li>• Provision of information to assist emergency response for a specific event on a needs basis.</li> <li>• Non Point Source Water Quality Data – Surface water quality; Sediment</li> </ul>
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	<p>Transport; Aquatic ecology (NB DERM/ DERM MOU)</p> <ul style="list-style-type: none"> <li>Input into the revision of the Institution of Engineers, Australia – "Australian Rainfall and Runoff"<sup>1</sup> Handbook project</li> </ul>
<b>Department of Infrastructure and Planning</b>	<p><b><u>Sustainable Planning Act and associated Instruments</u></b></p> <p>DIP's major role in flood management is through the administration of the Sustainable Planning Act (SPA) and associated statutory instruments and plans. These include state regulatory provisions, statutory regional plans, state planning policies and local planning instruments (structure plans, planning schemes, planning scheme policies and temporary local planning instruments).</p> <p>One of the key statutory instruments for flood is SPP 1/03. DCS has a key advice role in this SPP however DIP has ultimate carriage of SPP 1/03 which:</p> <ul style="list-style-type: none"> <li>requires all local governments to amend their planning schemes to reflect the SPP 1/03</li> <li>states that if planning schemes do not reflect the SPP, assessment authorities must apply the SPP to all development applications</li> <li>requires all local governments to identify natural hazard management areas<sup>2</sup> (flood) by using an appropriate flood event (recommended appropriate flood is the 1% annual exceedance probability flood). DCS has the key advice role for this SPP</li> </ul> <p>DIP is also involved with DERM with the administration of the State Planning Policy Healthy Waterways. This manages planning issues which may impact on water quality. This overlaps with flood issues and impacts on water quality.</p> <p>DIP is currently developing statutory and non-statutory regional plans throughout Queensland. These regional plans set out desired regional outcomes and policies and actions to achieve them. All regional plans address broad flood management and mitigation issues and including policies which will help to reduce the risk of flooding and the impacts of natural disasters.</p> <ul style="list-style-type: none"> <li><b><u>Statutory Regional Plans</u></b> <p>In Operation</p> <ul style="list-style-type: none"> <li>South East Queensland Regional Plan 2009-2031</li> <li>Far North Queensland Regional Plan 2009-2031</li> <li>South West Regional Plan</li> <li>Central West regional plan;</li> <li>Maranoa and Districts regional plan</li> </ul> <p>In Development</p> <ul style="list-style-type: none"> <li>Draft North West regional plan</li> </ul> </li> <li><b><u>Non-statutory regional plans</u></b> <ul style="list-style-type: none"> <li>Central Queensland Regional Growth Management Framework</li> <li>Gulf Regional Development Plan</li> <li>Whitsunday, Hinterland and Mackay Regional Plan</li> <li>Wide Bay Burnett Regional Plan 2007-2026</li> </ul> </li> </ul> <p><b><u>Flood mitigation</u></b></p> <p><b><u>Building Act</u></b></p> <p>DIP administers the Building Act and Building Regulation which controls building works standards, including actions to mitigate the impact of flooding on built structures. This allows local governments—through a resolution or a planning scheme/temporary planning instrument under SPA—to:</p> <ul style="list-style-type: none"> <li>Designate part of its area as a natural hazard management area (flood). This designation must comply with the SPP 10/3</li> <li>Declare the minimum floor level of habitable rooms as defined under the Building Code of Australia<sup>3</sup> (NB- this is relevant to flood levels and freeboard for habitable floors)</li> </ul>

