



ERSA

Environmental Risk Science and Audit

DISCUSSION PAPER

**QUEENSLAND LOCAL GOVERNMENT
DISASTER RESILIENCE POLICIES**

ERSA 1023-5

INTRODUCTION

The Local Government Association of Queensland (LGAQ) commissioned Environmental Risk Science and Audit Pty Ltd (ERSA) to undertake multi-hazard disaster risk assessments of four local government areas in South-East Queensland. The councils were Gold Coast City, Logan City, Scenic Rim Regional and Lockyer Valley Regional. The project was funded under the National Strategy for Disaster Resilience Program's National Emergency Management Project (NEMP) grant scheme.

The four local governments covered have very different risk environments and disaster risk management cultures and resources. They differ most on the degree of availability and quality of the data and information that is needed to deliver a detailed multi-hazard disaster risk assessment.

In undertaking this risk assessment work ERSA applied the risk assessment methodology that its principal disaster risk scientist, Ken Granger, has developed over the past twenty years. This methodology is based on the risk management standard ISO 31000:2009 and is consistent with, but more thorough than, the approach outlined in the *National Emergency Risk Assessment Guideline* or NERAG (EMA, 2010). The ERSA methodology has proved to be very flexible and has been successfully adapted to suit the requirements and resources of each local government studied.

As part of their offer for this project ERSA undertook to produce:

"..a report for LGAQ that identifies issues of legislation, policy, procedures and practices identified in our research that would benefit from consideration at the LGAQ/State Government level."

This is the ERSA response to that commitment. In developing this report ERSA has drawn on the disaster management and risk science experience of Ken Granger and the risk audit expertise of ERSA's Tim Kirby, together with the experience of associate specialists Greg Scroope (former Brisbane City Council Manager, Community Safety & Disaster Management) in the management of disaster risk at the local government level, and Flo Bridger (former Emergency Management Queensland policy office) in the legal and policy dimensions of disaster management.

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EXECUTIVE SUMMARY

Local governments in Queensland face a long list of challenges and are required to deliver on broad-ranging responsibilities with limited resources. In this context, disaster risk management can at times be treated as a low priority especially in the absence of any recent event. The 2011 Queensland floods and subsequent Commission of Inquiry again demonstrated the need for improved coordination and collaboration across all levels of government to reduce risk and prepare for disasters, as well as effectively respond to and recover from their impacts.

Natural hazard risk assessments recently undertaken for a number of Queensland councils under the Natural Disaster Resilience Program (NDRP) have resulted in recommendations for risk treatment strategies. Councils can deal individually or on a regional basis with the internal issues identified. Other issues common to many or all local governments, and impacting beyond discrete council boundaries, require the support of the Local Government Association of Queensland (LGAQ), Queensland Government, and at times the Commonwealth Government and other stakeholders, to ensure that councils are equipped with the powers, resources and knowledge required to effectively undertake their roles in serving local communities.

The key issues identified in this paper for which councils collectively require support are:

- advice for newly elected councillors and executives on legal obligations
- incorporating disaster risk management into corporate governance
- scope of NDRP hazard risk assessments
- using planning schemes as a risk reduction strategy
- advice on powers to cancel events
- development of model sub-plans
- research and analysis of critical infrastructure
- development of communication strategies
- development of ongoing community resilience programs
- clarification of powers and roles in road closures
- development of guidelines for post-disaster surveys
- conduct of disaster appeals; and
- research and design of resettlement programs.

This Paper contains recommendations on a way forward to resolve these issues using collaborative approaches involving councils and other relevant authorities.

1 PURPOSE

The purpose of this paper is to identify and articulate key disaster risk management issues that ERSA has found concern councils collectively and that require the support of the Queensland Government and other relevant authorities to address them, and to propose a way forward. This paper has been developed to assist the Local Government Association of Queensland (LGAQ) in developing its role in fostering disaster resilience at the local government level.

2 BACKGROUND

Natural disaster risk assessments have recently been undertaken under the Natural Disaster Resilience Program (NDRP) for a number of Queensland councils across the State. Those assessments, and the experience of council elected officials, staff and other practitioners, demonstrate that many local governments in Queensland face the same key challenges and issues with respect to disaster risk management. Despite council amalgamations and a more regional ambit of operations across larger geographical areas, issues impact beyond individual local government boundaries.

3 CONTEXT

A collective approach to developing policy and procedures and clarifying powers and responsibilities would be more effective and efficient than a piecemeal, fragmented approach on a council-by-council basis. The local government lobby would be more powerful using a united front than seeking to advocate individual council concerns. As has been demonstrated in many other policy contexts, the LGAQ is well placed to undertake this advocacy role.

