

# Managing floods in Queensland

## Floods as a hazard

### floodplain management

*'Management of flood risk is essential to limiting the impacts of flooding on the community in balance with maintaining the benefits of occupying the floodplain to society and the benefits of flooding to the environment.'*<sup>1</sup>

## Understanding flood risk

Maps are often produced to highlight flood risk areas and to support decision-making about land use planning, community education and disaster management (including dam operation).

Residents can also access information on the possible flood risks to their properties as part of conveyancing, by contacting council, or searching for available flood studies on the Queensland Reconstruction Authority's Floodcheck online interactive maps.<sup>2</sup> The Callide Valley Flood Risk Study was completed for the Banana Shire Council (the Council) in 2010 and includes general flood maps.<sup>3</sup> This study can be found through the Council's website or Floodcheck.<sup>4</sup> The maps in this flood study are not designed to identify possible impacts at a property level.<sup>5</sup>

Flood events are often compared to:

- a 'flood of record', which is the highest recorded flood for a location
- the 'probable maximum flood event' for a location, which is the largest flood that could conceivably occur at a particular location, based on factors such as flood producing weather conditions.<sup>6</sup>

Floods of any magnitude can occur at any time. For example, a '1 in 100 year flood' has an Annual Exceedance Probability (AEP) of 1%, meaning there is a 1% chance of a flood of that magnitude occurring in any given year.<sup>7</sup> According to our survey of Callide Valley residents, most feel confident that they understand the risk of flood to themselves or their properties (91%, n=369).<sup>8</sup>

## Floodplain and flood risk management

Responsibility for flood risk management generally rests with local governments, because they are the major service provider to communities and are responsible for managing local development.<sup>9</sup> Responsibility for floodplain management is more complex. Governance of floodplain management in Queensland is dispersed across various state-level agencies, including:

- Queensland Reconstruction Authority
- Department of Infrastructure, Local Government and Planning
- Department of Natural Resources and Mines
- Department of Energy and Water Supply
- Department of Science, Information Technology and Innovation
- Queensland Fire and Emergency Services.

As noted in a recent review by PricewaterhouseCoopers (PwC), floodplain management arrangements in Queensland are ‘*complex, with responsibility for key activities spread across a range of entities and levels of government*’.<sup>10</sup>

Legislation dealing with floodplain management in Queensland covers issues ranging from planning and corporate responsibility to emergency response. The principal Acts are:

- *Sustainable Planning Act 2009* (Qld)
- *Local Government Act 2009* (Qld)
- *Disaster Management Act 2003* (Qld).

The Queensland Reconstruction Authority has produced two floodplain management guidelines to help councils better align floodplain management and land use planning.<sup>11</sup>

Effective and strategic floodplain management is important for the long-term ecological, social, and economic sustainability of Queensland.<sup>12</sup> Domestic and international post flood-event reviews often include floodplain management discussion and recommendations.<sup>13</sup> While these reviews include similar suggestions and recommendations about the ways in which responsibility for floodplain management could be more effectively shared and implemented, actioning these approaches is not commonplace.

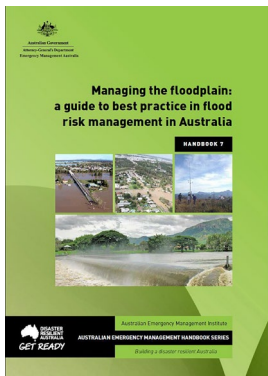
In its recent review, PwC found that Queensland can improve its approach through focusing on the best practice roles and responsibilities designated to state governments in the *Managing the Floodplain* Emergency Handbook produced by the Commonwealth Attorney-General’s Department.<sup>14</sup>

The PwC report also found that local governments vary in their ability to discharge their floodplain management roles and responsibilities.<sup>15</sup> Financial capacity and exposure to flood risk are key factors that affect local governments’ capability in this regard.<sup>16</sup>

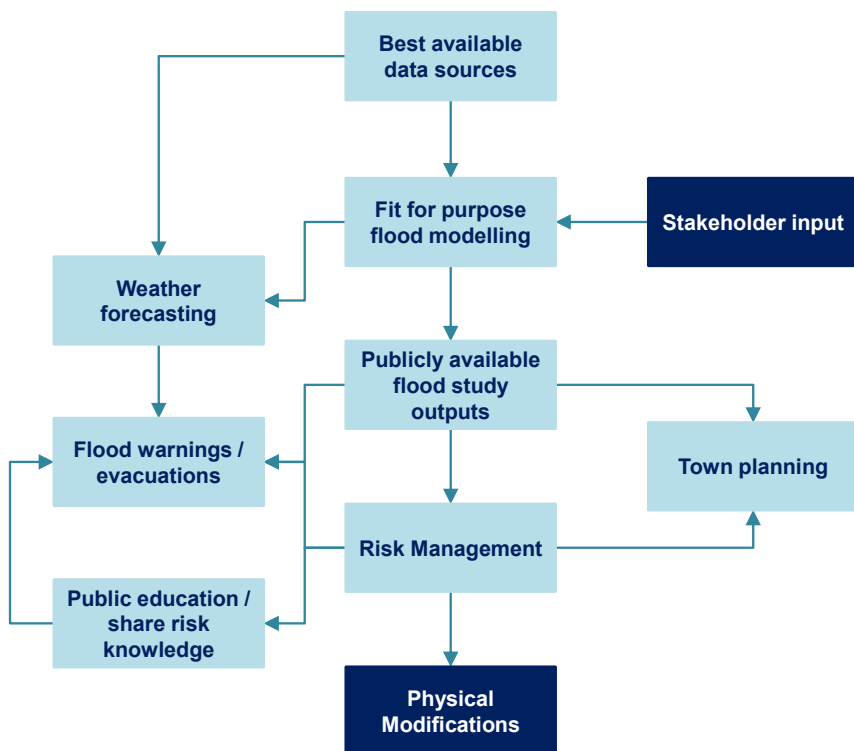
An integrated approach to floodplain management is required for optimal outcomes.<sup>17</sup> As a key player in floodplain management, local government must partner with the community (including infrastructure owners) to develop a shared understanding of risk and risk tolerance.<sup>18</sup> This must inform and enhance mitigation strategies.<sup>19</sup>