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	<p>-</p> <p><b>Building Regulations</b></p> <ul style="list-style-type: none"> <li>• <u>Building Act 1975</u> – DIP oversees the development of legislation and related policies and standards.</li> <li>• <u>Building Regulation 2006</u> – DIP oversees the development of legislation and related policies and standards.</li> <li>• <u>Building Code of Australia</u> - on behalf of the Australian Government and State and Territory Governments</li> </ul> <p><b>**Oversee the implementation of the act regulation and standards. It designates areas as a natural hazard management area (flood); and declares the level to which the floor levels of habitable rooms.</b></p> <p><b>Local Government Act</b></p> <p>DIP has broad oversight of local government through the Local Government Act and plays a key role in providing funding for council infrastructure and services. DIP is responsible for managing a range of subsidies and financial assistance for local governments and determines the level of subsidy or financial assistance applicable for any works. A range of financial assistant grants are available for flood mitigation activities and disaster relief and recovery. In particular DIP administers the following flood related grant programs:</p> <ul style="list-style-type: none"> <li>- Environmental infrastructure program – This program provides funds of \$60 million from July 2008-2011 to support a broad range of environmental management needs including stormwater, solid waste, landfill rehabilitation, erosion control, and flood mitigation.</li> <li>- Environmental infrastructure research program– This program encourages the introduction of new and/or innovative technologies and environmental infrastructure solutions (replaces the Advanced Wastewater Treatment Technologies Funding Scheme. The Program provides councils with up to 50% of eligible project costs. Examples of eligible research fields include stormwater management and flood mitigation.</li> <li>- DIP administers the component of the Natural Disaster Relief and Recovery Arrangements which provides funding assistance to local governments to restore damage to public assets as a result of an activated natural disaster event.</li> <li>- Regional flood mitigation program– This program allocates funding to assist in the implementation of priority, cost effective flood mitigation works and measures in rural, regional and outer metropolitan areas.</li> </ul> <p><b>Grants</b></p> <ul style="list-style-type: none"> <li>• <u>Environmental Infrastructure Program (EIP)</u></li> <li>• <u>Environmental Infrastructure Research Program (EIRP)</u> - replaces the Advanced Wastewater Treatment Technologies Scheme.</li> <li>• <u>Natural Disaster Relief and Recovery Arrangements (NDRRA)</u> - joint State/Australian Government program providing financial assistance.</li> <li>• <u>Regional Flood Mitigation Program (RFMP)</u> – DIP lead</li> <li>• <u>Local Governing Bodies' Capital Works Subsidy Scheme (LGBCWSS)</u> (discontinued 30 June 2006) - replaced by the Water and Sewerage Program.</li> </ul> <p><b>Overarching flood issues</b></p> <ul style="list-style-type: none"> <li>• <u>Queensland Flood Consultative Committee (QFCC)</u> - Member</li> </ul>
Department of the Premier and Cabinet	<p>The DPC and the Premier have a number of defined roles during emergencies (including flooding). This includes involvement in:</p> <ul style="list-style-type: none"> <li>- State Disaster Management Group</li> <li>- Major Incidents Group</li> <li>- Disaster relief appeals</li> </ul>

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	<p><b><u>Disaster Coordination</u></b></p> <p><b><u>State Disaster Management Group</u></b>  The Director-General of DPC is the Chair of the State Disaster Management Group which is the principal organisation under the Disaster Management Act for the purposes of disaster management throughout the state. The Premier is the Chair of the Major Incidents Group which provides high level Ministerial guidance and support in the event of a significant incident with major community consequences. Membership of the Major Incidents Group is determined on an incident-by-incident basis and will include all the relevant Ministers.</p> <p>After significant natural disasters, including flooding, the Premier often launches a disaster relief appeal. The Queensland Government usually seeds the fund with an initial grant and it is then open for public contributions. Total donations of several million dollars have been recorded for past relief appeals. The Australian Red Cross, on behalf of the Queensland Government, administers the payment of funds donated to a disaster relief appeal. The criteria for accessing payments include that the individual must live in the disaster affected area and have suffered damage to their place of residence, or to your personal belongings and household goods, as a result of the storms and associated flooding.</p> <p><b><u>Disaster recovery</u></b></p> <ul style="list-style-type: none"> <li>• <u>Premier's Disaster Relief Appeals</u> – e.g. Tropical Cyclone Hamish disaster relief appeal and North/North West Queensland disaster relief appeal</li> </ul>
<p><b>Department of Transport and Main Roads Queensland</b></p>	<p><b><u>Roads</u></b>  DTMR has the responsibility for ensuring roads within the States' jurisdiction are both flood resistant, do not contribute negatively to the effects of flooding and minimise interference with natural flow. DTMR achieves this through the:</p> <ul style="list-style-type: none"> <li>- Road Drainage Design Manual (primary document)</li> <li>- Road Project Environmental Processes Manual</li> <li>- Main Roads Environmental Management Policy Strategy</li> <li>- Guideline for Assessment of Road Impacts of Development</li> </ul> <p>DTMR builds and operates roads of national and state significance. DTMR is the custodian of Queensland's largest built community asset, the state-controlled road network, comprising around 33,500km of roads and 6,500 bridges and major culverts. DTMR takes flooding and drainage into account when designing roads, bridges and other structures and more recently climate change has become an added consideration. The design aims are multiple and include flood mitigation, lowering environmental impacts and limiting the interference of natural water flows.</p> <p>DTMR's commercial arm is responsible for a number of operational manuals used during the planning and construction of roads and other related infrastructure (e.g. bridges, flood ways, causeways and culverts). The most flood-relevant of the operational manuals is the <i>Road Drainage Design Manual</i> (June 2002). The manual provides guidance in relation to the planning, design, construction, maintenance and operation of road drainage structures in all urban and rural environments. One of the key aspects of the manual is the integration of environmental considerations with the hydrologic aspects of road drainage.</p> <p>Other guides and manuals produced by DTMR with relevance to flood management include the <i>Road Project Environmental Processes Manual</i> (2004), <i>Main Roads Environmental Management Policy Strategy</i> (2002-2007), <i>Guideline for Assessment of Road Impacts of Development</i> (2006).</p> <p>DTMR also has an important disaster management and response role. When storms and floods occur DTMR responds to address any safety concerns, where</p>

