

Strategic Policy Framework for
Riverine Flood Risk
Management and
Community Resilience

2017





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Introduction

The vast majority of Queensland towns have been established in or near floodplains, resulting in a long history of flooding across Queensland communities. Flooding events can lead to serious injury or loss of life, disrupt the social fabric of a community, impact economic activity and cause damage and destruction to the natural and built environment. Queensland is the most disaster prone state in Australia with more than \$13 billion damage to public infrastructure since 2010.¹ The tangible and intangible costs of the 2010-11 Queensland floods alone are estimated at \$14.1 billion.² The impacts of climate change are likely to further exacerbate flooding in Queensland and will require an agile and adaptive approach by all sectors of the community to reduce flood risk.³ Although flooding cannot be prevented, effective evidence-based flood risk management can reduce the impacts on communities.

Traditionally, flood risk management has focused primarily on mitigating flooding through structural defence systems such as levees, dams and diversion channels.⁴ More recently, flood risk management has evolved into a longer term, multi-disciplinary, catchment wide approach that focuses on building community resilience based on risk.⁴ Contemporary flood risk management strategies include land use planning controls, improved warning systems, stronger building codes and community education and training.⁴ This shift in thinking embeds a continuous process of evaluation and adaptation that is distinct from the traditional approach of simply building flood mitigation structures.⁴

Purpose

A range of flood risk management activities are currently being implemented by numerous stakeholders throughout the state, however it is evident that a consolidated and coordinated approach to flood risk management is critical. The Strategic Policy Framework (the Framework) recognises the research that shows locally led and supported initiatives gain most traction and are most sustainable for enhancing Riverine Flood Risk Management and Community Resilience. The Framework will guide riverine flood risk management in Queensland and provide strategic direction for state government policy. Due to the high risk of riverine flooding across the state the Framework **does not** consider other types of flooding such as coastal flooding, tsunami flooding and overland flow which will be addressed separately.

Consistent with the Organisation for Economic Co-operation and Development's Flood Risk Management Cycle (**Figure 1**), the Framework recognises that flood risk management is a continuous process that relies on the formulation of strategies, implementation of key policy directions and monitoring and evaluation of outcomes. The Framework aligns to the Queensland Strategy for Disaster Resilience and contributes to its vision of making Queensland the most disaster resilient state in Australia.⁵ It clarifies roles and responsibilities of stakeholders and establishes a governance framework for implementing Queensland-specific flood risk management. The Framework is the foundation for developing a comprehensive, multi-disciplinary flood risk management approach to the strategic management of Queensland's floodplains. It will be followed by an implementation plan which will outline how the Framework's key objectives will be delivered.

¹ Queensland Reconstruction Authority. 2016. September 2016 NDRRA Estimates Review.

² Deloitte Access Economics. 2016. The economic cost of the social impact of natural disasters. Sydney: Deloitte Access Economics.

³ Department of Environment and Energy. 2016. Climate change impacts in Queensland.

<https://www.environment.gov.au/climate-change/climate-science/impacts/qld>

⁴ P. Sayers, Y. Li, G. Galloway, E. Penning-Rowell, F. Shen, K. Wen, Y. Chen, and T. Le Quesne. 2013. Flood Risk Management: A Strategic Approach. Paris: UNESCO.

⁵ Queensland Reconstruction Authority. 2017. Queensland Strategy for Disaster Resilience. Brisbane: Queensland Government.