There are many components to effectively managing floodplains in order to reduce the impact floods have on the people living on them. Some flood mitigation approaches, like emergency warnings, are dependent on other parts of flood risk management being addressed in a comprehensive way. For example, warnings are more effective if local government issues them to the people at risk, and those people understand their personal risk, as well as their options for minimising their risk (e.g. evacuate, sandbag).<sup>20</sup>

Where any of the components are significantly lacking, such as an absence of reliable data, the effectiveness of other mitigation strategies will be impaired.<sup>21</sup> We developed the following diagram to illustrate the components of flood risk management that we have considered in our review (light blue boxes), and the major elements that we didn’t (dark blue boxes – physical modifications include levies, drainage, raising existing dwellings, improving evacuation routes and so on):



Above: ‘*Managing the floodplain*’ handbook.  
Commonwealth of Australia



Left: Aspects of flood risk management considered in the IGEM review (light blue).  
Inspector-General Emergency Management

The Council has taken some steps to improve its management of flood risk, however much more is needed. The Council needs access to recent and comprehensive flood studies in order to progress. Without them, there cannot be certainty that the controls in place for town planning and building codes will be sufficient. We found that there is opportunity for the Council to be more active in community engagement and education activities about disaster management and to improve the sharing of risk information.<sup>22</sup> Detailed discussion on flood risk mitigation components may be found in the Planning, Public Engagement and Communications, Operational Information and Intelligence, Warnings and Evacuations sections of this report.

### Finding 2

Improved policy coordination of flood risk management would support councils to develop better flood risk management and town planning.

### Recommendation 2

Banana Shire Council investigate means to prioritise the commissioning of a fit-for-purpose flood study for high-risk areas across the Banana Shire to better inform flood risk management, including improved town planning. The outcomes of such a study should be available to the public and inform flood awareness campaigns, flood warnings, and building approvals.

## Floods as disasters

### disaster

*'is a serious disruption in a community, caused by the impact of an event, that requires a significant coordinated response by the State and other entities to help the community recover from the disruption.'*<sup>23</sup>

### The Queensland approach to managing disasters

Disaster management means arrangements about managing the potential adverse effects of an event, including, for example, arrangements for mitigating, preventing, preparing for, responding to and recovering from a disaster.<sup>24</sup> Every state and territory in Australia has a different set of arrangements for disaster management. In Queensland, the following key documents explain how disasters should be managed:

- *Disaster Management Act 2003* (Qld)
- *Emergency Management Assurance Framework*<sup>25</sup>
- *State Disaster Management Plan*<sup>26</sup>
- *Disaster Management Strategic Policy Framework*.<sup>27</sup>

Floods are one of the multiple hazards that local governments are required by law to manage in their local government area.<sup>28</sup> Many other entities share responsibility for different parts of disaster management.<sup>29</sup>

The main entities with roles or interests in local disaster management form a group to assist each local government to coordinate its efforts. This is the Local Disaster Management Group (LDMG).<sup>30</sup> The LDMG meets throughout the year, and more regularly when a disaster happens. Members of the LDMG should help the Council write the Local Disaster Management Plan (LDMP) to develop a shared understanding of roles and responsibilities, as well as the capabilities of group members.<sup>31</sup>

Even with the combined efforts of the LDMG members, at times the capacity of the LDMG is exceeded by the demands of an event. A request for assistance is then made to the district level, which is the next level of the disaster management arrangements.<sup>32</sup> The District Disaster Management Group (DDMG) is chaired by a senior police officer.<sup>33</sup> Membership of the DDMG is predominantly from state government agencies but includes representatives of local governments within the disaster district and some utility providers.<sup>34</sup> The resources the DDMG coordinates are generally at the regional level, but sometimes from other local government areas. At times, the DDMG's capacity is also surpassed and so a request for assistance would be escalated to the state level.<sup>35</sup> The state can request assistance from the Commonwealth in extreme cases.<sup>36</sup>

**disaster operations**

*'...means activities undertaken before, during or after an event happens to help reduce loss of human life, illness or injury to humans, property loss or damage, or damage to the environment, including, for example, activities to mitigate the adverse effects of the event.'*<sup>37</sup>

**Disaster operations**

Disaster operations covered in this review are limited to those in the Terms of Reference. Due to the importance and complexity of each of the areas covered, we focus on each in turn:

- Disaster Management Planning and Preparedness
  - > planning, including hazard identification and risk management
  - > public engagement and communications
- Disaster Management Response
  - > operational information and intelligence
  - > warnings
  - > evacuations
  - > telecommunications infrastructure.

## Endnotes Chapter 05

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14. PricewaterhouseCoopers, *Review of Queensland flood warning and flood risk management arrangements*, 2015, p. ii.
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19. *ibid.*
20. Attorney-General's Department, *Emergency Warning Guidelines and Principles*, <https://www.em.gov.au/Emergency-Warnings/Pages/Emergencywarningsguidelinesandprinciples.aspx>, accessed April 2015.
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