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	<p>necessary will close roads to traffic while flood waters cover them, minimise infrastructure damage, repair damage, clear debris and reopen roads as soon as practicable. DTMR, principally through its commercial arm, also assists local government and other agencies where needed.</p> <p>DTMR is also a member of several state committees which give advice on a range of flood related issues. These include State Disaster Coordination Group and State Disaster Mitigation Group.</p> <p><b><u>Disaster coordination</u></b></p> <p><i>Committees</i></p> <ul style="list-style-type: none"> <li>• <u>Local Disaster Management Group</u> – Members of various groups throughout Queensland</li> <li>• <u>Queensland State Disaster Management Group</u> – Member</li> </ul> <p><b><u>Disaster recovery</u></b></p> <ul style="list-style-type: none"> <li>• <u>Management and Maintenance of Main Roads during flooding</u> – address any safety concerns; <ul style="list-style-type: none"> <li>○ Controlling Traffic during flood emergencies to minimise risk to community – (closing roads to traffic while flood waters cover them, re-open them as soon as practicable)</li> <li>○ minimise infrastructure damage,</li> <li>○ repair damage,</li> <li>○ clear debris</li> </ul> </li> <li>• <u>Support Disaster Response and Recovery efforts</u> - Main Roads, principally through its commercial arm, also assists local government and other agencies where needed</li> </ul> <p><b><u>Flood mitigation and environmental management</u></b></p> <ul style="list-style-type: none"> <li>• <u>Construction of Main Roads and related infrastructure</u> - management of flood and drainage issues (including construction and drainage) in accordance of Design Manuals and Guides; <ul style="list-style-type: none"> <li>- Road Drainage Design Manual (June 2002).</li> <li>- Main Roads Environmental Management Policy Strategy 2002-2007;</li> <li>- Road Project Environmental Processes Manual (2004);</li> <li>- Guideline for Assessment of Road Impacts of Development (2006).</li> </ul> </li> </ul>
Queensland Health	<p>QH mitigates health impacts associated with flooding, such as mosquito-borne diseases. It does this through:</p> <ul style="list-style-type: none"> <li>- <i>Queensland Health Disaster Plan</i></li> <li>- <i>Queensland Health Emergency Preparedness Continuity Management Framework</i></li> <li>- <i>Dengue Fever Management Plan for North Queensland</i></li> <li>- Public information</li> </ul> <p><b><u>Emergency health management/disaster recovery</u></b></p> <p>QH develops and maintains the <i>Queensland Health Disaster Plan</i> that provides for a comprehensive whole of government approach to emergency management. The Plan develops actions to ensure QH is prepared to respond and support recovery operations in the event of a large emergency incident and/or disaster event. The plan incorporates a range of plans and action including development of plans to identify and mitigate major health risks at a multiple scales, development of plans to ensure that QH staff are prepared, trained and equipped to deal with health emergencies as well as command, control and coordination structures and arrangements.</p> <p>Due to the complexity of health operations this Plan authorises a number of sub and specific plans addressing particular operational situations such as State Plans and Emergency Response Protocols and <i>Queensland Health Specific Plan</i></p>

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### Queensland Government departments responsible for flood risk management related activities