Flood Risk Management Cycle

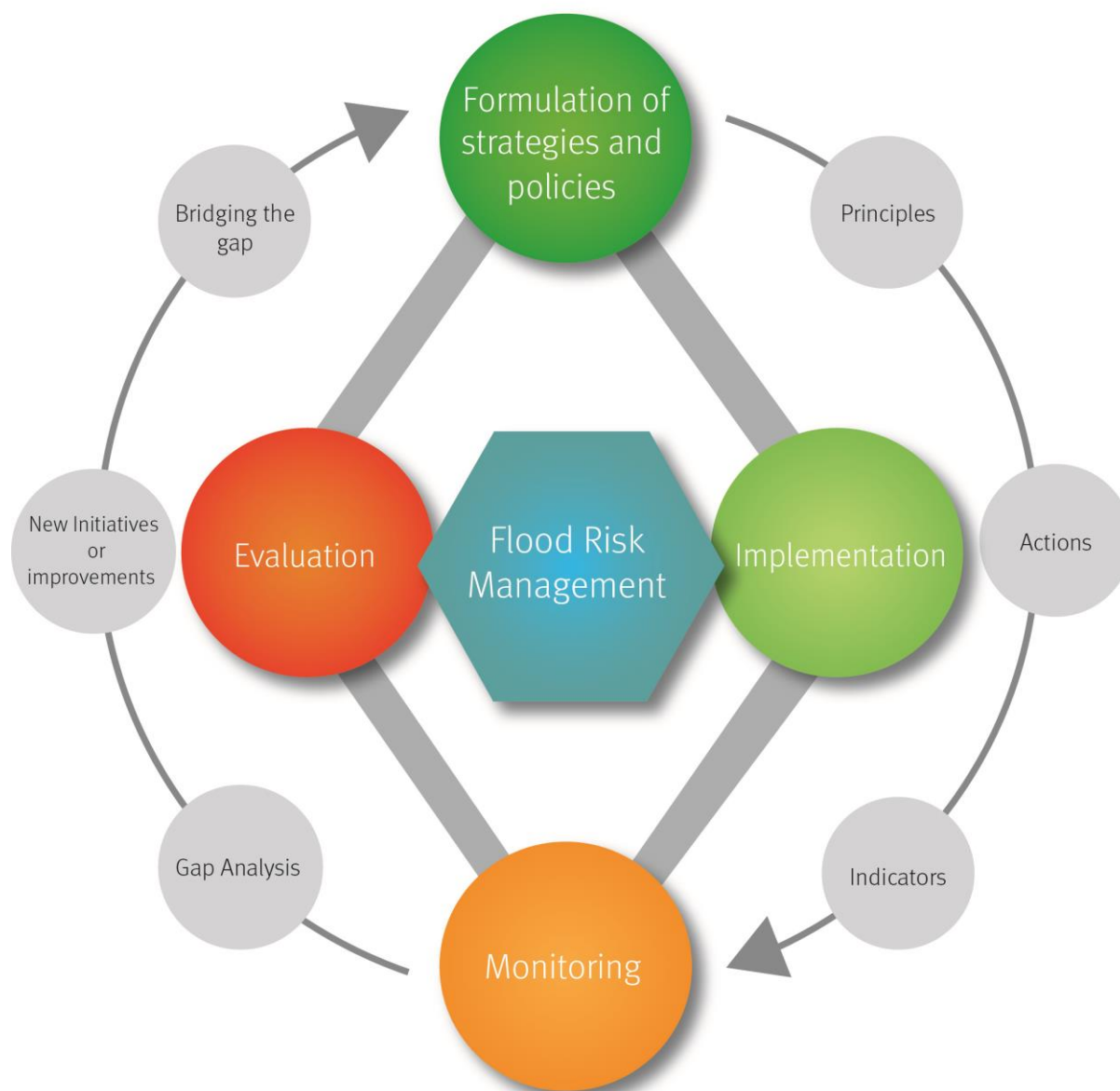


Figure 1: Flood Risk Management Cycle

For the purpose of the Framework, flood risk management is defined as:

“The process of data and information gathering, risk analysis and evaluation, appraisal of options and making, implementing and reviewing decisions to reduce, control, accept or redistribute flood risk. It is a continuous process of analysis, adjustment and adaptation of policies and actions taken to reduce flood risk.”⁶

⁶ P. Sayers, Y. Li, G. Galloway, E. Penning-Rowsell, F. Shen, K. Wen, Y. Chen, and T. Le Quesne. 2013. Flood Risk Management: A Strategic Approach. Paris, UNESCO.



Related Projects and Programs

The Framework is designed to provide guidance on riverine flood risk management in Queensland. For other types of flooding, a number of flood risk management projects, programs and activities are currently underway across the State. These include but are not limited to:

- QCoast 2100 Program
- Coastal flooding warnings (including storm tide and tsunami)
- Flash Flood Advisory Resource
- Extreme Event Advice and Support
- Coastal Advice Science and Engineering
- Coastal Monitoring
- Physical Modelling of Coastal Structures.

