Australian Government

Government of South Australia

Central
Local Government Region of South Australia
Incorporated under provisions of the Local Government Act

REGIONAL

NATURAL DISASTER

AND

RISK MITIGATION

STRATEGY

Endorsed by the Natural Disaster Planning & Risk Mitigation Steering Committee

April 2008

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The Natural Disaster Planning & Risk Mitigation Steering Committee; CLGR of SA

The Natural Disaster Planning & Risk Mitigation Regional Project Group

Stephen Kerrigan, Gawler Council, formerly Steering Committee Chairperson, Regional Council of Goyder

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John Salter of EPCB Risk Management Services, www.emergencyriskmanagement.com

PARTNERSHIPS

Australian Government
Department of Infrastructure, Transport, Regional Development and Local Government
Natural Disaster Mitigation Program

Government of South Australia
Department of Premier and Cabinet

Office of State/Local Government Relations
Local Government Disaster Relief Fund

Local Government Association of South Australia
Local Government Research and Development Scheme

Central Local Government Region of South Australia

FOREWORD

I commend this report to the Central Local Government Region of South Australia

The Natural Disaster Planning and Risk Mitigation Project had its genesis several years ago when a group of people interested in emergency risk management saw the need for a regional examination of this issue that would be performed at the "local level".

The Project evolved as a partnership between the three levels of government: Federal, State and Local and the assistance of these three tiers is gratefully acknowledged.

The Project recognizes that emergencies and disasters are a fact of life but that their impact on a community can be minimised by good management.

The co-operation of the member councils of the Region in supporting this project has been important in its success.

Member councils have worked collaboratively to produce a "model template" which conforms to the national emergency risk management standard, and that can be applied to identify, assess and treat risks uniformly across the region.

The approach and process applied is readily transferable to other councils and regions.

The project has been an important step in developing collaborative arrangements for the sustainability of emergency management planning in the Central Local Government Region of SA.
.

I look forward to the continued involvement and participation by member councils in this on going process.

James Maitland
Chairperson
Central Local Government Region of South Australia

EXECUTIVE SUMMARY

Context

The report details the activities undertaken and outcomes achieved in conducting a natural disaster planning and risk mitigation project for the Central Local Government Region of South Australia.

The most important long term outcome of the project is the development of collaborative arrangements for the sustainability of natural disaster mitigation within the fifteen Councils that make up the communities of the Region.

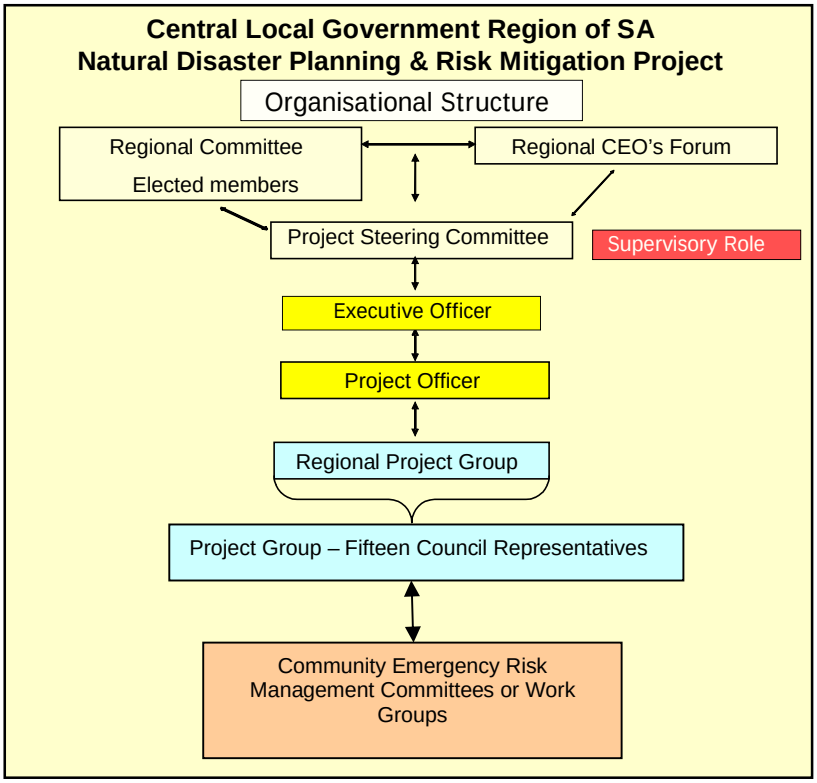
The project has been conducted under two separate programs, namely the:

1. National Natural Disaster Mitigation Program; *aimed at identifying and addressing natural disaster risk priorities across the nation*, and
2. State Safe SA Communities program; *how to minimise the impact of emergencies on South Australian Communities.*

Funding for the project was provided by the Australian Government, the Government of South Australia and the Local Government Association of South Australia with "in kind" support from member councils of the region.

Structure

A Regional Steering Committee was established to give direction and supervision, and a project officer appointed to undertake day to day work.

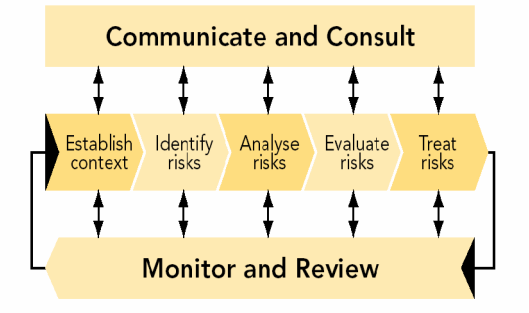


Each council nominated a representative from their staff to a Regional Project Group, the members of which participated in training and on going regional forums. Individual councils established working groups or committees to develop community emergency risk management plans.

Process

The Australian Risk Management Standard 4360 was the underlying methodology used to produce the plans. Principal references used were the *Safe SA Communities Guide* and the Emergency Management Australia's: *Emergency Risk Management Applications Guide*.

The process model is depicted in the opposite diagram which is taken from the Safe SA Communities Guide.



A series of eight forums, designed to inform the group of emergency management systems and issues, was conducted during the course of the project.

Information from these forums was published on a group web site as an ongoing and accessible resource.

A template was developed, through the collaboration of the regional project group, for the production of the Community Emergency Risk Management Plans.

Plans will be uploaded to the Regional website at the conclusion of the project.

THE PROJECT

a) Local Council Area Approach

- A local area approach has been employed to identify and assess major risks.
- The process has emphasized local involvement.

b) Model Approach

The approach adopted is transferable to local government elsewhere in non-metropolitan South Australia.

Emphasis has been placed on:

- Simplicity – use of a three step process conforming to the Australian Risk Management Standard of:
    1. Context,
    2. Assessment
    3. Treatment
- A straight forward approach
- Minimal use of expensive, high level technical data
- Use of easily accessible resources at minimal cost (e.g. Census data, internet maps, Google earth)
- Regular group forums through out the life of the project to advise on and address issues and promote regional co-operation
- A collaborative approach by the member councils to develop a plan template with accompanying assessment criteria
- Local ownership of plans – council staff have driven the planning and consultation process.

c) Council Emergency Risk Management Plans

The fifteen Councils comprising the region have either completed or are in the process of completing the initial framework for the production of their emergency risk management plans that will enable them to meet their statutory obligation under Section 7 of the Local Government Act.

d) Regional Report

- A report covering the whole region, which identifies and maps major risks facing councils and their communities has been produced.
- The risks have been assessed to the Australian Risk Management Standard (AS/NZS 4360:2004).
- There has been a strong emphasis on a risk based approach.
- Treatments have been recommended and grouped.

Hazards Identified

Floods	Windstorms	Animal or Plant Disease
Flooding Coastal/Tidal	Transport Accident	Animal or Plant Infestation
Fire Urban	Hazardous Material Spill	Landslide
Fire Bush	Critical Infrastructure Failure	Earthquake
Pandemic Influenza	Climate Change	

Regional Risks

A table showing risks identified by the project group, across the region, is shown on the following page.

Climate Change

The issue of climate change has not been addressed in detail by the project group, although it was recognised as an issue that should be further explored.

Unlike emergency events which are usually sudden and difficult to predict, climate change is pervasive and gradual.

A brief insight, based on latest research, has been given in the report, of the possible effects that this phenomena may have on communities within the region.

Pandemic Influenza

The possibility of an out break of pandemic influenza has been addressed at the State level. The regional project group recognises the impact of such an event and has in general referred it to their council's to include in their Business Continuity Planning.

Emergency Management Arrangements

Emergency management arrangements are the responsibility of the State government. A regional structure, referred to as Zones, which equates to Police Local Service Areas, that cover the entire State, has been established as a result of the introduction of the Emergency Management Act 2004.