	<p>and Response Protocols. Of interest to flooding is the <i>Dengue Fever Management Plan for North Queensland</i> (2005 – 2010).</p> <p>The <i>QH Emergency Preparedness Continuity Management Framework</i> aligns with the <i>Disaster Management Strategic Policy Framework</i> and promotes a comprehensive, integrated approach to emergency planning to better enable Queensland Health to prepare for future incidents. QH also produces a range of public information factsheets on the health implications of flooding. It also issues public alerts on a range of health issues during flood disaster, such as food safety and mosquito borne diseases.</p> <p>QH is a member of several state committees which give advice on a range of flood related issues. These include State Disaster Coordination Group and State Disaster Mitigation Group.</p> <p><u>Public Information</u> – fact sheets on the health implications of flooding; alerts during flooding of health risks; and fact sheets on being prepared for flood</p>
<b>QRAA</b>	<p>QRAA administers a range of natural disaster, including flood, assistance and recovery measures for primary producers. QRAA Natural Disaster Relief &amp; Recovery Assistance includes measures for small businesses and primary producers including:</p> <ul style="list-style-type: none"> <li>- Small Business - provide concessional loans to small business owners whose buildings, plant and equipment or stock have been significantly damaged by an eligible natural disaster and who are unable to obtain commercial finance</li> <li>- Primary Producers - to assist in meeting the needs of primary producers recover from an eligible natural disaster of substantial magnitude. These concessional loans can be for restocking, restoring damages to essential areas or property operations, paying rent or rates or costs of repair for farm buildings</li> </ul> <p><b><u>Disaster recovery</u></b></p> <p><i>Grants / Assistance</i></p> <ul style="list-style-type: none"> <li>• <u>Natural Disaster Relief &amp; Recovery Assistance (Floods, Cyclones, Storms etc) - Small Business</u></li> <li>• <u>Natural Disaster Relief &amp; Recovery Assistance (Floods, Cyclones, Storms etc) - Primary Producers</u></li> </ul>
<b>Flood related activities carried out by other government agencies and bodies</b>	<p><b>Disaster Management</b></p> <ul style="list-style-type: none"> <li>• <u>Major Incidents Group (MIG)</u> – membership of the group is incident-by-incident basis and may include, but not be limited to: Premier (Chair), Treasurer, Attorney-General, Minister for Police, Minister for Emergency Services, Minister for Health</li> <li>• <u>State Disaster Management Group</u> - Membership includes the following Agencies ; <ul style="list-style-type: none"> <li>- Queensland Fire &amp; Rescue Service</li> <li>- Department of Natural Resources and Water</li> <li>- Department of Environment and Resource Management</li> <li>- Queensland Health</li> <li>- Department of Local Government, Sport and Recreation</li> <li>- Emergency Management Queensland</li> <li>- Queensland Police Service</li> <li>- Queensland Fire &amp; Rescue Service</li> <li>- Queensland Transport</li> <li>- Local Government Association of Queensland</li> <li>- Department of Communities</li> </ul> </li> </ul>

## ATTACHMENT 1 - APPENDIX A

### Queensland Government departments responsible for flood risk management related activities

	<ul style="list-style-type: none"> <li>- Emergency Management Queensland</li> <li>- Bureau of Meteorology</li> <li>- Department of the Premier and Cabinet</li> <li>- Department of Tourism, Regional Development and Industry</li> <li>- Queensland Treasury</li> <li>- Department of Education, Training &amp; the Arts</li> <li>- Emergency Management Queensland</li> <li>- Department of Public Works</li> <li>- Australian Defence Force</li> <li>- Department of Primary Industries and Fisheries</li> <li>- Emergency Management Queensland</li> <li>- Queensland Ambulance Service</li> <li>- Insurance Council of Australia</li> <li>- Queensland Police Service</li> <li>- Maritime Safety Queensland</li> <li>• <u>District Disaster Management Group</u> - 23 Disaster Districts in Qld which are based on the Police Districts</li> </ul> <p><b>Flood Mitigation</b>  <i>River Improvement Trusts –</i></p> <ul style="list-style-type: none"> <li>• <u>Undertake flood mitigation works</u> - constructing levees or making hydraulic improvements to a channel with an aim to protect roads, bridges and other assets</li> </ul>
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## ATTACHMENT 1 - APPENDIX A