Vision

*Queenslanders understand flood risk,
adapt to changing circumstances and take
action to mitigate and build resilience*

Legislation and Policy Framework

The Framework is consistent with existing legislation and policy including the *Disaster Management Act 2003*, the Queensland Disaster Management Strategic Policy Statement and the State Planning Policy. In addition, the Framework is supported by the following foundational legislation:

Disaster Management Act 2003


S3(a) help communities

- (i) mitigate the potential adverse effects of an event; and
- (ii) prepare for managing the effects of an event; and
- (iii) effectively respond to, and recover from, a disaster or an emergency situation

Sustainable Planning Act 2009

S3- The purpose of this Act is to seek to achieve ecological sustainability by

- (a) managing the process by which development takes place, including ensuring the process is accountable, effective and efficient and delivers sustainable outcomes; and
- (b) managing the effects of development on the environment, including managing the use of premises; and
- (c) continuing the coordination and integration of planning at the local, regional and state levels



Planning Act 2016: Due to come into effect July 2017

3 (1) The purpose of this Act is to establish an efficient, effective, transparent, integrated, coordinated, and accountable system of land use planning (**planning**), development assessment and related matters that facilitates the achievement of ecological sustainability.

3 (3)(c) maintaining the cultural, economic, physical and social wellbeing of people and communities includes

- (i) creating and maintaining well serviced, healthy, prosperous, liveable and resilient communities with affordable, efficient, safe and sustainable development; and
- (iv) accounting for potential adverse impacts of development on climate change, and seeking to address the impacts through sustainable development (sustainable settlement patterns or sustainable urban design, for example).

Nationally, the Framework is aligned with the National Strategy for Disaster Resilience in its aim of building the resilience of our nation to disasters. In addition, the framework supports:

Water Act 2007

S3 (a) to enable the Commonwealth, in conjunction with the Basin States, to manage the Basin water resources in the national interest.

Additional legislation relevant to the Framework is at **Appendix A**. The Framework will be updated in response to legislation amendments designed to promote and influence the delivery of flood risk management and resilience activities across the State.

Target Audience

The Framework informs riverine flood risk management activities of the following stakeholders:

- Communities and individuals
- Local governments
- State Government agencies
- Government owned corporations
- Non-government owned corporations
- Disaster management and disaster recovery groups
- Natural resource management and water management bodies
- Insurance industry
- Building and construction industry
- Property development and land use planning bodies
- River catchment and environmental interest groups
- Academic institutions.

Guiding Principles

Consistent with the elements of the flood risk management cycle, the following guiding principles underpin the formulation of policy, implementation and the monitoring and evaluation of outcomes.




Flooding is inevitable

- Community accepts that flooding is an inevitable natural process, which in many circumstances is beneficial for fisheries, agriculture, ecosystems and water storages.
- Resilience and mitigation activities do not eliminate the risk of flood.
- Acknowledgement of the risk of flooding focuses government and the community on managing risk and building resilience to flood related impacts.

Managing flood risk is a shared responsibility

- Managing flood risk is a cooperative and coordinated effort between all sectors of the community including individuals, businesses, non-government organisations and governments.
- Innovative partnership approaches for delivery of riverine flood risk management activities are promoted and supported.
- All levels of government investigate opportunities to improve existing infrastructure and design innovative solutions to reduce riverine flood risk.



Disaster risk management informs decision making
<ul style="list-style-type: none"> Decisions by individuals, industry, community and government are made based on the understanding of the natural landscape and extent of historical and predicted flooding, exposure and vulnerability at the local level to ensure investment is made where it is needed most. Land use is compatible with the level of flood risk. Flood risk management initiatives and activities are informed by fit-for-purpose data, information, analysis and research.
Multi-disciplinary catchment approach that spans council boundaries
<ul style="list-style-type: none"> State Government identifies and prioritises areas across the state that would benefit from a catchment wide approach to flood risk management in an effort to better coordinate flood resilience activities and funding at a state and catchment level Local governments coordinate and prioritise riverine flood risk management activities at the catchment scale balancing upstream and downstream risks. Jurisdictions work together to minimise the impact of floods that cross state/territory boundaries.
Locally led initiatives for local communities
<ul style="list-style-type: none"> Informed by risk, local communities, supported by government when necessary, accept responsibility for leading local initiatives and drive the development of a selection of fit-for-purpose resilience and mitigation activities. Riverine flood risk management initiatives are tailored to local conditions and context through a locally led consultative approach. All sectors of the community recognise that flood risk management initiatives and activities need to be adaptable and informed by current and future risk profiles.
Transparency in data and information sharing
<ul style="list-style-type: none"> All stakeholders release and share relevant data and information.

Governance

Governance arrangements that promote collaborative partnerships and identify clear lines of reporting and accountability are required for the successful delivery of riverine flood risk management activities. The governance arrangements for riverine flood risk management in Queensland are consistent with Queensland's current arrangements for disaster management.