Recent disaster events, particularly the 2011 Queensland floods and subsequent Commission of Inquiry, highlighted again the importance of improvements to coordination and collaboration across all levels of government in risk reduction and preparation for disasters, as well as effective response and recovery. An essential step in enhancing future planning and operations is to clearly identify and articulate the key issues that concern councils collectively, and agree on a position to propose to the Queensland Government and other relevant authorities to address these concerns.

4 KEY ISSUES

ERSA has undertaken four multi-hazard disaster risk assessments of local government areas in South-East Queensland. Through this work ERSA has identified a number of key issues for councils for which support is required from the Queensland Government and other authorities.

4.1 Advice for newly elected councillors and executives on legal obligations

Many newly elected councillors and senior executives may not be familiar with the central role of community safety in all aspects of community governance. LGAQ and the former Queensland Department of Emergency Services, (now the Department of Community Safety (DCS)), under

their Disaster Management Alliance, combined to produce an information workbook and companion CD resource under the title *Elected Members Guide to Disaster Management* (LGAQ & DES, 2006). This resource provides comprehensive information tailored for elected councillors on their legal responsibilities primarily under the *Disaster Management Act 2003*.

The Australian Local Government Association (ALGA) commissioned a study on land use planning and risk mitigation, which is also useful in this context (SMEC and IID, 2006). It would be appropriate for all elected councillors and senior executives to receive a briefing on their responsibilities for disaster risk management within the first few months of an election and be provided with copies of supporting material such as those mentioned above.

The *Elected Members Guide* does not address the wider legislated and common law exposure and protection from liability provisions of councillors and councils on the various risks posed by both natural and human-caused hazards. It would be helpful to all local governments for the LGAQ and DCS to compile an information resource on councils' legal obligations under both legislation and common law to guide and inform disaster managers at the local level.

An example of such a resource is the Queensland Government's *Welcome Aboard: A Guide for Members of Queensland Government Boards, Committees and Statutory Authorities* publication, which includes issues of liability and protection. Given that it is six years since the *Elected Members Guide* was produced, and the changes to the Disaster Management Act, Natural Disaster Relief and Recovery Arrangements (NDRRA), Natural Disaster Resilience Program (NDRP) and major disaster events since that time, it may be appropriate for these additional areas to be incorporated into a revised version of the guide.

Recommendation 1: LGAQ request DCS to compile and disseminate an information resource on the legislative, administrative and common law responsibilities of Queensland local governments for disaster risk management.

4.2 Incorporating disaster risk management into corporate governance

Amalgamation of local governments provided an opportunity to establish a new approach to disaster risk management. At the heart of this initiative is establishing a risk culture:

“At a philosophical level at least, one of the most potent forms of risk mitigation is the development and nurturing of a strong risk management culture across the community. It has, for example, been frequently observed that emergency risk management is most effective where it is an integral part of overall community risk management. Similarly, disaster planning is most effective where it is managed as an integral part of total community planning. In the vast majority of cases, however, these processes and activities tend to be divorced from the mainstream of community governance, even within organisations that are clearly committed to public safety, as is the [council]. The compartmentalisation and isolation of emergency risk management from the mainstream of community governance can best be attributed to the lack of a broad culture of risk management.” Granger and Hayne, (2001)

A mature risk management culture will see the decisions made by the executive, administrative, public health, planning, environmental, engineering, fiscal, legal and emergency management elements become more integrated, consistent and coordinated. The outcome would see the

interdependencies of strategic decisions in each of those areas acknowledged and their consequences taken into account in a more transparent and seamless process. This approach would also tend to widen the planning timeframe from the current two or three year electorally constrained horizon to one of ten, twenty or even fifty years. In short, a risk management culture is one in which the philosophy of providing safe and sustainable communities is clearly and consistently embedded across the organisation and adhered to. This commitment is usually stated in high-level documents such as vision statements or corporate strategic plans.

It is also essential to clearly incorporate a broad, inclusive approach to disaster risk management at the strategic level. This approach would be firmly supported by the organisation's leadership, and communicated as a priority, leading to disaster risk management being embedded into operational level planning and implementation. The importance of disaster risk management being integrated into councils' core business should be reflected in the key planning documents required under the *Local Government Act 2009* and the *Local Government (Finance, Plans and Reporting Regulation) 2010* – the annual operational plan, five year corporate plan, and at least ten-year long-term community plan.

Key performance indicators should also be developed to set meaningful targets, allocate responsibility for implementation and ensure progress is measured and reported on, in line with public accountability standards.