### Queensland Government departments responsible for flood risk management related activities

**Table 2 – cross-Government flood risk management activities**

Component of flood management	Overarching subject areas	Key departments
Water use management	Water resource use	DERM
	Sewerage and drainage provision	DIP, *, +, DERM
	Quarry and dredging	DERM
Land use management	Land use management (including urban), Irrigation and drainage.	DIP, +, DERM, *
	Industry management and regulation	DERM
	Building control standards	DIP
Integration and institutions	Institutions	DCS, DERM DIP, *
	Data	DERM, *, +
Strategic planning	Strategic planning	DIP
	Dam construction and safety	DERM
Disaster management and response	Disaster management/civil defence	DCS, *, +
	Public awareness and safety	DCS, *
	Access to information	DERM, DCS, *
Environment/ecological protection	Nature conservation, pollution control, erosion protection, coastal protection, environmental impact assessment	DERM
Rights and Powers	Capacity for land purchase	DERM, *
	Appropriate penalties	Across all Departments

\* Significant local government involvement

+ Significant Commonwealth Government involvement



# DERM Business Units with Flood Management Business

## ATTACHMENT 2

Business Unit	Flood Management Activities
<b>Office of Climate Change</b>	
Office of Climate Change	<ul style="list-style-type: none"> <li>- Policy and planning for the changed flood risk under climate change</li> <li>- Provision of climate change factors for rainfall intensity to improve flood risk assessment processes</li> </ul>
Queensland Climate Change Centre of Excellence – Coastal unit	<ul style="list-style-type: none"> <li>- Storm tide monitoring</li> <li>- Wave monitoring</li> <li>- Coastal sciences project</li> <li>- Inland Flooding</li> </ul>
<b>Environment and Natural Resource Regulation</b>	
<b>Office of the Water Supply Regulator Business Group</b>	
Dam Safety Unit	<ul style="list-style-type: none"> <li>- Safety of referable dams</li> <li>- Approval of flood mitigation manuals</li> <li>- Policy advice/setting re: technical matters</li> </ul>
Water Infrastructure and Asset Management and Standards	<ul style="list-style-type: none"> <li>- Guidelines on the assessment of tangible flood damages - Developed and published by DERM to assist local governments in applying for government flood subsidy funds (originally under the Regional Flood Mitigation Program)</li> <li>- Queensland Urban Drainage Manual - Developed with industry and published by DERM. Adopted by most Qld Councils (and jurisdictions elsewhere) as the basis for their stormwater planning and design</li> <li>- Advice to support DCS's administration of : <ul style="list-style-type: none"> <li>• SPP 1/03 (implemented through local government planning schemes); and</li> <li>• Subsidy funds from the State and Commonwealth governments for flood mitigation works and/or flood studies</li> </ul> </li> <li>- Secretariat for the Queensland Flood Consultative Committee.</li> </ul>
<b>Water and Ecosystem Outcomes</b>	
<b>Strategic Water Initiatives Business Group</b>	
Water Legislation Policy and Pricing	<ul style="list-style-type: none"> <li>- Dam safety policy (amendments to the Water Supply (Safety and Reliability) Act 2008)</li> <li>- RIT policy</li> <li>- Metering policy</li> </ul>
Strategic Water Policy	<ul style="list-style-type: none"> <li>- RIT transfer of functions and powers to LGs (Webbe-Weller Review Implementation)</li> </ul>