As stated in its Terms of Reference (**Appendix B**), the Queensland Flood Resilience Coordination Committee (QFRCC) was established to enhance community resilience, safety, mitigation and prevention capability across Queensland communities in relation to the impact of freshwater floods. The QFRCC is responsible for the oversight of flood risk management activities and can establish working groups to address specific flood-related issues as required. The QFRCC is comprised of representatives from Commonwealth, State, Local Government Association of Queensland and other relevant stakeholders such as the Insurance Council of Australia. It reports to the Queensland Disaster Management Committee on flood projects, policy and priorities through the Leadership Board and collaborates with relevant national committees and working groups to promote flood risk management in Queensland (**Figure 2**).

The Inspector-General Emergency Management (IGEM) will assess the delivery of flood risk management initiatives, including the effectiveness of outcomes, through IGEM's assurance activities consistent with the Standards in the Emergency Management Assurance Framework (<https://www.igem.qld.gov.au/assurance-framework/Pages/default.aspx>).

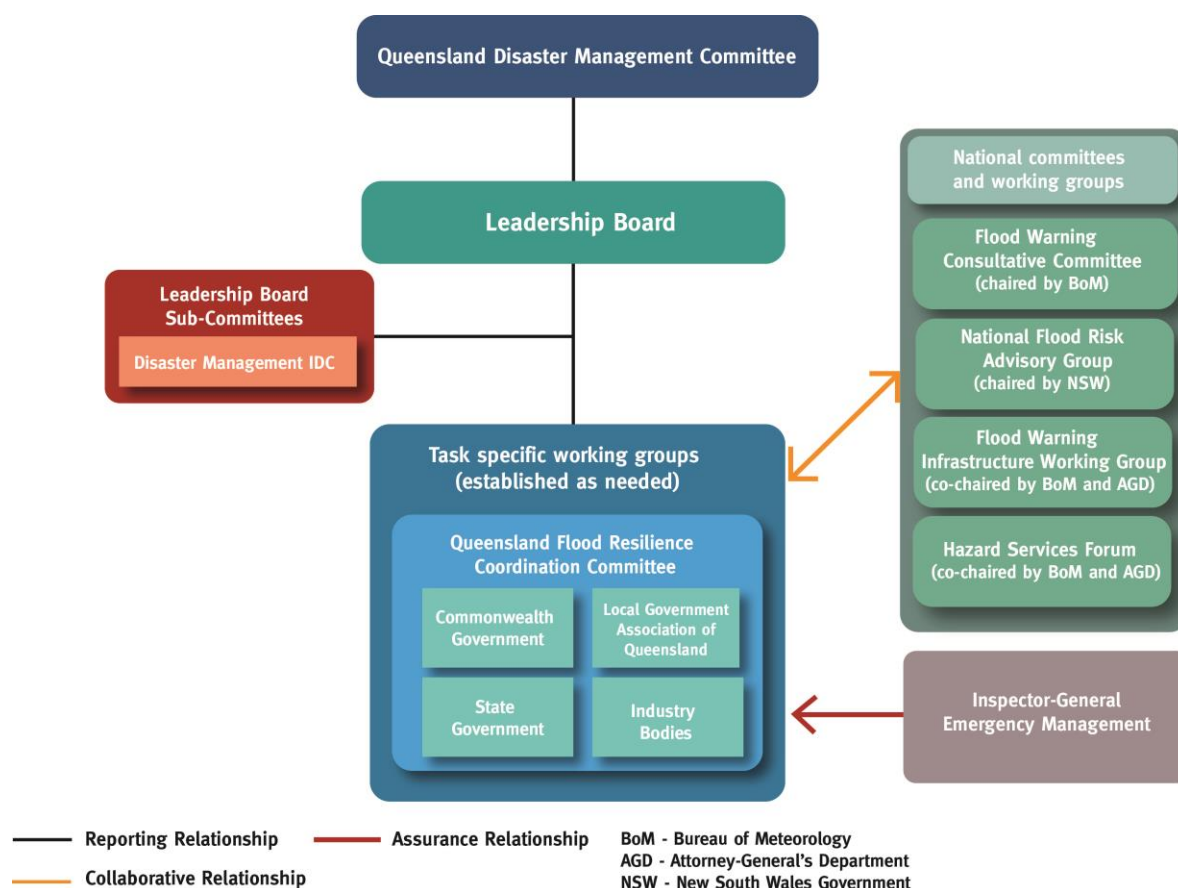


Figure 2: Flood Risk Management Governance Arrangements


Roles and Responsibilities

The Queensland Reconstruction Authority (QRA) is the lead agency responsible for disaster recovery, resilience and mitigation policy in Queensland and has responsibility for the coordination of whole of government flood risk management planning and implementation. Although the QRA has assumed this coordination role, effective flood risk management requires collaborative action through a shared responsibility approach by Commonwealth, state and local governments and the community.