Councils generally have in place the necessary governance structures, strategies, and policies for risk management and control. Internal audit activities are funded to assess the higher levels of risk management. When the disaster risk environment requires assessment, these activities can be viewed as a specialised area due to the unpredictable nature of disasters that pose a risk to the community and to the operation of the organisation itself. Council staff can feel somewhat unqualified to undertake the role.

For this reason, it would be appropriate for councils to consider employing a structured use of internal audit activities within disaster risk management, and disaster risk management activities within internal audit. Doing so is likely to produce synergies for both areas. Internal audit can also be used to provide ongoing monitoring of disaster risk management functions.

In return, disaster management staff can often be the most cost-effective resource for monitoring business continuity planning activities, as they hold the local knowledge necessary for realistic assessment and planning. By continuing to align the functions, through the Audit and Risk Committee, councils can gain some of these synergies.

Recommendation 2: LGAQ and DCS develop guidelines for incorporating disaster risk management into council corporate governance arrangements including through:

- **clear statements of commitment in vision statements and corporate strategic and operational plans**
- **requiring closer ties with councils' corporate audit section to develop disaster risk assessments that can be audited by a third party within councils**
- **including a representative of the disaster management section on Audit and Risk Management Committees; and**
- **the Audit and Risk Management Committee reporting on the status of disaster risk assessments.**

4.3 Scope of NDRP hazard risk assessments

The guiding principles of disaster or emergency risk management in Australia have, for many years, been based on four concepts:

- the comprehensive approach (i.e. the Prevention, Preparedness, Response and Recovery (PPRR) approach)
- the all-hazards approach
- the all-agencies approach; and
- the prepared community.

The terms of reference for NDRP hazard risk assessments limit the range of hazards to be addressed. The hazards covered are those identified by the Natural Disaster Relief and Recovery Arrangements (NDRRA) guidelines, a constraint imposed by the funding criteria of the Commonwealth and State Governments for NDRP funding. Funding under the former Emergency Management Australia (EMA) administered *Local Grants Scheme* did not limit assessments to natural hazards.

Other jurisdictions, including NSW and Victoria, have adopted the 'all-hazards' approach to disaster risk management as policy. In NSW, for example, local governments undertaking multi-hazard risk studies are required by the State Emergency Management Committee to take into account some 50 listed hazards (SEMC, 2001). This list is simplified in Table 1.

Only those hazards shown in bold in the table are covered under NDRRA. Some of the others, such as coastal erosion or structural failure, can be covered if they are experienced as a consequence of a primary natural hazard.

Table 1: A typology of Australian hazard phenomena (from Granger, 2008)

ATMOSPHERIC	EARTH	BIOLOGICAL	HUMAN
tropical cyclone	landslide	human epidemic	transport accident
east coast low	earthquake	animal epidemic	industrial accident
severe storm/tornado	tsunami	plant epidemic	structure failure
flood	subsidence		structure fire
storm tide	coastal erosion		hazardous materials
bush fire	meteorite strike		contamination/pollution
heat wave			space debris re-entry
drought			terrorism/crime
fog and frost			civil disorder
climate change			mass gathering strife

There is a clear need for State and Commonwealth authorities to better recognise the long-standing all-hazards principle in the funding arrangements for emergency risk management studies, including the NDRP. In the Queensland studies undertaken by ERSA, coverage has been extended beyond the NDRRA scope to address heatwave risks and the potential impact on the hazard environment of forecast climate change effects and the 'secondary' risks that are consequential to the impact of a primary hazard.

Recommendation 3: LGAQ request that DCS and EMA review the current limitation of NDRP projects to hazards covered under NDRRA to enable Queensland local governments

to more effectively develop a genuine all-hazards approach to emergency risk management.

4.4 Using Planning Schemes as a Risk Reduction Strategy

It is widely recognised that the most effective way to reduce or eliminate the growth of risks posed by most natural hazards is to prevent development in hazard-prone locations. In Queensland the *Sustainable Planning Act 2009* calls up the requirements of State Planning Policy 1/03: *Mitigating the adverse impacts of flood, bushfire and landslide* (SPP 1/03), Temporary State Planning Policy 2/11: *Planning for stronger, more resilient floodplains* (TSPP 2/11), and the State Coastal Management Plan to manage development in hazard-prone areas exposed to inundation hazards, bushfire and landslide. Managing the risks posed by severe winds and earthquakes depends on the application of construction standards under the Building Code of Australia.

4.4.1 Inundation Hazards

SPP 1/03 and TSPP 2/11 have been developed to provide guidance for planning development in flood-prone areas and the State Coastal Management Plan provides equivalent guidance for development in coastal areas that are prone to storm tide (and tsunami) inundation. SPP 1/03 requires local governments to establish a *natural hazard management area (flood)* for a Defined Flood Event (DFE) in their planning schemes.