The respective roles of Zone Emergency Centres (ZEC) and Zone Emergency Management Committees needs clarification.

The concurrent establishment of these two entities has brought with it a response dominated focus at the committee level, that should be replaced by a more mitigative, strategic one based on the State emergency management planning framework.

Successful operation of the Zones will be dependent on the inclusion and engagement of local government in the planning process and will require the allocation of adequate resources by the State government to develop and implement strategies.

2008 RISK LEVELS

Risk Level Mapped Against Council Area for Identified Hazards

EXTREME RISK: Act immediately to mitigate the risk.

HIGH RISK: Act immediately to mitigate the risk. If these controls are not immediately accessible, set a timeframe for their implementation and establish interim risk reduction strategies for the period of the set time frame.

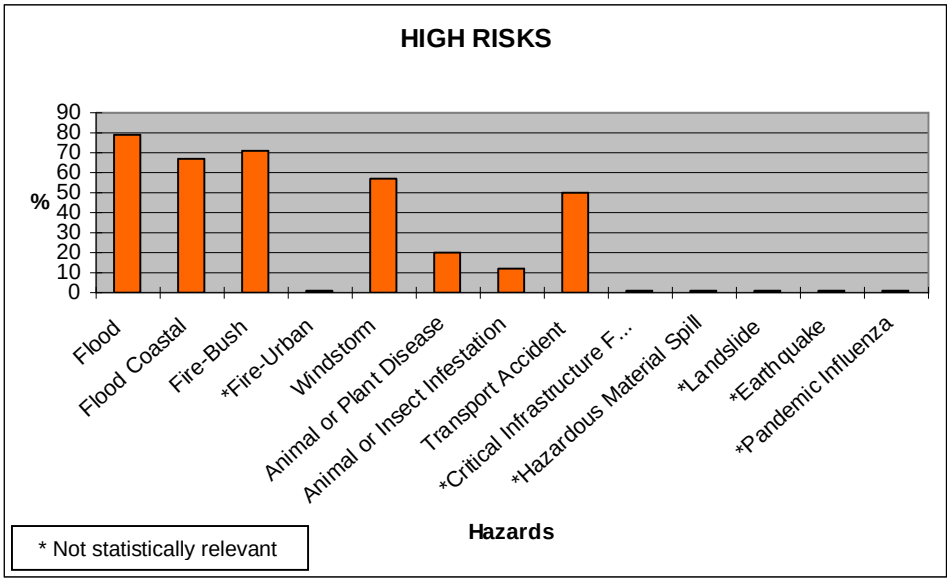
MEDIUM RISK: Take reasonable steps to mitigate the risk. These "lower level" controls should not be considered permanent solutions. The time for which they are established must be based on risk. At the end of the time, if the risk has not been addressed a further risk assessment must be undertaken.

LOW RISK: Take reasonable steps to mitigate and monitor the risk. Institute permanent controls in the long term. Permanent controls may be administrative in nature if the hazard has low frequency, rare likelihood and insignificant consequence.

Risk Level Matrix

HB 4360:2004 p55 **Likelihood**	**Harmful Consequences**				
	Insignificant E	Minor D	Moderate C	Major B	Catastrophic A
5. Almost certain	Med	High	High	Extr.	Extr.
4. Likely	Med	Med	High	High	Extr.
3. Possible	Low	Med	High	High	High
2. Unlikely	Low	Low	Med	Med	High
1. Rare	Low	Low	Med	Med	High

Council	Flood	Flood Coastal	Fire - Bush	Fire - Urban	Windstorm	Animal or Plant Disease	Animal or Insect Infestation	Transport Accident	Critical Infrastructure Failure	Hazardous Material Spill	Landslide	Earthquake	Pandemic Influenza	Climate Change	
Barossa															
Barunga West															
Clare & Gilbert															
Copper Coast															
Flinders Ranges															
Goyder															
Light															
Mallala															
Mt Remarkable															
Northern Areas															
Orroroo/Carrieton															
Peterborough															
Pt Pirie															
Wakefield															
Yorke															



Comments on the Risk Levels

Flooding - *largely flash flooding caused by thunderstorms*
- 78% of councils who identified flooding as a risk, attributed a high risk level

Flooding Coastal - *combined tidal and weather effect*
- 66% of councils who identified coastal flooding as a risk, attributed a high risk level

Fire – *where there are vegetated hills there is a problem – South Flinders Ranges high risk area*
- 71% of councils who identified fire as a risk, attributed a high risk level

Windstorm – *recognised across the region as being a recurrent problem*
- 57% of councils who identified windstorms as a risk, attributed a high risk level

Animal or Plant Disease – *Horse flu has raised the profile of animal disease*
- 20% of councils who identified animal or plant disease as a risk, attributed a high risk level

Animal or Insect Infestation – *locusts are the issue – PIRSA control programs essential*
-12% of councils who identified animal or insect infestation as a risk, attributed a high risk level

Transport Accident – *public perception rates this type of incident highly*
- 50% of councils who identified transport accident as a risk, attributed a high risk level

Critical Infrastructure failure – *concern on the Yorke Peninsula about electricity supply failure*
- 25% of councils who identified critical infrastructure failure as a risk, attributed a high risk level

Major Treatments

GOVERNANCE: Aligned to Australian Emergency Management best practice, good governance equates to a comprehensive, integrated risk management approach, incorporating all hazards and all agencies.

1. **Recommendation**: Scope council involvement with Zone Emergency Management Committees
   ***Rationale**: Zone emergency management committees are a vehicle into the State planning mechanism for the consideration of local government concerns about emergency management issues*
2. **Recommendation:** Development of emergency response plans focusing on an "all agencies" approach
   ***Rationale:** Local government needs to be included in the "loop" for response planning because of its intimate knowledge of local conditions*
3. **Recommendation:** Development of communication protocols between councils and control agencies during emergency events
   ***Rationale:** Protocols required for council involvement at the operational and community level*
4. **Recommendation:** Development of a regional strategy for the sustainability of natural disaster mitigation
   ***Rationale**: A mechanism needs to be adopted to make Community Emergency Risk Management sustainable in the long term*
5. **Recommendation:** Ongoing regional collaboration through annual scenario exercises
   ***Rationale:** Scenario exercises allow a practical opportunity for networking and regional collaboration*
6. **Recommendation:** That all schools in the Region be encouraged to perform risk management assessments with respect to emergency situations that is in line with the DECS Risk Management Framework
   ***Rationale:** The Regional Project Group identified schools and school bus routes as being vulnerable to a range of emergency events, particularly fire and flood.*

EDUCATION AND PUBLIC AWARENESS: Communities informed and prepared for the management of disasters have greater resilience to cope with the adversity

7. **Recommendation:** Expansion and development of public awareness campaigns for disaster events
   ***Rationale:** Vulnerable people within communities, should be identified and targeted*
8. **Recommendation:** Explanation of emergency risk management arrangements to elected members and staff
   ***Rationale:** The role of Control Agencies in the management of emergencies is of particular importance*
9. **Recommendation**: Promote Bureau of Meteorology weather watch warnings awareness & understanding
   ***Rationale:** Lessons learned from the Virginia floods of November 2005 indicated that although Flood Warnings were issued well in advance of the event, many in the community did not understand or comprehend the warnings and what they meant to them personally*
10. **Recommendation:** Promotion of awareness of recovery protocols
    ***Rationale:** Recognition and knowledge of State Recovery protocols that allows quick access to assistance*
    Understanding of Disaster Relief Appeals
11. **Recommendation:** Promotion of "volunteering"
    ***Rationale:** Declining volunteer numbers are a regional issue. New ways of attracting and keeping volunteers are needed*
    Competency standards especially for fire fighting e.g. council staff – who pays & when is it done

12. **Recommendation:** Promotion of business continuity planning to address the effects of pandemic influenza
    Rationale: *Appropriate planning needs to occur at the council level and at the "grass roots" community level to counteract the impact of such an event*

IDENTIFIED PROJECTS:

13. **Recommendation**: Lobby for Pt Pirie tidal flood mitigation works
    Rationale: *Scenario development of a major flood event has indicated that a significant part of the City is currently at risk*
14. **Recommendation:** Risk assessment of the Gawler River Flood Plain to identify vulnerabilities of a 1:100 year flood event
    Rationale: *Release of a hydrological study (February 2008) has identified that considerable property and infrastructure is at risk of flooding*
15. **Recommendation:** Lobby for Clare Flood Mitigation Scheme as proposed in the Wakefield's Group Strategy Report
    Rationale: *An engineering study has recommended a flood retardant dam to reduce the risk of flooding to the town of Clare from a 1:100 year event*
16. **Recommendation:** Support Peterborough flood mitigation study
    Rationale: *Anecdotal and historical evidence indicates a high risk of a major flood*
17. **Recommendation:** Development by an "all agencies" approach of a Bushfire Emergency Risk Management Plan for the South Flinders Ranges
    Rationale: *Identified by affected councils as being a high fire risk area*
    The major fires in 1988 provide anecdotal evidence that a similar event could occur with devastating results
18. **Recommendation:** Review of river flood monitoring stations in the region and assessment of the need for additional ones
    Rationale: *Ongoing refinement of warning systems*
19. **Recommendation:** Support further survey and flood mapping of the Burra catchment including assessment of the need for an additional heavy rainfall warning system.