The Australian Government provides a number of services designed to support flood risk management. These services include the provision of flood prediction and warning services, data management and analysis, flood warning gauge network management and advice and conservation of natural resources and environmental values of national significance.⁷ The recently endorsed National Agreement on the *Provision of Bureau of Meteorology Hazard Services to the States and Territories* provides detail on the operating context for riverine flood warning and forecasting services in Queensland and includes agreed responsibilities for all levels of government.

The Queensland Government is primarily responsible for developing governance arrangements, legislative frameworks and providing logistical support for the coordination of flood risk

⁷ Attorney-General's Department. (2013). Managing the floodplain: a guide to best practice in flood risk management in Australia, Handbook 7. Canberra: Australian Government.



management in the state.⁷ This includes promoting appropriate land use planning and building controls, referable dam management, coordination of mitigation programs and emergency management planning and response. The Queensland Government also contributes to national flood risk management and resilience initiatives through its membership on interjurisdictional committees and working groups (refer **Figure 2**).

Local governments are primarily responsible for the delivery of flood risk management at the local level. This includes the completion of flood studies and planning schemes, management of local disaster operations, dissemination of flood warnings to local communities, provision of advice to communities on disaster preparedness and the development of local disaster management plans.

Queensland communities are diverse in nature and possess differing levels of capability and capacity. Communities are encouraged to remain informed of flood risk and, to the best of their ability, take appropriate action based on their relative exposure. With assistance from stakeholders, communities should prepare and plan for the onset of flooding and where possible actively engage in activities that reduce their exposure and build their resilience.

The key elements of flood risk management governance include:⁸

Information Management: Adequate provision and sharing of data for flood related modelling and planning

Built Environment: Flood mitigation planning and strategic planning related to flood

Natural Environment: Natural resource and environmental planning related to flood

Disaster Management: Risk assessment, planning, disaster management, response and recovery related to flood.

The specific roles and responsibilities for flood risk management across these elements can be found at **Appendix C**.

Key Objectives

The QFRCC will have ultimate responsibility for the delivery of the following key objectives, working collaboratively and through stakeholders to undertake resilience planning and deliver appropriate flood risk management initiatives at local, district and state levels:

Whole of Catchment Approach

To manage riverine flood risk on a catchment basis across local boundaries.

⁷ Attorney-General's Department. (2013). Managing the floodplain: a guide to best practice in flood risk management in Australia, Handbook 7. Canberra: Australian Government.

⁸ PricewaterhouseCoopers. 2015. Review of Flood Risk Management Arrangements in Queensland: Final Report. <http://www.disaster.qld.gov.au/Disaster-Resources/Documents/ReviewOfFloodplainRiskManagementArrangements.PDF>



Develop Capability & Capacity

To establish an agreed approach for supporting local governments and communities through collaborative engagement, education, training, allocation of government resources and dissemination of guidance material.

Enhance Community Flood Awareness and Readiness

To provide access to up-to-date information on riverine flood risk that promotes community preparedness prior to an event.

Build Community Resilience

To prepare and plan for the onset of flooding and where possible actively engage in activities that reduce exposure, minimise impact and build resilience.

Resilient Land Use Planning

To manage growth and change in settlements using a risk-based approach that minimises flood risk to future development, and proactively reduces or limits risk to existing settlements where required.

Align Funding Guidelines to Flood Mitigation and Resilience Priorities

To more clearly link funding guidelines to state-wide resilience goals and to advise on the prioritisation of funds for mitigation projects based on evidence.

Risk Based Infrastructure Delivery

To promote a collaborative understanding of riverine flood risk and ensure that new and modified infrastructure does not adversely increase the impacts of floods and that appropriate flood risk reduction and resilience measures are implemented.

Maintain Consistent Flood Risk Knowledge Base and Information

To obtain an up-to-date knowledge base of riverine flood risk data and management measures and to establish a consistent and strategic approach to provide flood risk information to local communities.

Promote Information Sharing and Consultation

To promote information sharing and consultation processes amongst stakeholders to support riverine flood risk management activities across the state.



Practice Integrated Policy Development & Implementation

To ensure policy frameworks and implementation of activities achieve collective flood risk management and resilience goals.