Where councils have yet to have floodplain modeling undertaken so as to establish a DFE, TSPP 2/11 requires them to adopt the Flood Assessment Overlay mapping and Model Code established by the Queensland Reconstruction Authority (QRA).

OBSERVATION: From the one example of the QRA mapping examined by ERSAs (Scenic Rim Region) it seems to be rather conservative, relying on the extent of alluvium in the geological mapping. Such an approach would tend to more closely reflect the probable maximum flood (PMF) level of flooding rather than the 100-year ARI event that is the commonly employed DFE level.

Appendix 2 of the Guidelines to SPP 1/03 (DLGP/DES, 2003b) provides guidance on the key issues to be considered when determining an appropriate DFE, including taking climate change into account. It is important to note that the Guidelines state that *current best practice in floodplain management calls for an understanding of the full range of floods possible – up to and including the PMF*. While modelling of floods to the PMF level may be of some value to disaster management planning it is of questionable value to the urban and regional planning process.

Nonetheless, hydrological and hydraulic modelling of flood events with ARI beyond the 100-year level are required for the planning process when considering the siting of community infrastructure. Appendix 9 of the Guideline states that community infrastructure, for example hospitals, emergency service facilities and major power infrastructure, should be able to function effectively during and immediately following a flood with an ARI of 500 years, whilst police facilities, valuable document archives and emergency shelters should be able to function at flood levels with an ARI of 200 years. However, SPP 1/03 is silent on the need for access to these community infrastructure facilities to be flood-free to a comparable degree. This has led to situations where a hospital, for example, is high and dry above a 100 year ARI but cannot be accessed because the road network in surrounding areas is inundated.

SPP 1/03 is also silent on the need for flood modelling to be undertaken at a suitable spatial resolution using a digital elevation model (DEM). This is in contrast to the State Coastal Management Plan requirements for storm tide modeling, which stipulate a vertical resolution of not more than 0.25 m. ERSA specialists consider that in urban areas a vertical resolution of not more than 0.1 m is preferable for both flood and storm tide inundation modelling.

It is important that both flood and storm tide modelling be reviewed periodically, and where necessary, updated to match the seven-year planning scheme revision cycle so that it takes into account new and/or proposed developments within the catchment. Updates should also take account of the latest forecasts of climate change impacts on estimates of rainfall intensity and recurrence, as well as sea level rise.

Recommendation 4: LGAQ negotiate with DCS and DLG for a review of SPP 1/03 and State Coastal Management Plan guidelines relating to inundation hazards, with particular focus on guidance on an appropriate resolution for DEM used in inundation modelling. A requirement for this modelling to be reviewed and updated ahead of each planning scheme review is also desirable.

4.4.2 Landslide

SPP 1/03 establishes performance criteria for development in landslide-prone areas and guidelines for defining *natural hazard management area (landslide)*. There is currently no *natural hazard management area (landslide)* mapping available for a number of Queensland local governments. While the GIS staff of most councils would be able to undertake basic slope modelling, identified as the minimum requirement in SPP 1/03 (i.e. slopes of 15% or greater), such a simplistic classification is widely regarded as being inadequate. The most appropriate mapping of landslide hazards must take into account both slope and the susceptibility of different geological units to fail as set out in *Guideline for landslide susceptibility, hazard and risk zoning for land use planning* (AGS, 2007).

Here again, the resolution of the DEM used to generate the slope mapping component should not be less than 25 m.

Recommendation 5: LGAQ negotiate with DCS and DLG for a review of SPP 1/03 guidelines relating to landslide, with particular focus on the 'default' landslide threat zonation of 15% slope being revised to require specific reference to the lithology and the identification of a preferred minimum DEM resolution.

4.4.3 Bushfire

SPP 1/03 identifies those local governments required to take bushfire hazards into account in their planning schemes and establishes a methodology for the mapping of bushfire hazards. Granger and Schelling (2003) identified some minor modifications to the methodology. As with inundation and landslide hazards it would be appropriate for SPP 1/03 to provide guidance on the resolution of DEM for bushfire hazard modelling. ERSA recommends a grid resolution of not more than 25 m. Coarser resolution mapping, such as the 250 m resolution 'default' mapping provided by QFRS, 'flattens' the terrain by understating the slope and thus understates the hazard level, especially in steeper and more broken country.

When fire weather conditions become extreme (i.e. a combination of existing and forecast weather conditions, and estimates of fuel loads), under the *Meteorology Act 1995* (Cwlth), the Bureau of Meteorology is required to issue a public fire weather warning.