    Rationale: *Flooding at Burra has been a recurrent and ongoing problem*
20. **Recommendation:** Support Cradock flood mitigation study
    Rationale: *Heavy rains in November 2005 demonstrated the town's vulnerability to flood*

Wirrabara Forest Fire

INTRODUCTION

Council of Australian Governments

The Council of Australian Governments (COAG) is the peak intergovernmental forum in Australia. COAG comprises the Prime Minister, State Premiers, Territory Chief Ministers and the President of the Australian Local Government Association (ALGA).

In December 2003, COAG gave in-principal approval to the recommendations of the report, *Natural Disasters in Australia: Reforming mitigation, relief and recovery* [1]. The report undertook a review of the way Australia manages natural disasters.

The report noted that:

Natural disasters such as floods, bush-fires and tropical cyclones occur regularly across the Australian continent. They cause more than $1.14 billion damage each year to homes, businesses and the nation's infrastructure, along with serious disruption to communities. Scientific research indicates that more extreme weather events, and large-scale single events with more severe cyclones, storms and floods, are expected.

Following the release of the report the COAG agreed to implement some of the measures recommended. These measures included a proposal for a five year Disaster Mitigation Australia package of which the Natural Disaster Mitigation Program (NDMP) is a key component.

Natural Disaster Mitigation Program

The Natural Disaster Mitigation Program is an initiative designed to assist State and Local agencies in the implementation of natural disaster mitigation works, measures and related activities aimed at protecting townships and communities in urban, rural and regional areas.

Funding

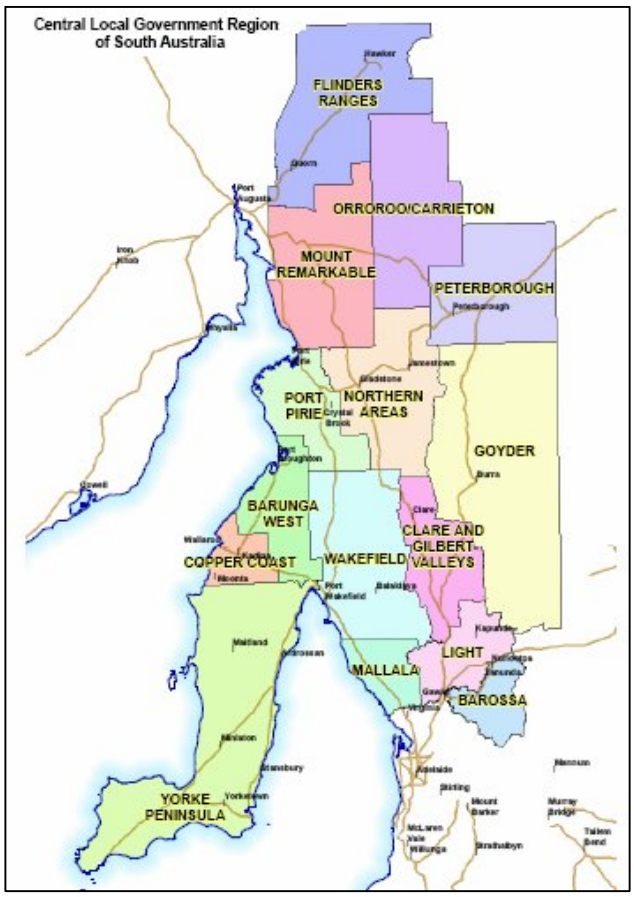
This project, sponsored and supported by the Central Local Government Region of South Australia has been a co-operative funding arrangement between the Australian Government, the Government of South Australia and the Local Government Association of South Australia.

Wonoka Creek in Flood, Hawker 2007

[1] *Natural Disasters in Australia: Reforming mitigation, relief and recovery arrangements.* A report to the Council of Australian Governments by a high level officials' group. August 2002

The Central Local Government Region of South Australia

The Central Local Government Region of South Australia (CLGR of SA) is a collection of fifteen diverse local councils bounded by Barossa Council in the South, Flinders Ranges Council in the North to the District Council of Yorke Peninsula in the West.



The administrative body, the CLGR of SA was established in 1998 under Section 200 of the Local Government Act 1934 as a controlling authority and continues in existence and as a regional subsidiary of its establishing councils under Part 2 of Schedule 2 of the Local Government Act 1999 by virtue of the provisions of Section 25 of the Local Government (Implementation) Act 1999.

The role of the CLGR of SA is broadly to:

- Provide leadership, coordination, representation and advocacy for Local Government on regional issues
- Facilitate, coordinate and undertake region-wide activity for the benefit of Council communities
- Foster strong and positive relationships with key stakeholders including government, other regional organisations, private enterprise and the community
- Support and encourage collaboration with regional local government associations
- Encourage cooperation between Constituent Councils
- Maintain sound organisational governance practices

Geographical Diversity of the Region

Rainfall

A wide variation from the relative high of 500mm in the Barossa area to the arid north of the Flinders Ranges Council where annual precipitation is usually less than 100mm.

Natural Features

Coastal shorelines including mangroves, open grassland plains, undulating ranges, rugged ranges and desert landscapes.

Temperature

Average annual minimum temperatures from 3ºC - 6ºC in the south to 9ºC - 12ºC in the north of the region.
Average annual maximum temperatures from 18ºC - 21ºC in the south to 24º - 27ºC in the north of the region.

Vegetation

Chenopod scrubland, tussock sedgeland, hummock grassland, open heath, low open woodland & open forest

Area & Population

Its area is approximately one quarter of the incorporated area of the State and holds about a third of the States population that is located outside the metropolitan area.

Local Government Area	Population *	Area km^2
Barossa	20,757	912
Barunga West	2,579	1,582
Clare & Gilbert Valleys	8,275	1,842
Copper Coast	11,640	773
Flinders Ranges	1,730	4,198
Goyder	4,126	6,681
Light	12,016	1,276
Mallala	7,902	927
Mt Remarkable	2,842	3,413
Northern Areas	4,628	3,070
Orroroo/Carrieton	950	3,263
Peterborough	1,843	3,100
Pt Pirie	17,480	1,761
Wakefield	6,567	3,469
Yorke Peninsula	11,720	5,834
Total	**115,055**	**42,101**
*Source ABS Census 2006		

Regional Economy

Gross regional product (GRP) is a measure of the net contribution of an activity to the regional economy. Contribution to GRP is measured as the value of output less the cost of goods and services (including imports) used in producing the output. The CLGR Water Supply Investigation 2005 [2], extracted data from a number of sources and derived the net contribution of various industry sectors to the GRP.
Using this data and summarising, the percentage of GRP contributed by the major regional industries is:

	%
Agriculture (excl wine & beverages)	18
Wine and beverages	16
Public Admin., Ed. & Health Services	12
Wholesale & retail trade & Accommodation	10
Ownership of dwellings	8
Building Construction	6
Metals, Machinery & Manufacturing	5
Property, business & personal services	5
Transport & storage	3
Communication, Finance & Insurance	3
Other	14
	100

Although not separately defined in the above statistics, the tourism industry is an important contributor to the region with areas such as the Barossa, Clare Valley, Flinders Ranges and the seaside attractions of the Yorke Peninsula being high profile tourist destinations of the State.

[2] Tonkin Consulting, CLGR Water Supply Investigation 2005

Day and overnight visitations contribute substantially to the regional economy. Collation of figures from a Visitor Survey[3] indicates that visitors to the region spend in excess of $400 million annually.