Enhance Flood Warning Capability and Infrastructure

To establish and progress a consistent approach to mitigating residual risks through warning systems that are timely, relevant, easily understood by community, fit-for-purpose and underpinned by sustainable flood warning infrastructure.

Develop a Culture of Continuous Improvement

To monitor and evaluate the effectiveness of flood mitigation strategies and schemes to inform future planning and investment.

Promote a Coordinated Multi-Disciplinary Approach

To ensure riverine flood risk is managed using a multi-disciplinary and multi-objective approach to deliver on the range of objectives outlined above in a coordinated manner.

Conclusion

Although flooding in Queensland is inevitable, stakeholders can be proactive in understanding flood risk and engaging in activities that reduce exposure and minimise the impact of flooding. An effective approach to flood risk management enhances the safety of persons and property, makes communities more resilient to flood risks and impacts and reduces tangible and intangible costs from future flood events. Through a shared-responsibility approach, the Framework provides guidance on best practice riverine flood risk management in Queensland and lays the platform for the development of policies that build community resilience to flooding.



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Appendix A

Legislation relevant to the Framework

<i>Building Act 1975</i>	<i>Coastal Protection and Management Act 1995</i>	<i>Disaster Management Act 2003</i>
<i>Local Government Act 2009</i>	<i>Meteorology Act 1955 (Cmth)</i>	<i>Planning Act 2016</i>
<i>Queensland Reconstruction Authority Act 2011</i>	<i>River Improvement Trust Act 1940</i>	<i>Sustainable Planning Act 2009</i>
<i>Transport Infrastructure Act 1994</i>	<i>Water Supply (Safety and Reliability) Act 2008</i>	<i>Water Act 2000</i>
<i>Water Act 2007 (Cmth)</i>		



Appendix B

Terms of Reference

Queensland Flood Resilience Coordination Committee

Role

Contribute to the enhancement of community resilience, safety, mitigation and prevention capability across all Queensland communities in relation to the impact of fresh water floods.

Functions

- To provide recommendations and advice to the Leadership Board on flood projects, flood policy and priorities and matters relevant to the good management of flood risk in Queensland and delivery of economic and community resilience.
- To advise and consult government agencies (Commonwealth, state and local) and other organisations on the measures necessary to reduce the impacts of flooding in Queensland.
- To monitor and facilitate the implementation of flood risk management related recommendations from the Queensland Floods Commission of Inquiry, reviews considered by the Disaster Management Interdepartmental Committee (IDC), and other reviews as they arise.
- To promote the development of a Queensland Flood Resilience and Risk Management policy and associated guidelines with attention to cross boundary issues affecting multiple agencies.
- To identify and promote Queensland flood related projects that could be implemented under the disaster resilience programs, and coordinate available funding to address priorities.
- To contribute to the improvement of operational arrangements for flood warning services in conjunction with the Queensland Flood Warning Consultative Committee.
- To consider the potential effects of climate change on flooding in Queensland.
- To contribute to national, state, regional and catchment scale strategic policy or planning frameworks relating to the impact of floods such as the National Flood Risk Advisory Group.
- To advise on roles, responsibilities and priorities of entities involved in the management of flood impacts.

Out of Scope

Tidal influences and storm surge.



Membership

The committee will comprise representatives from:

- DILGP
- QRA
- Department of the Premier and Cabinet
- Queensland Police Service
- Queensland Fire and Emergency Services
- Department of Science, Information Technology and Innovation
- Department of Energy and Water Supply
- Department of Natural Resources and Mines
- Department of Transport and Main Roads
- The Department of Housing and Public Works
- The Department of Communities, Child Safety and Disability Services
- The Department of Environment and Heritage Protection
- Inspector General Emergency Management (Observer)
- Bureau of Meteorology
- Insurance Council of Australia
- Local Government Association of Queensland.

QRA will chair the Committee.

QRA will provide secretariat support to the Committee.

Reporting

The Committee will report through the Department of Infrastructure, Local Government and Planning (DILGP) in conjunction with the Queensland Reconstruction Authority (QRA) to the Queensland Disaster Management Committee through the Leadership Board, comprising all chief executives of every State Government agency.

Meetings

Committee meetings are to be held no more than six months apart.

A quorum will comprise five members, one of which is either of the co-chairs.

The chair can call extra meetings if there is a critical matter that cannot be adequately dealt with out-of-session. The Committee should convene after major flood events to analyse the impacts of the event.

The Committee can establish working groups to address specific flood related issues.