Local governments would benefit from more specific guidance on modelling, fuel loads and curing rates, to address bushfire risk derived from a combination of field measurement/observation and satellite imagery.

Recommendation 6: LGAQ negotiate with DCS and DLG for a review of SPP 1/03 guidelines relating to bushfire, with particular focus on guidance on an appropriate resolution for modelling in interface areas; more appropriate weights for aspect to reflect wind direction in local fire weather events; and a more comprehensive list of hazard potential scores vegetation or ecosystem types than is currently available.

It is not widely appreciated that the inclusion of areas as having either a high or medium fire hazard rating automatically brings into play the requirements of AS 3959-2009 (*Construction of buildings in bushfire prone areas*). It should also trigger a requirement for subdivisions to be designed in accordance with guidelines such as those provided in publications such as CSIRO and SA (1993) *Building in bushfire-prone areas – information and advice*, DHLGP and QFRS (1994) *Bushfire prone areas- siting and design of residential buildings*, or Ramsay and Rudolph (2003) *Landscape and building design for bushfire areas*. In the course of its study of SEQ local governments ERSA has identified several subdivisions in bushfire-prone areas, especially in Logan City, that do not conform with appropriate design standards.

Recommendation 7: LGAQ negotiate with DCS and DLP for advice on the application of AS 3959-2009 be included in the revision of SPP 1/03 and advice regarding sub-division design in bushfire-prone areas.

Paragraph 4.5 of SPP 1/03 states:

“As the hazards associated with strong winds and earthquakes are not amenable to clear spatial definition, they are difficult to address through land use planning mechanisms. Design and construction standards are the most appropriate mechanisms for mitigating risk from earthquakes and strong winds. The Standard Building Regulation specifies construction standards for buildings and most non-building structures. Therefore, strong winds and earthquakes are not addressed by this SPP.”

ERSA draws attention to the fact that in both the wind and earthquake load standards (AS 1170.2 *wind* and AS 1170.4 *earthquakes*) establish terrain or geological factors that should be taken into account in determining design requirements. The terrain factors in AS 1170.2 include distance from the shoreline, slope greater than 10% and land use-related factors, all of which can be mapped. Likewise, the geological ‘site classes’ established in AS 1170.4 are also readily mapped. Some jurisdictions already provide maps in their planning schemes to draw attention to the need to take those standards into account when approving developments.

Recommendation 8: LGAQ negotiate with DCS and DLP amend SPP 1/03 to take account of the spatially definable aspects of strong wind and earthquake and set down procedures for councils to include advisory overlay maps for both in their planning schemes.

Since commencement of SPP 1/03 in 2003 there have been several cases before the Planning and Environment Court appealing against a council's rejection of a development application based on its interpretation of the planning policy. ERSA specialists have become involved in some of these cases as expert witnesses, and it has been clear that there is a significant degree of inconsistency in the interpretation of the provisions of the planning policy, especially the term 'significantly increase' the population in a hazard-prone area as the result of a proposed development. In one such case the council rejected a development of the last vacant parcel of land in a flood-prone designated residential area that would have increased the population by not more than eight people. After considerable expense to both the developer and the council and delays of more than two years the two protagonists reached an out-of-court compromise and the land was developed. Around that time, the same council approved the development of a motel on the banks of the floodway in the same town.

It would be very useful for the findings of the Planning and Environment Court and any appeal court decisions to be researched to develop an appreciation of how SPP 1/03 is being interpreted by judges and to determine whether the policy needs to be modified to clarify its intent or to define terms such as 'significant increase'.

Recommendation 9: LGAQ negotiate with DCS for research into decisions by the Planning and Environment Court and any appeal court involving SPP 1/03 issues to determine whether the wording of the policies can be clarified to help councils to more consistently interpret and apply the policies.

4.5 Power to cancel events

Heatwaves pose a very serious and frequent threat to people in many parts of Queensland. Fatalities and/or numerous hospitalisations are likely to occur in most heatwave episodes. Community awareness of the heatwave threat is poor.

The exposure of people at mass gatherings, such as rock concerts, to heatwave is of concern to councils. The public and event organisers may react with outrage to cancellations due to personal inconvenience, costs incurred and loss of profits, despite these decisions being made in the interests of health and safety. Councils would benefit from clarity on their powers to cancel events where heatwave conditions are forecast, and the implications of cancellation, to ensure informed decision-making.

Recommendation 10: LGAQ seek advice on the legislated and common law powers and obligations of councils to cancel, on advice from Queensland Health, the permits for open-air daytime mass gatherings such as rock concerts, in the interests of public health, where these events are likely to occur during forecast heat weather episodes.