Regional Market Summary 2005				
Region	**Domestic day**	**Over night**	**Total**	**Av./day**
Yorke Peninsula	525,000	399,000	924,000	2,534
Flinders/ Outback ***	444,000	560,000	1,004,000	2,750
Clare Valley	327,000	174,000	501,000	1,372
Barossa Valley	859,000	222,000	1,081,000	2,961
Total	**2,155,000**	**1,355,000**	**3,510,000**	**9,617**
*** includes towns outside the CLGR - est. reduction of the order of 50%				

Any risk assessment or emergency planning needs to take into account the high number of visitors that may be in the region at any given time.
Additionally any degradation of the environs of the region, perceived or otherwise, that might lead to a substantial decline in tourists visiting the region should be viewed with concern as the economic impact could be substantial.
This has been a noticeable flow on effect from the recent fires on Kangaroo Island [4]

Storm Surge at Port Broughton

[3] Tourism Research Australia Visitor Survey 2005. Website: www.tourism.sa.gov.au
[4] Tourists urged not to shun Kangaroo Island, Advertiser 10 December 2008

LEGISLATION

The Australian Constitution states that each of the States and Territories is responsible for the protection of its citizens. The Australian Government has a role to assist where a State or Territory is unable to meet a need or seeks assistance, but the primary role lies with the respective States/Territories. [5]

The South Australian Government:

- Has primary operational responsibility to respond to an emergency or disaster in this jurisdiction;
- Maintains policies, legislation and plans;
- Determines prevention strategies and operational responses to threats and may seek assistance from, or provide assistance to, other jurisdictions;

The Australian Government:

- Is committed to developing national emergency management capabilities;
- Assists states in developing their emergency management capabilities;
- Supports the States and Territories in responding to disaster and emergency incidents in their jurisdictions;

Principal legislative acts concerned with emergency management in South Australia are:

Emergency Management Act 2004

The Emergency Management Act establishes strategies and systems for the management of emergencies in the State.

The Emergency Management Act defines an emergency as:

An event that causes, or threatens to cause –

The death of, or injury or other damage to the health of, any person; or
The destruction of, or damage to, any property; or
A disruption to essential services or to services usually enjoyed by the community; or
Harm to the environment, or to flora or fauna.

It notes –

This is not limited to naturally occurring events (such as earthquakes, floods or storms) but would, for example, include fires, explosions, accidents, epidemics, hi-jacks, sieges, riots, acts of terrorism or other hostilities directed by an enemy against Australia.

State Emergency Management Committee (SEMC)

The SEMC is a strategic planning committee that reports to the Emergency Management Council on matters that relate to the preparedness of the State against identified hazards or protective security matters. The SEMC is chaired by the Chief Executive, Department of the Premier and Cabinet and the committee members include:

- the Chief Officers of the Emergency Services,
- the Commissioner of Police,
- Chief Executive Officers of State Government agencies with Emergency Management responsibilities
- a Local Government representative.

[5] State Emergency Management Plan Ver 1.1 September 2007

State Emergency Management Plan (SEMP)

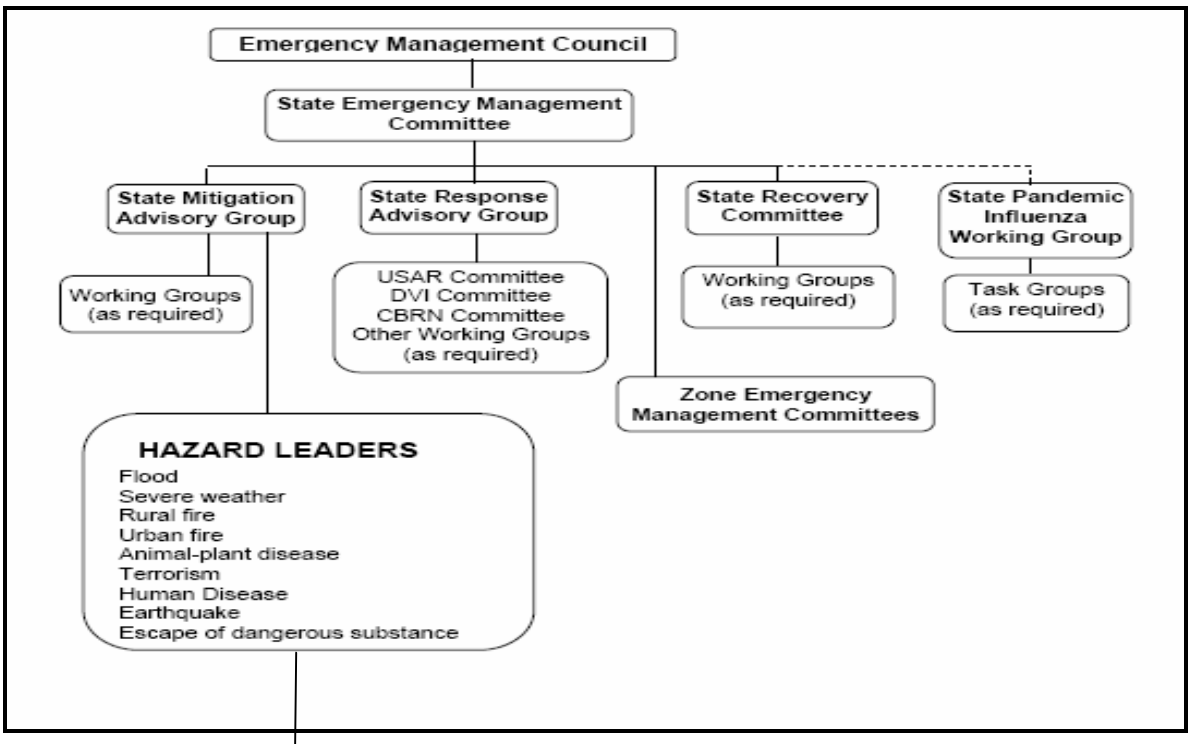
The preface to the SEMP (amongst other things) states that:

The State Emergency Management Plan (SEMP) outlines responsibilities, authorities and the mechanisms to prevent, or if they occur manage, and recover from, incidents and disasters within South Australia.

It goes on to say that:

The SEMP relies on strong cooperative, coordinated and consultative relationships among State Government agencies and Local Governments which will also be required to maintain effective relationships with other service and equipment owners and operators to ensure that an efficient and coordinated response can be made to any incident or disaster. State Government agencies and Local Governments acting to prevent, respond to, investigate and recover from incidents in South Australia, will base their plans on the SEMP.

S.A. Emergency Management Committee Structure



HAZARD LEADERS	
Hazard	**Hazard Leader**
Animal and Plant Disease	Dept of Primary Industries and Resources
Earthquake	To be determined
Escape of Dangerous Substances	Safe Work SA – Dept of Premier & Cabinet
Flood	Dept of Water, Land and Biodiversity Conservation
Human Disease	Dept of Health
Rural fire	S.A. Country Fire Service
Severe weather	S.A. State Emergency Service
Terrorism	S.A. Police
Urban fire	S.A. Metropolitan Fire Service

Advisory Committees

The SEMC may establish advisory groups for the purpose of advising it, or carrying out functions on any related emergency management matter.
At the present time there are three advisory committees, namely:

- State Mitigation Advisory Group
- State Response Advisory Group, and
- State Recovery Committee.

Hazard Leaders

A hazard leader is the agency which, because of its legislative responsibility or specialised knowledge, expertise and resources undertakes a leadership role for planning emergency management activities pertaining to the prevention of, preparedness for, response to and recovery from a specific hazard. The role is to lead a multi-agency approach to planning for the identified hazard. Each Hazard Leader is required to provide an oversight role to the total planning of all agencies relative to their particular hazard. The Hazard Leaders will report to the SEMC through the State Mitigation Advisory Group (SMAG).

Functional Services

Functional Services are a group of agencies that perform functional roles that support response and recovery activities during an emergency. Functional Services contribute to the coordination role of the State Emergency Centre (SEC). A State Controller heads each functional service.