Out of Session Endorsement

Out of session endorsement will be sought through flying minutes as required.







External Consultation

The Committee will liaise with other flood related committees such as the Queensland Tropical Cyclone Consultative Committee, Queensland Flood Warning Consultative Committee, National Flood Risk Advisory Group and industry groups such as the Floodplain Management Australia, and the Flood Risk Management Community of Practice.

Amendments

The terms of reference will be reviewed annually.


Appendix C – Flood Risk Management Roles and Responsibilities

	Information Management	Built Environment	Natural Environment	Disaster Management
				


	Information Management	Built Environment	Natural Environment	Disaster Management
Queensland Reconstruction Authority	<ul style="list-style-type: none"> • Contribute to national, regional and catchment policy or planning frameworks relating to the assessment and management of flood risk. • Promote best practice approach to flood studies and floodplain mitigation and lead development of flood mitigation strategies. • Promote best practice approach to the collection, sharing and accessibility of information which support flood risk management activities. • Identify and prioritise areas for catchment wide/trans-boundary flood studies and floodplain management studies. • Through the QFRCC, coordinate the provision of state government resources to support local governments in flood risk management activities. • Brisbane River Floodplain Management Study. • Strategic Floodplain Management Plan. • Hydrometric gauge network policy. 	<ul style="list-style-type: none"> • Identify priority flood mitigation, betterment and resilience activities and funding sources. • Queensland Betterment Program. 	<ul style="list-style-type: none"> • Promote best practice approaches to flood studies and floodplain mitigation and development of flood mitigation strategies. 	<ul style="list-style-type: none"> • Designated responsibility for developing strategic flood risk management policy and coordinating whole-of-government response to policy. • Disaster recovery policy, planning and coordination. • Coordination of disaster resilience across the state. • Manage the state's Natural Disaster Relief and Recovery Arrangements (NDRRA) and State Disaster Relief Arrangements (SDRA) funding programs with key stakeholders.



	Information Management	Built Environment	Natural Environment	Disaster Management
Queensland Fire and Emergency Services	<ul style="list-style-type: none"> • Coordinate whole-of-government disaster management data and lead data management policy. • State level data information and planning reference resource 			<ul style="list-style-type: none"> • Flood disaster response and emergency response and rescue. • Activation of the State Operations Coordination Centre and State Disaster Coordination Centre in response to potential flood disaster events. • Deployment and coordination of response and rescue personnel, including SES for mitigation activities. • Community education and training in collaboration with local governments and state agencies. • Management of the QDMC endorsed natural hazard risk methodology to support disaster management planning across PPRR at the state and district level, based on the needs of the state. • In consultation with LGAQ and at the request of individual local governments, provide the enabling advice and support for Local Disaster Management Groups to integrate the QDMC endorsed Queensland Emergency Risk Management Framework into their disaster management planning. • Activation and dissemination of Emergency Alert messages. • Functional agency plans (emergency supply).




	Information Management	Built Environment	Natural Environment	Disaster Management
Department of Environment and Heritage Protection		<ul style="list-style-type: none"> Sewage treatment, pumping stations and sewage systems. 	<ul style="list-style-type: none"> Coastal hazards and mapping. Storm tide inundation. Wetland protections, programs, planning and approvals. Biological and habitat monitoring. Riparian protection. Ecosystem health monitoring program. Land use planning guidelines for environment and conservation interests. Environmental planning guidelines for the SEQ Regional Plan 2009-2031 and FNQ Regional Plan 2009-2031. Water quality and ecosystem health. Healthy waters management plans and water quality improvement. 	<ul style="list-style-type: none"> Environmental recovery planning.
Department of Energy and Water Supply		<ul style="list-style-type: none"> Queensland Urban Drainage Manual. Dam safety - referable dams. Identification of referable and flood mitigation dams. Guidelines on acceptable flood capacity for dams. Approval of Emergency Action Plans for referable dams, including dam owner notifications and alerts. Approval of flood mitigation manuals. Dam optimisation studies. Flood mitigation infrastructure investigation – Brisbane and Ipswich. Provision of advice about temporary full supply levels 		<ul style="list-style-type: none"> Functional agency plans for electricity, fuel, gas and reticulated water supply.