4.6 Model sub-plans

All local governments in Queensland follow the classic PPRR approach to disaster management. Several authors have observed that they tend to focus largely on the second 'P' (prepare) and first 'R' (respond). The second 'R' (recovery) in particular tends to be left to other agencies. That

approach leaves some significant gaps in the disaster management process. The most notable of these gaps in many local disaster management plans are the lack of:

- an infrastructure recovery sub-plan
- a business recovery sub-plan; and
- a community welfare sub-plan.

Development of model sub-plans by DCS would provide Local Disaster Management Groups with appropriate guidance to more directly engage the important infrastructure, business and social welfare sectors of their communities in the process. This would also reinforce the holistic emergency risk management and business continuity doctrine.

Recommendation 11: LGAQ recommend to DCS that model sub-plans be developed to provide guidance on planning for infrastructure recovery, business recovery, business continuity and community welfare activities during and following a disaster.

4.7 Critical infrastructure

Granger and Hayne (2001) stated:

“The loss or isolation of critical facilities such as hospitals, airports, cold stores, fuel depots and emergency service facilities will greatly magnify the impact of disaster on the community. Whilst such facilities remain exposed to disaster impact, plans to protect them are called for. Such protection may be as simple as ensuring the priority allocation of sandbags to the facility. It may be as routine as ensuring that the facility has an adequate uninterruptible power supply (UPS) or a stand-by generator with adequate fuel to cover the loss of reticulated power supply. Or it may embrace costly structural defences such as the construction of permanent protective berms or levees and the development of redundant capacity at other facilities to cope with the potential loss of one component in a critical system.”

The greater attention at national and state levels to critical infrastructure protection due to the perceived threat of terrorism should be exploited to address the far greater threat from natural hazards.

Recommendation 12: LGAQ request DCS to commission specific research and analysis of the full range of critical infrastructure, especially telephone exchanges and other telecommunication assets. If possible, that research should be modelled on the approach employed in Attorney General Department’s Critical Infrastructure Protection Modelling and Analysis Program (CIPMA) so that the information developed could be exchanged between the two systems.

4.8 Communication strategies

Granger and Hayne (2001) have observed:

“An effective strategy of risk communication is essential. For example, a typical public flood warning will be expressed in terms of a height on the reference flood gauge. Few people in urban

areas can translate that level, with any certainty, to their own property in terms of how high the water would reach. The value of the warning is consequently diminished because few individuals know what action they should take in response.”

A considerable amount of literature on risk communication has emerged over the past decade or so. The United States Environmental Protection Agency (EPA) approach devolves from the basic tenet that, in a democracy, people and communities have a right to participate in decisions that affect their lives, property and the things they value.

It is also important for community awareness programs to be sustained, and designed so that new residents, transients and tourists are covered. Given the number of people across Queensland from culturally and linguistically diverse backgrounds, it would be useful to develop local versions of the Logan City Council publication *Preparing for natural disasters – a guide for residents living in Logan City*, in languages that are widely spoken in the non-English-speaking community. Several non-government organisations, including the Australian Red Cross and Beyond Blue, have produced excellent community awareness material that should also be made as widely available as possible. Examples include *Emergency RediPlan: household preparedness for seniors* (ARC, 2009) and *Looking after yourself and your family after a disaster* (ARC and others, 2011).

Recommendation 13: LGAQ and DCS develop a guide for councils in preparing comprehensive disaster risk communications strategies, in association with response agencies, including a guide to development of household emergency management plans to be made available in major non-English languages and included in ‘welcome’ information packs for new residents.

The use of the electronic media to keep the community informed of an evolving emergency situation has become a fundamental tool for disaster managers. It can, however, be a double-edged sword if media presenters or commentators are able to become a focus for criticism of the preparedness, response or recovery activities. Such criticism can have a seriously destructive impact on the morale of disaster workers who are already operating under extremely trying conditions.

The Standard Emergency Warning Signal (SEWS) was used to precede emergency announcements in South-East Queensland for the first time in January 2011. Even after that application, it is unlikely that the community in the south of the State, who is not accustomed to seasonal cyclone warnings, is fully aware of the use of the sound and its significance to other natural and manmade emergency situations. There is a need to regularly inform the community as to the importance of SEWS and its use.

Recommendation 14: LGAQ and DCS, in consultation with response agencies, engage with electronic media outlets to establish procedures for communication with the community, including in languages other than English, to provide authoritative information ahead of, during and after an emergency. That liaison would also educate media proprietors and on-air commentators on the process of disaster management and use of SEWS when authorised.