# DERM Business Units with Flood Management Business

## ATTACHMENT 2

<b>Urban Water Policy and Management</b>	
Urban Water Policy	<ul style="list-style-type: none"> <li>- Urban stormwater management</li> <li>- DERM membership of the Urban Stormwater Management Working Group</li> <li>- Operational oversight of River Improvement Trusts (RITs) under the River Improvement Trust Act 1940</li> </ul>
<b>Water Quality and Accounting</b>	
Water Accounting	<ul style="list-style-type: none"> <li>- Data collection and operating a network of flow gauging and rainfall stations that provide real time and historic stream flow, stream height and rainfall data.</li> </ul> <p>This information feeds in to the:</p> <ol style="list-style-type: none"> <li>1. National flood warning system</li> <li>2. Bureau of Meteorology Strategic Water Information and Monitoring Plan.</li> </ol>
Healthy Waters Policy	<ul style="list-style-type: none"> <li>- State Planning Policy (Healthy Waters) <ul style="list-style-type: none"> <li>- Protection of water quality</li> <li>- Water quality guidelines</li> </ul> </li> </ul>
<b>Water Allocation and Planning</b>	
Water Planning	<ul style="list-style-type: none"> <li>- <u>Water Resource Plans</u></li> <li>- <u>Resource Operations Plans</u></li> </ul>
Water Management	<ul style="list-style-type: none"> <li>- <u>Development assessment and approval policy</u></li> <li>- <u>Water authorisations (permits / entitlements) policy</u></li> </ul>
<b>Wild rivers</b>	
Wild rivers policy/reform	Floodplain management areas
<b>Queensland Parks and Wildlife Service</b>	
	<ul style="list-style-type: none"> <li>- <u>National Park visitor management and construction of infrastructure</u></li> </ul> <p>Ensures compliance with State regulatory controls and Australian Standards for flood conditions</p> <ul style="list-style-type: none"> <li>- <u>Flood mitigation banks and levees in National Parks</u></li> </ul> <p>Direct flood mitigation works and structures on DERM managed areas, land purchased and/or converted to DERM tenure (particularly in western areas).</p>
	<ul style="list-style-type: none"> <li>- Managing coastal hazards including storm tides, cyclone effects and inundation</li> </ul>
	<ul style="list-style-type: none"> <li>- Flood disaster relief and community assistance in concert with SES &amp; EMQ</li> </ul>
<b>Natural Resources and Environment</b>	
Wetlands team	<u>Queensland Wetlands Program</u> <ul style="list-style-type: none"> <li>- State Planning Policy: Protecting Wetlands of High Ecological Significance in the Great Barrier Reef Catchments</li> <li>- Strategy for the Conservation and</li> </ul>

# DERM Business Units with Flood Management Business

## ATTACHMENT 2

	<ul style="list-style-type: none"> <li>Management of Queensland's Wetlands</li> <li>- Wetlands mapping program</li> <li>- Impact of overland flow</li> </ul>
Reef team	<ul style="list-style-type: none"> <li>- Great Barrier Reef Protection Amendment Act – pollution/discharge controls during flooding</li> </ul>
Coastal policy	<ul style="list-style-type: none"> <li>- Coastal Protection and Management Act</li> <li>- DRAFT state policy Coastal Management – land use planning in coastal zones</li> </ul>
Clean Environment	<ul style="list-style-type: none"> <li>- Environmental Protection Policy (Water)</li> </ul>
Environment Planning	<ul style="list-style-type: none"> <li>- Environmental Protection Policy (Water)</li> </ul>
Regional NRM Programs and Policy	<ul style="list-style-type: none"> <li>- Ensures alignment of State investment into regional NRM bodies with State priorities</li> </ul>
<b>Land and Indigenous Services</b>	
Land and Water Management Plans – land practices to decrease/manage flood peaks	<ul style="list-style-type: none"> <li>- Land and water management plans</li> <li>- Guidelines for land and water management plans</li> <li>- Regional NRM plans</li> </ul>
<b>Environment and Resource Sciences</b>	
Water planning sciences, water quality and ecosystem health	<ul style="list-style-type: none"> <li>- Riverine flooding and hydrology (ERS monitors water quality).</li> </ul>
<b>Regional Service Delivery</b>	
<b>Water Services</b>	
Regional Science	<ul style="list-style-type: none"> <li>- Healthy Headwaters program - delivery of critical natural resource information and technical advice / support</li> </ul>
Water Information	<ul style="list-style-type: none"> <li>- Water quality and quantity of ambient surface and groundwater</li> <li>- Aquatic ecosystem monitoring (monitoring flow regimes)</li> <li>- GAB monitoring – bore pressure testing</li> </ul>
Water Management	<ul style="list-style-type: none"> <li>- Water entitlement licensing and permitting under the Water Act</li> <li>- Authorisation of hydrological works to take and interference with water under Sustainable Planning Act</li> </ul>
Non Commercial Assets	<ul style="list-style-type: none"> <li>- Management and maintenance of several dams, weirs and pipelines on state land where the ownership has been defaulted to the state</li> </ul>
<b>Environmental Services</b>	
Incident Response	<ul style="list-style-type: none"> <li>- Provide 24 hour on-call incident response service to the local area and monitoring impacts for significant incidences</li> </ul>
Coastal Operations	<ul style="list-style-type: none"> <li>- Coastal operations development assessment and compliance (storm surge preparation?)</li> </ul>