	Information Management	Built Environment	Natural Environment	Disaster Management
		for flood mitigation dams.		
Department of Natural Resources and Mines	<ul style="list-style-type: none"> • Ownership and operation of stream gauges (surface water monitoring). • Flood mapping implementation toolkit. • Maintenance of flood portal and Flood Check website. • Maintenance and distribution of modelling and flood studies. • Capture of spatial imagery and spatial information analysis and product generation. 	<ul style="list-style-type: none"> • Regulation of the construction and modification of levees. • Riverine Quarry management. 	<ul style="list-style-type: none"> • Water resource management planning and use. • Integration of surface and groundwater management. • Groundwater impact assessments. • Activities in water course. • Authorisations in water areas. • Removal of quarry materials from watercourse. • River improvement trusts. • Natural Resource Management Programs. 	
Bureau of Meteorology	<ul style="list-style-type: none"> • The taking and recording of meteorological observations and other observations required for the purposes of meteorology. • Collection, interpretation and dissemination of water information. • Provision of design rainfall estimates and probable maximum precipitation estimates for the Australian Rainfall and Runoff flood estimation guidelines. 			<ul style="list-style-type: none"> • Forecasting of weather and of the state of the atmosphere. • The issue of warnings of gales, storms and other weather conditions likely to endanger life or property, including weather conditions likely to give rise to floods or bushfires. • Responsible for flood monitoring and prediction and for the dissemination of flood forecasts and warnings for riverine flooding.



	Information Management	Built Environment	Natural Environment	Disaster Management
Department of Infrastructure, Local Government and Planning		<ul style="list-style-type: none"> Land use planning. Planning instruments. Community infrastructure designation. Mitigation and Resilience Funding - Community Resilience Fund, Natural Disaster Resilience Program and Local Government Grants and Subsidies Program. Infrastructure Portfolio Office (IPO) - established to plan and coordinate infrastructure, and integrate the links between economic, regional and infrastructure planning. 	<ul style="list-style-type: none"> Planning for the delivery of infrastructure that is more resilient and adaptive, particularly to climate change and extreme weather events including floods. 	
Department of Science, Information Technology and Innovation	<ul style="list-style-type: none"> Hydrological and hydraulic modelling. Coastal impacts monitoring and assessment. Provide access to data captured from agency owned infrastructure (e.g. tide gauges) and agency lead research products to support informed decision making. 		<ul style="list-style-type: none"> Scientific support for natural resource and environmental monitoring and assessment. Monitor storm tides. 	<ul style="list-style-type: none"> Functional lead agency for telecommunications industry liaison relevant to disaster response and recovery. Environmental monitoring that supports response and recovery activities. Delivery of government contact centre and web- based services focused on supporting the community. Delivery of whole-of- government ICT infrastructure.
Local Governments	<ul style="list-style-type: none"> Completion of flood studies. Establishment of flood class levels. Interpretation of BOM flood warnings and prediction of local impacts. Dissemination of flood warnings to communities. 	<ul style="list-style-type: none"> Local government planning schemes, storm water drains and storm water installations. 		<ul style="list-style-type: none"> Local Disaster Management Plans. Community education programs. Emergency response. Manage and control local infrastructure.



	Information Management	Built Environment	Natural Environment	Disaster Management
Office of the Inspector-General Emergency Management	<ul style="list-style-type: none"> Monitors and promotes opportunities for information-sharing to foster greater interoperability across the sector. 			<ul style="list-style-type: none"> Reviews and assesses state and local government on flood risk management activities. Identifies opportunities to improve outcomes. Assurance framework for emergency management arrangements.
Department of Transport and Main Roads		<ul style="list-style-type: none"> Community infrastructure planning and delivery of state transport infrastructure. 		<ul style="list-style-type: none"> Transportation infrastructure, providers and regulation, roads and transport recovery. Ship-sourced pollution planning taking the lead for response to ship-sourced pollution. Temporary closure of roads.
Queensland Police Service				<ul style="list-style-type: none"> Functional agency plans (search and rescue) in conjunction with QFES as required i.e. swiftwater rescue. Coordination of flood disaster response, emergency response and rescue.
Department of Communities, Child Safety and Disability Services	<ul style="list-style-type: none"> Development of guidelines and tools to support local governments in engaging with vulnerable persons. 			<ul style="list-style-type: none"> Functional agency plans (human and social recovery services). Coordination of district and state human and social recovery resources and operations.
Department of Housing and Public Works		<ul style="list-style-type: none"> Building regulation. 		<ul style="list-style-type: none"> Functional lead agency (building and engineering services).
Department of Agriculture and Fisheries			<ul style="list-style-type: none"> Protection and management of mangroves. 	
Queensland Ambulance Service				<ul style="list-style-type: none"> Emergency response and rescue.