4.9 Road closures

A number of entities have roles and responsibilities in relation to roads in Queensland. The Department of Transport and Main Roads (DTMR) is responsible for State-controlled roads under the *Transport Infrastructure Act 1994*. Under the *Local Government Act 2009* local governments are given responsibility for control of roads in their local government areas, although the term 'road' does not include State-controlled roads. A local government may construct, maintain or improve roads and make local laws to regulate the use of roads including the movement of traffic on roads, subject to State legislation.

Under section 69 of the *Local Government Act* a local government may close a road permanently or temporarily to traffic or particular traffic, if there is another road or route reasonably available for use by the traffic. A local government may also close a road during a temporary obstruction to traffic, if in the interests of public safety or if it is necessary or desirable to close the road for a temporary purpose. Section 70 allows temporary roads on adjoining land to be made where it is not practicable to close a road.

Councils have concerns that the position on powers and roles and responsibilities for closure and re-opening of roads once the floodwaters have receded is not clear. Minimising damage to roads and consequent costs to public funds is a priority for local governments and DTMR. Competing interests come into play, including local producers who need roads to open to transport their stock and crops to market. Pressures are placed on local communities when motorists are stranded and occupying evacuation centres or other temporary accommodation, and there are lengthy delays in delivery of much needed supplies. Trucking companies operate on tight schedules in delivering goods to regional centres.

Local governments are also concerned to ensure they are eligible for assistance under NDRRA for damage to flood-affected roads caused by heavy vehicles before adequate repairs can be carried out. Under the current 2009-10 guidelines claimants must satisfy a number of criteria to be eligible for assistance for restoration of essential public assets. A list of natural disasters is eligible, including floods, but there are exclusions. Events that are not eligible include those where human activity is a significant contributing cause (for example, poor environmental planning, commercial development, personal intervention (other than arson), or accident).

The guidelines state that restoration or replacement of certain essential public assets may be eligible where they were damaged as a direct result of a natural disaster. Where a road that was badly flood-affected was further damaged by heavy vehicle traffic using it before repairs were undertaken, it could be argued that this damage may be excluded from assistance on the basis of it not being directly caused by the natural disaster, because human activity was a significant contributing cause.

However, advice received from the Queensland Reconstruction Authority is that damage caused by heavy vehicles in these circumstances would tend to be covered by NDRRA, but would need to be assessed on a case-by-case basis. If the condition of the road was partly attributable to poor maintenance by the council then the amount of assistance may be reduced.

Recommendation 15: LGAQ initiate with the relevant State agencies a review of the legislation and policies relating to the management of council-controlled roads to prevent damage by heavy traffic following floods.

4.10 Post disaster surveys

Granger and Hayne (2001) stated that:

“...modern event experience: [until the 2011 floods much of Queensland] has not experienced any major disaster impacts for several years, so there has been little need for detailed Region-wide post-event research to be conducted Much of this post-event information, such as the recording of earthquake aftershocks, and flood levels is highly perishable – if it is not collected during the event it will be lost forever. Without such detail of real events it is not possible to reduce the uncertainty that exists in our models and input data. The requirement to collect key event information needs to be entrenched in the doctrine of disaster response, with appropriate resources identified in disaster plans and made available to undertake the collection and management of that information...”

In developing natural hazard risk studies under the NDRP, there has been some difficulty in obtaining information from councils on the experience of landslides, bushfires or severe storms in the last ten years. A number of councils do not appear to maintain a consolidated database or information archive on such issues. This could potentially place councils in a precarious legal position should repeat events occur and it can be shown that nothing was done to correct a known risk situation.

Recommendation 16: LGAQ and DCS develop guidelines to standardise the conduct of post-event surveys and studies.

Following significant hazard impacts, such as the 2011 floods, there is inevitably considerable interest shown by both local and international academics, the insurance industry and various public research agencies, such as the Bureau of Meteorology, Geoscience Australia and the CSIRO, to undertake their own research into specific aspects of the disaster event. It is important that such research does not interfere with response and recovery operations and that the results of that research be returned to the local community. It would be appropriate for the LDMG to be the focus for the coordination of all such external research. It may also be appropriate for DCS to develop guidelines for the conduct of post-event scientific investigations following major disasters along the lines of those developed by the international volcanological scientific community.

Recommendation 17: LGAQ recommend to DCS that guidelines be developed and circulated to the scientific community relating to the conduct and management of post-event studies and research by national and international academic and other researchers.