Functional Services in the SEC include:

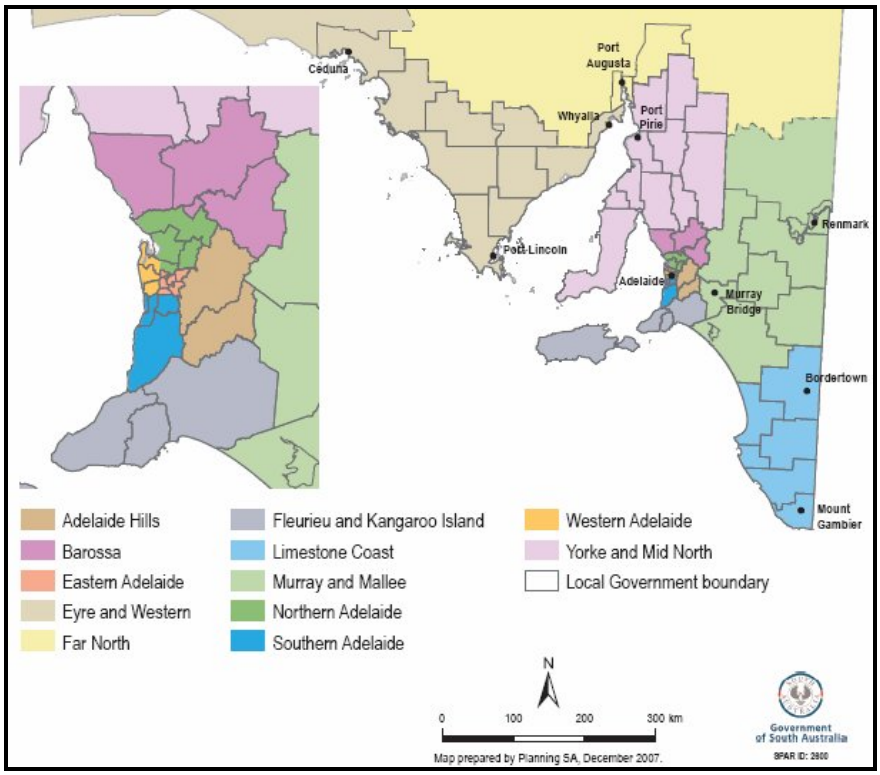
- Agriculture and Animal Services ***
- Ambulance and First Aid
- Engineering ***
- Fire ***
- Health and Medical ***
- Police
- State Emergency Service ***
- Community Services
- Media
- Communications
- Defence Force (SA)
- Logistics – Catering and Supply
- Transport ***

*** Local Government is listed as a participating organisation (sometimes referred to as a support agency) to six of the Functional Services

Emergency Management Zones

The country area is divided into Emergency Management Zones. These Zones are based on Country Police Local Service Area Boundaries. The Zones as proposed by the Government Reform commission are shown on the accompanying map.

South Australian Government Boundaries [6]



The Zones are responsible for the preparation of local emergency management plans and their execution in the event of an emergency. Zone Emergency Management Committees have representatives from the local area who collectively can consider all aspects of prevention, preparedness, response and recovery, including representatives from Functional Services, Local Government and possibly representatives from significant business or industries located within the Zone boundaries.

There are three zones across the CLGR. The division of member councils between these zones is listed in the table below.	
Local Service Area	Councils
Yorke & Mid North	Barunga West Clare & Gilbert Valley Copper Coast Goyder Mt Remarkable Northern Areas Ororoo/Carrieton Peterborough Pt Pirie Wakefield Yorke Peninsula
Far North	Flinders Ranges
Barossa	Barossa Light Mallala

[6] http://www.planning.sa.gov.au/go/maps/-land-and-population-data/sa-government-regions

Control Agencies

The aim of response operations is to save lives, protect property and make an affected area safe. Response relates to the activities of combating an emergency and the provision of rescue and immediate relief services for emergency affected people. Every emergency has a designated Control Agency which is responsible for its overall management. Further emergency services and support agencies may be brought in to assist. The State Emergency Management Plan details the Control Agencies and the type of emergency incident they are responsible for:

Type of Emergency Incident	**Control Agency**
Aircraft accident	SAPOL
Animal, plant & marine disease	Dept of Primary Industries and Resources
Bomb threat	S.A. Police (SAPOL)
Earthquake	SAPOL
Fire (Rural and Metro)	S.A. Country Fire Service (SACFS) or S.A. Metropolitan Fire Service (SAMFS)
Flood	S.A. State Emergency Service
Food/drinking water contamination	Dept of Health
Information and communication technology (ICT) failure	Department of Transport, Energy and Infrastructure (DTEI)
Fuel, gas and electricity shortages	Department of Transport, Energy and Infrastructure (DTEI)
Hazardous or Dangerous materials emergencies	SACFS or SAMFS
Siege/Hostage	SAPOL
Human epidemic	Dept of Health
Marine transport accidents	SAPOL
Oil spills – marine & inland waters	Department of Transport, Energy and Infrastructure (DTEI)
Rail accident	SAPOL
Road / transport accident	SAPOL
Search and rescue – land and sea	SAPOL
Search and rescue – structure (USAR)	SAMFS or SASES
Severe weather	SASES
Terrorist incident	SAPOL

Fire and Emergency Services Act 2005

This Act establishes the South Australian Fire and Emergency Services Commission. (SAFECOM) It also provides for the continuation of:

A metropolitan fire and emergency service, (SAMFS)
A country fire and emergency service; (SACFS)
A State emergency service. (SES)

These services have the responsibility for the prevention, control and suppression of fires and for the handling of certain emergency situations.

The Act repeals the Country Fires Act 1989, the South Australian Metropolitan Fire Service Act 1936 and the Emergency Services Act 1987.

SA Metropolitan Fire Service

The commission can establish fire districts for the purpose of the operation of the SA Metropolitan Fire Service.

Fire Districts

Kapunda	Tanunda	Peterborough	Burra
Pt Pirie	Wallaroo	Kadina	Moonta

SA Country Fire Service

Areas outside of a fire district are the responsibility of the SA Country Fire Service.

One or more rural councils must establish bushfire prevention committees, for their areas, (Section 76) whose functions include assessing the extent of fire hazards and preparing plans for the prevention of bushfires within their area.

Councils may also be required to have a representative on regional bushfire prevention committees established by the Chief Officer of the SACFS (Section 73)

The Act also states that councils have a duty to prevent fires on private land in their council area. (Section 83)

SA State Emergency Service

The SA State Emergency Service (SASES) has the following functions:

- To assist the Commissioner of Police in dealing with any emergency
- To assist the State Coordinator, in accordance with the State Emergency Management Plan, in carrying out prevention, preparedness, response or recovery operations under the Emergency Management Act 2004
- To assist SAMFS and SACFS in dealing with any emergency;
- To deal with an emergency –
    - where the emergency is caused by flood or storm damage; or
    - where there is no other body or person with lawful authority to assume control of operations for dealing with the emergency;
- To respond to emergency calls and, where appropriate, provide assistance in any situation of need whether or not the situation constitutes an emergency;
- To undertake rescues

State Emergency Relief Fund

The State Emergency Relief Fund (SERF) is established under the Emergency Management Act 2004 to administer publicly donated and charitable funds collected following disasters.

Local Government Act 1999

Under Section 7 of the Local Government Act, a Council is required to:

- take measures to protect its area from natural and other hazards and to mitigate the effects of such hazards
- provide infrastructure for its community and for the development within its area (including infrastructure that helps to protect any part of the local or broader community from any hazard or other event, or that assists in the management of any area)

Section 298 of the Act allows councils to take action to avert or reduce danger to life or property if flooding has occurred in its area or is believed to be imminent.

THE PROJECT

The CLGR has entered into an agreement with the State Government of South Australia as part of the Natural Disaster Mitigation Program (NDMP) to implement the Region's Disaster Planning and Risk Mitigation Project, which aims to enhance sustainable community safety in the communities located within the CLGR of South Australia.

A fundamental premise of this project is the development of collaborative arrangements between councils to enable the planning of effective strategies that will allow the utilisation and sharing of resources to mitigate against natural disasters in the region.

The project will assist councils in the preparation of community emergency risk management (CERM) plans thus enabling them to meet the requirements of the Local Government Act.

The co-operative development of a "model" approach for the production of CERM plans, transferable to other councils, is an important part of the project.

The Australian Risk Management Standard 4360 was the underlying methodology used to produce a CERM Plan Template and associated risk assessment criteria.

The project is seen as one of the measures that is being implemented by the SEMC to re-establish contact with local councils in South Australia [7]

PROJECT STRUCTURE

An organisational chart is provided in the Executive Summary on p6.

Project Group members at a forum in Clare

[7] SASES Annual Report 2005, p46 - 47

PROJECT APPROACH

A Regional Steering Committee was established to give direction and supervision, and a project officer appointed to undertake day to day work.

Each council nominated a representative from their staff to a Regional Project Group, the members of which participated in training and on going regional forums. Individual councils established working groups or committees to develop community emergency risk management plans.

A series of eight forums, designed to inform the group of emergency management systems and issues, was conducted during the course of the project.

The themes for the eight forums were:

1. An Introduction to State Emergency Management Arrangements
2. The production of a Community Emergency Risk Management Plan – a three step process
3. Developing Risk Assessment Criteria and Scenario analysis
4. Reviewing Work in Progress and Exploring Resources
5. CERM & the Corporate Plan, Definitions and Plan Format (template development)
6. Plan Structure, Review and Audit Process
7. Review and Discussion of Draft Plans
8. Final Review of Plans and Regional Issues

Information from these forums was published on a group web site as an ongoing and accessible resource.

A template was developed, through the collaboration of the regional project group, for the production of the Community Emergency Risk Management Plans.

Definitions were discussed and agreed upon by the group and are listed in table 1(p25-26).

A Plan Outline which reflects the template format is shown in table 2 (p27).