4.11 Disaster appeals

Major disaster impacts, such as a major cyclone or flood, inevitably give rise to the need to launch an appeal for public financial and other support, especially to assist households that are unable to cope financially with the impact. The coordination and administration of such appeals, if done poorly (as commonly happens), is a potential source of community outrage, and clear guidelines need to be established, based on the EMA manual *Economic and financial aspects of disaster recovery* (EMA, 2002).

Managing donations, other than cash, can cause problems for local governments in terms of storage, distribution, unwanted items and compliance with standards (e.g. electrical equipment). The State Disaster Management Group has endorsed the Queensland Government *Policy for Offers of Assistance – Donations, Volunteers and Goods in Disasters*, which provides a useful tool. The guideline for disaster appeals should encourage the public to donate cash wherever possible.

Recommendation 18: LGAQ recommend to DCS that it develop and publish guidelines for the coordination and administration of public disaster appeals.

4.12 Resettlement programs

The severe impact of the 2011 Lockyer Valley flood, in which some 200 houses were destroyed, led to the development of a flood-free subdivision at Grantham that was open to those residents who had been badly impacted. The land owned by people opting to move to the relocation subdivision was transferred to the Lockyer Valley Regional Council and quarantined from re-development.

The Grantham relocation subdivision was subsequently opened up to flood-affected people from other Lockyer Valley locations including Laidley and Helidon. The take-up of land in the Grantham subdivision by those people from other localities has, according to some reports, been inhibited by an unwelcoming (some say hostile) attitude of Grantham residents to these 'outsiders'. It is essential that the social dimensions of designing and implementing such relocation schemes be well researched and understood before they are implemented. Ideally such relocation schemes should be locality-specific and designed to simply relocate flood-affected residents to a flood-free location within the same community. This would reduce the trauma of not only suffering the great harm of a flood, but also being made a 'refugee' in an alien community.

Research and policy development on resettlement have been undertaken by a number of institutions within Australia and internationally. Useful guides that could be adapted for application in Queensland include the World Bank Global Facility for Disaster Risk Reduction 2011 *Populations at Risk of Disaster: A Resettlement Guide* and Shaw and Ahmed's 2010 *Design and Delivery of Post-Disaster Resettlement Programs: Case Studies from Sri Lanka and India*.

Recommendation 19: LGAQ seek agreement from the QRA to study the social and psychological issues associated with the development and take-up of sites within the Grantham relocation subdivision to inform better design and implementation of such schemes in the future.

5 FORUMS FOR ENGAGEMENT AND DECISION MAKING

Local governments have the opportunity to raise issues and seek solutions on disaster risk management through a number of forums. Existing mechanisms to discuss and resolve issues, rather than ad hoc approaches, can avoid duplication of effort, exclusion of relevant participants or issues being dealt with in isolation rather than as part of an informed, holistic approach.

As forums are in place with State and local government representation, consideration should be given to the appropriate existing forum or forums in which to raise these issues.

The State Disaster Management Group (SDMG) is the peak committee in Queensland, with membership of State Government departments' directors-general, Australian Defence Force, Australian Red Cross and LGAQ representation. LGAQ could raise local government concerns on issues and seek input from relevant government departments on decisions on ways forward. The Alliance between the LGAQ and DCS could also be used as a forum for raising these concerns.

Where positive relationships exist with particular senior officers of relevant departments, they could be approached to gauge their views and garner support before raising the issues in the broader State Government context.

A local government conference or other forum could be held to discuss the issues and reach consensus on policy positions and the best way to take the issues forward to the State Government and other decision-makers. Some issues would require both State and Commonwealth Governments' engagement and endorsement. Roundtables with defined agendas held under the auspices of the SDMG or Alliance could be convened to focus on priority issues and provide platforms for developing collaborative solutions with relevant agencies (such as education authorities) across levels of government.

On national issues, discussions could also be held with local government bodies from other states and territories to seek support and jointly lobby for changes. For significant issues, existing committees such as the National Emergency Management Committee and the Standing Council on Police and Emergency Management agendas could be high-level forums for discussion and agreement on future direction. ALGA is represented on these committees.

If actions are supported and endorsed, appropriate governance arrangements should be established to ensure there is clear accountability and that progress is made. This should include an implementation plan signed off by relevant players. An existing forum such as the SDMG could be used to oversee actions. Dedicated resources with relevant expertise and experience are important to ensure progress.

Both the Queensland and Commonwealth Governments are currently experiencing budget challenges, and have taken measures to cut spending on a range of programs. In this environment it may be difficult for local governments to negotiate greater contributions from these levels of government. However, events such as the 2011 Queensland floods demonstrate the value of investment in infrastructure, planning and preparedness, and the benefits of collaborative partnerships, clarity and appropriate authority to act in the interests of community safety and resilience.

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