Plans will be uploaded to the Regional website at the conclusion of the project.

The Australian Risk Management Standard 4360:2004 was the underlying methodology used to produce the plans.
Principal references used were: *Safe SA Communities Guide,* How to minimize the impact of emergencies on South Australian Communities, 2004 and
Emergency Risk Management Applications Guide, Emergency Management Australia, Manual 5, 2004.

CORPORATE STATEMENT

To define context and policy for the production of council plans, the following statement was developed and adopted by the Project Group:

> In recognizing that the functions of council include:
>
> *to take measures to protect its area from natural and other hazards and to mitigate the effects of such hazards [LG Act 1999 S7(d)],*
>
> the <COUNCIL> is committed to facilitating Community Emergency Risk Management (CERM) aligned with the national risk management standard (AS/NZS 4360).
>
> As a measure to address in part it's responsibilities under Section 7(d) of the Local Government Act, 1999, the Council, formed a Community Emergency Risk <COMMITTEE or WORKING GROUP> to prepare a Community Emergency Risk Management Plan for the Council area.

DEFINITIONS (Table 1)	
Community	a group of people with a commonality of association and generally defined by location, shared experience or function.
Critical Infrastructure	critical infrastructure is defined as those physical facilities, supply chains, information technologies and communication networks that, if destroyed, degraded or rendered unavailable for an extended period, would significantly impact on the social or economic well-being of the community. These infrastructures include: telecommunications; electrical power systems; gas and oil storage and transportation; banking and finance; transportation; and water supply systems.
Consequence	the outcome of an event expressed qualitatively or quantitatively, being a loss, injury, disadvantage or gain. There may be a range of possible outcomes associated with an event. (In emergency risk management - the outcome of an event or situation expressed qualitatively or quantitatively. In the emergency risk management context consequences are generally described as the effects on persons, society, the economy and the environment)
Disaster	a catastrophic event that severely disrupts the fabric of a community which is beyond the day-to-day capacity of emergency services and other organisations and requires the intervention of the various levels of government to return the community to normality.
Elements at Risk	the population, buildings and civil engineering works, economic activities, public services and infrastructure etc. exposed to sources of risk.
Emergency	means an event that causes, or threatens to cause— (a) the death of, or injury or other damage to the health of, any person; or (b) the destruction of, or damage to, any property; or (c) a disruption to essential services or to services usually enjoyed by the community; or (d) harm to the environment, or to flora or fauna.
Emergency Risk Management	a systematic process that produces a range of measures that contribute to the well being of communities and the environment.
Environment	conditions or influences comprising social, physical and built elements which surround and interact with the community.
Event	occurrence of a particular set of circumstances.
Likelihood	describes probability or frequency of harmful consequences occurring.
Hazard	a source of potential harm or a situation with a potential to cause loss.
Mitigation	measures aimed at decreasing or eliminating the impact of disasters on society and environment.
Residual Risk	the risk remaining after implementation of risk treatment.
Resilience	a measure of how quickly a system recovers from the impact of an emergency event.
Risk	a concept used to describe the likelihood of harmful consequences arising from the interaction of hazards, communities and the environment. Risk may be positive or negative but is usually considered adverse in the case of natural hazards.

Risk Assessment	the process used to determine risk management priorities by identifying, analysing and evaluating the level of risk against predetermined standards, target risk levels or other criteria.
Risk Level	the level of risk calculated as a function of likelihood and consequence.
Risk Reduction	a selective application of appropriate techniques and management principles to reduce either the likelihood of an occurrence or its consequences, or both.
Risk Treatment Options	measures that modify the characteristics of hazards, communities and environments to reduce risk, eg prevention, preparedness, response and recovery.
Susceptibility	the potential to be adversely affected by an event
Vulnerability	the degree of susceptibility and resilience of the community and environment to hazards. Resilience is related to 'existing treatments' and the capacity to reduce or sustain harm or loss. Susceptibility is related to the degree of exposure

PLAN OUTLINE

(*This outline illustrates the structure of the planning process and template.)* (Table 2)

TITLE PAGE
PLAN VERSION
ACKNOWLEDGEMENTS
FUNDING
FOREWORD
EXECUTIVE SUMMARY

ESTABLISH CONTEXT STEP 1
CORPORATE STATEMENT
INTRODUCTION
- Purpose
- Scope
- Committee Membership
- Role and Function of Committee
- Consultation
- Community Emergency Risk Management Model

LEGISLATION
- Local Government Act]
- Emergency Management Act

DEFINITIONS
COMMUNITY & ENVIRONMENTAL DESCRIPTION
VULNERABILITY PROFILE
HAZARD DESCRIPTIONS

RISK ASSESSMENT STEP 2
RISK IDENTIFICATION SUMMARY SHEET
LIKELIHOOD SCALE AND CRITERIA
CONSEQUENCE SCALE AND CRITERIA
RISK ASSESSMENT REGISTERS

RISK TREATMENTS STEP 3

ANNEXURES
- Possible Vulnerabilities
- Hazard Descriptions
- Deciding the Level of Risk
- Treatment Flow Chart
- Treatment Examples
- Council Codes & Hazard Identification Format
- Control Agencies
- Emergency Contacts for CLGR of SA
- Contacts for Council Area

MAPS

PROCESS

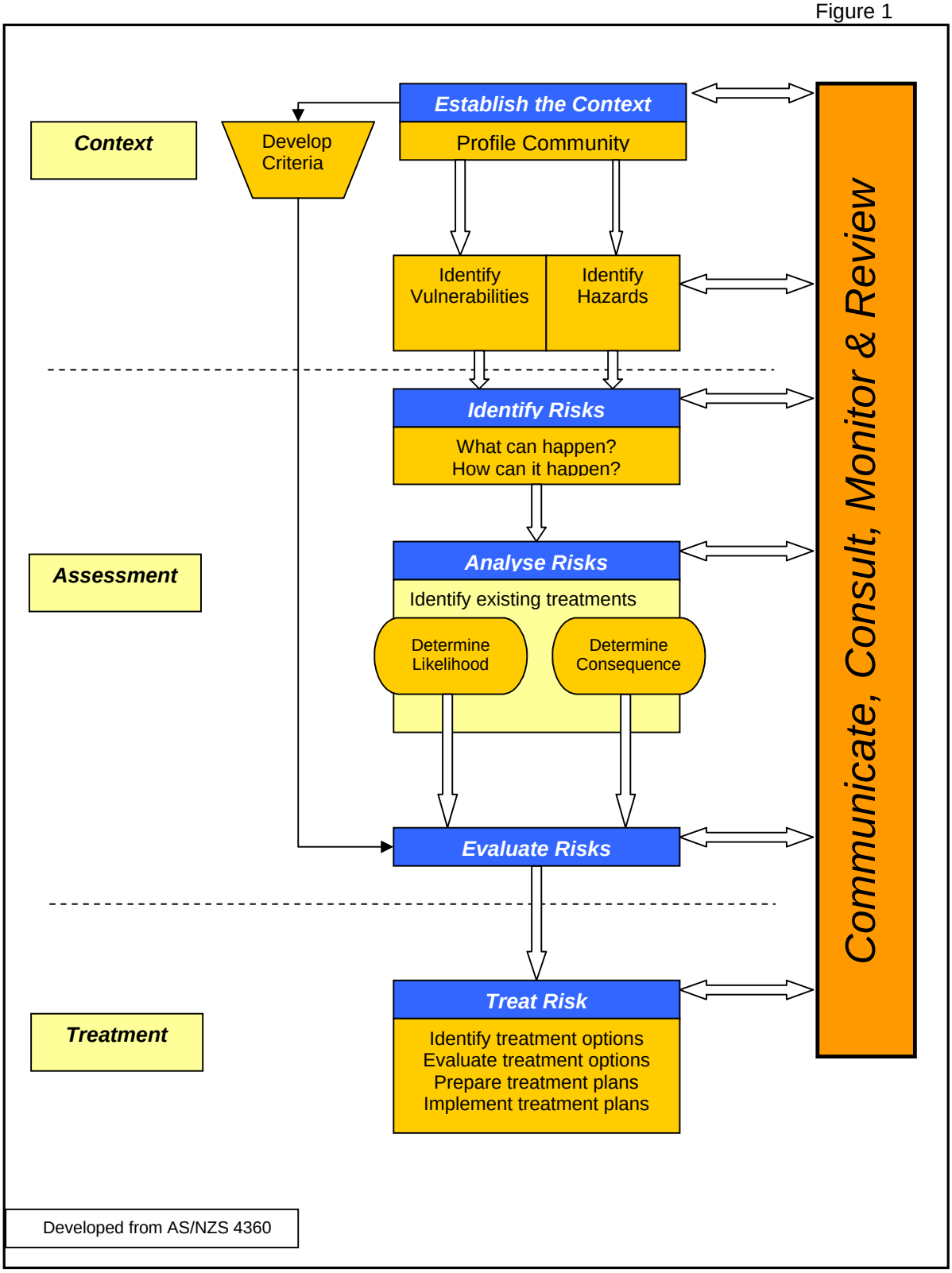
A schematic representation of the process model (figure 1) based on AS/NZS 4360 and a detailed treatment flow chart (figure 2) follow.

The five step risk management process of context, identify, analyse, evaluate and treat was simplified to a three step process of context, assessment and treatment, as shown in the model (figure 1) below.

The Plan Outline (table 2) has been developed on this basis

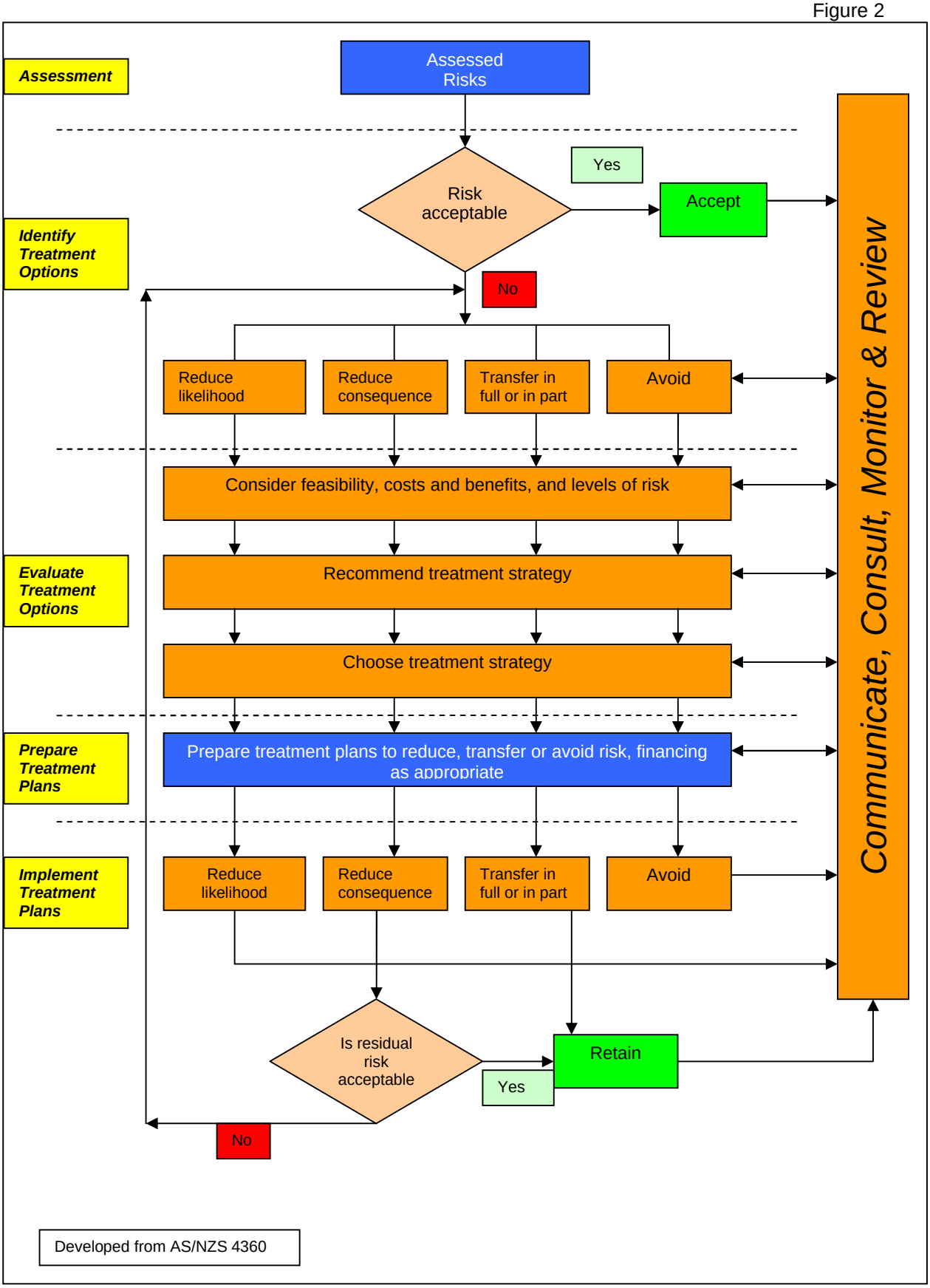
Community Emergency Risk Management Model

Figure 1



Treatment Flow Chart

Figure 2



HAZARDS IDENTIFIED

Hazard Description/Identity List

Australia does not have a National Standard that lists hazards. For consistency across the Region the NFPA Standard [8] has been adopted. A unique identifier number has been allocated to each hazard which may be used in the future to establish a regional hazard data base.

Floods

Most water ways within the region are ephemeral, remaining dry for most of the year and flowing for short periods after large rainfall events. Winter may see some of the streams have more prolonged times when water remains in them but by and large flows remain low and of little consequence
Flooding typically occurs in two ways; local flash flooding usually associated with thunderstorms and riverine flooding associated with widespread heavy rain produced by frontal weather patterns in winter and spring.
Flooding has been identified as the most significant hazard in the region. Seventy eight percent of councils who identified flooding as a risk to their area attributed a high risk level. This reflects figures compiled by the BTE (2001) [9] that floods contribute approximately 29% of the average annual natural hazard damage in Australia.
In the rural areas the most impact is usually to unsealed roads, property fences and crops. The area affected is usually extensive.
Urban areas are more prone to building damage and the extent usually limited in area.
Serious injury or loss of life is rare.
Major townships identified as having high flood risks are: Peterborough, Nuriootpa, Lyndoch, Clare, Spalding, Quorn, Two Wells, and Burra.

Flood Coastal

The inundation of land in proximity to coastlines by seawater and/or estuarine water, caused by high creek or river flows, severe weather surges, tidal influences, or sea level rise.
There are seven councils in the region that have coastlines. Four of these councils attributed a high risk level to coastal flooding.
The towns of Pt Pirie, Pt Germein and Pt Broughton have been identified as having a high risk to coastal flooding.

Fire – Bush

Fuel load, ground slope and weather conditions combine to give a measure of fire front intensity and measure of the hazard.
Councils in the region have generally categorised bushfire risk into three levels: fire risk in hilly vegetated areas that are populated, fire risk in open plains areas and fire risk in hilly vegetated areas that are sparsely populated.
The greatest areas of risk posed by bushfires are in the North Mount Lofty Ranges and the South Flinders Ranges. These areas have interspersed among them many rural living blocks, are frequently heavily wooded and in many instances difficult to access making bushfires difficult to contain. Conversely the open plains whilst having quite high combustible fuel loads at certain times of the year, are usually easily accessed and hence more easily contained.
Fires in the hilly vegetated ranges that are sparsely populated are almost always difficult to access and are usually only monitored whilst “burning themselves out” and are regarded has having minimal threat to people.

Fire - Urban

Only one council listed this type of risk as high.

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[8] Annex A (at A.5.3.2) of “NFPA 1600, Standard on Disaster/Emergency Management and Business Continuity” by the National Fire Protection Association (USA 2007) contained within this report as Annex.1

[9] BTE (2001) *Economic Costs of Natural Disasters in Australia.* Report 103, Bureau of Transport Economics, Canberra.

Windstorm

Severe storms can range from isolated thunderstorms to intense low pressure systems (synoptic storms). Thunderstorms may only affect a few square kilometres while synoptic storms can cause damage over thousands of square kilometres. Storms costs to Australia represent about 26% of the average annual cost of natural disasters (BTE 2001)
Fourteen councils identified windstorms as a risk which indicates that it is a recurrent problem. Synoptic storms are usually more severe along the coastal areas of the region with 57% of councils who identified windstorms as a risk attributing it as a high risk.

Animal or Plant Disease

The major out break of equine influenza during the course of this project gave animal disease a high profile. Despite this only one council identified animal disease as a high risk in their area.

Animal or Insect Infestation

Locust plagues cause most concern in this category. PIRSA response programs are seen by most councils who identified this risk as being the most important factor in the risk not being a major problem for their respective areas.

Transport Accident

Transport accidents and hazardous material spills are perceived as being linked or as one of the same. Concern is most evident in councils where there are large volumes of heavy vehicular traffic using arterial roads that pass through or are near to their most populated towns.

Critical Infrastructure Failure

Five councils regarded critical infrastructure failure as a risk within their area, but only one regarded it as a high risk. The prevalence of electricity supply interruptions on the Yorke Peninsula made it an issue for this part of the region.

Hazardous Material Spill

This hazard often associated with a transport accident.
A medium risk priority was attributed by the two councils that identified it as a hazard.

Landslide

Only one council considered this hazard as a risk with an attribution level of medium.

Earthquake

Councils are aware of the history of earthquake activity in the region but have assessed the risk as low or negligible.

Pandemic Influenza

Reference LGA [10]

An influenza pandemic is a disease outbreak that occurs worldwide when:

1. a new strain of influenza virus emerges, and
2. the virus causes disease in humans populations with little or no existing immunity, and
3. the virus becomes easily passed on between humans.

In the absence of immunity, a new influenza strain can spread rapidly across the globe, causing worldwide epidemics or a pandemic, with high numbers of cases and deaths
It is recommended by COAG that Local Government prepare business continuity plans to ensure maintenance of essential services.

Climate Change

An emerging issue that is briefly discussed in Regional Issues p41.

[10] http://www.lga.sa.gov.au/site/page.cfm?u=1223

ASSESSMENT

Risk is analysed by considering the combined effects of likelihood and consequence of disasters. Consequences are determined by collecting historical and anecdotal evidence or developing scenario analyses of the effects of hazards on exposed elements, such as people, buildings, infrastructure, the economy and the environment.
An understanding of hazard, exposure and vulnerability is fundamental to the assessment process.

Likelihood Scale and Criteria

Note In keeping with a rigorous application of the emergency risk management process, the term *event* in the table below relates to the likelihood of *harmful consequences occurring* rather than the likelihood of the hazardous event occurring.

Ratings Descriptor	**Description**
5. Almost Certain	The harmful consequences are expected to occur in most circumstances; and/or high level of recorded incidents; and/or strong anecdotal evidence; and/or a strong likelihood the event will recur; and/ or great opportunity, reason, or means to occur; may occur once every year or more. (or once up to every 5 years)
4. Likely	The harmful consequences will probably occur in most circumstances; and/or regular recorded incidents and strong anecdotal evidence; and/or considerable opportunity, reason or means to occur; may occur once every five to 20 years
3. Possible	The harmful consequences might occur at some time; and/or few, infrequent, random recorded incidents or little anecdotal evidence; and/or very few incidents in associated or comparable organizations, facilities or communities; and/or some opportunity, reason or means to occur; may occur once every 20 to 100 years
2. Unlikely	The harmful consequences are not expected to occur; and/or no recorded incidents or anecdotal evidence; and/or no recent incidents in associated organizations, facilities or communities; and/or little opportunity, reason or means to occur; may occur once every 100 to 500 years
1. Rare	The harmful consequences may occur only in exceptional circumstances; may occur once every 500 or more years.

Reference: Appendix E of "Emergency Risk Management Applications Guide, Manual 5" by Emergency Management Australia (2004).

Consequence Scale and Criteria

Ratings and descriptors for Consequences (reflect entity context)				
	Community	**Property**	**Environment**	**Reputation**
A. Catastrophic	No local resources External help required Severe residual injury/death 10% community affected Displaced people Major businesses severely effected	Demolish bldg/rebuild Loans needed. Insurance doesn't cover full costs Pay for alternate accommodation	Species loss Permanent damage to grasses/wetlands EPA involvement Major budget impact Legal ramifications	National/State/Regional Media Print & TV, possible international Legal consequences - coroners investigation
B. Major	Residual effect, outside help needed Up to 3 days disruption 7% Community affected At least one person with permanent or partial disability Medium/large businesses effected	Significant structural loss of use Serious budget impact Insurance claims Key assets	Major regional impact & external management needed. Some long term effects – not permanent Species impact – re-growth over time & with assistance	Regional & State media coverage Print & TV Community partitions Sustained coverage
C. Moderate	Serious injuries requiring hospital or medical attention Up to 1 day disruption in services Locally managed 5% community affected Medium sized businesses effected	Surroundings affected Minor structural Minimal use disruption Insurance claim Possible minor budgetary impact	Regional Impact with focus on local area External advice needed No lasting effect Species can repopulate	Council discussion Community letters Attracting local media attention
D. Minor	Out patient minor injuries only Minimal impact on community services 2% Community affected Small local businesses effected	Normal complaints Damage under $500 Within normal maintenance schedule Minimal use disruption	Minor local impact No external assistance required Managed locally within 2 hours. No permanent effect	In house reports No media coverage Complaints in writing
E. Insignificant	Little or no disruption to the community Minor first aid on site ?% community affected No businesses effected	Aesthetic damage Repaired in normal maintenance schedule Within normal budget Normal use possible	No measurable impact No lasting damage Contained immediately No budget or EPA impact	No loss of image Individual complaint - verbal

The development of consequence criteria is an important part of establishing context for overall assessment of risk.
Criteria chosen should reflect what the community "values" and may be categories such as humanitarian, social, environmental, operational or financial.
This plan uses the major categories of: community, property, environment and reputation.
Perception of risk will vary between communities; what is deemed "acceptable risk" in one community may not be "acceptable" in another

Risk Register

IDENTIFY RISKS

Hazard Name		**Risk Id.**	
Risk Statement			
Vulnerabilities			
Existing Treatments			

ANALYSE & EVALUATE (using history, analysis and scenario based methods)

Consequence Criteria

Apply consequence criteria (see Table2.3) and attribute level by placing a cross (X) in one or more cells (examples included).	Community	Property	Environment	Reputation
Catastrophic A				
Major B				
Moderate C				
Minor D				
Insignificant E				
Consequence Rating *(highest value is chosen)*			<X>	

Risk Level Matrix

Apply likelihood criteria (see Table 2.2) and attribute level to how likely are the harmful consequences by placing a cross (X) in one cell (example included)	Harmful Consequences: Insignificant E	Minor D	Moderate C	Major B	Catastrophic A
5. Almost certain	Med	High	High	Extr.	Extr.
4. Likely	Med	Med	High	High	Extr.
3. Possible	Low	Med	High	High	High
2. Unlikely	Low	Low	Med	Med	High
1. Rare	Low	Low	Med	Med	High
Likelihood Rating *(of the harmful consequence occuring)*				<X>	

Risk Level	**<EXTREME, HIGH, MEDIUM or LOW>**
Treatment Priority	EXTREME RISK: Act immediately to mitigate the risk. HIGH RISK: Act immediately to mitigate the risk. If these controls are not immediately accessible, set a timeframe for their implementation and establish interim risk reduction strategies for the period of the set time frame. MEDIUM RISK: Take reasonable steps to mitigate the risk. These "lower level" controls should not be considered permanent solutions. The time for which they are established must be based on risk. At the end of the time, if the risk has not been addressed a further risk assessment must be undertaken. LOW RISK: Take reasonable steps to mitigate and monitor the risk. Institute permanent controls in the long term. Permanent controls may be administrative in nature if the hazard has low frequency, rare likelihood and insignificant consequence.

The Risk Register gives a summary of the assessment of a particular risk. The risk attributed; **extreme, high, medium or low** establishes the treatment priority and how the risk should be managed.

A pictorial format has been used to give a "picture" of where the risk "sits" within the matrix.

Vulnerability

Vulnerability is the degree of susceptibility and resilience of the community and environment to hazards. Resilience is related to 'existing treatments' and the capacity to reduce or sustain harm or loss. Susceptibility is related to the degree of exposure
Emergency Risk Management is essentially about managing disasters and their effect on people. There are sections of the community who are more vulnerable and they include people impaired physically and mentally through age, illness and disability, geographic location, visitors to the council area and residents living in areas prone to natural and or other hazards.
An important aspect of developing CERM plans is exploring methods to profile the community and identify the vulnerable within it.
Census data is a readily available and up to date resource that can contribute a range of statistics that will assist in identifying those disadvantaged in the community and susceptible to disaster events.
This information can be accessed at:
http://www.abs.gov.au/websitedbs/d3310114.nsf/home/Census+data

Vulnerabilities within a community can be broadly grouped as follows:

Community

- Residents who live and/or work within bushfire prone areas.
- Persons who are unable to implement and/or prepare an effective fire plan
- Travelling public/tourists
- Emergency service workers
- Physically & mentally impaired people
- All road users
- Residents within flood plain areas
- Isolated communities
- People immediately involved and/or nearby hazardous environments
- Ethnic communities
- Transient population
- Children
- Frail aged

Property

- Schools, educational facilities and camping grounds
- Frail / aged care & special accommodation facilities
- Boarding Houses (public housing)
- Tourist & short term accommodation (Bed & Breakfasts)
- Stock, crops and property within flood plains area and/or inundation overlays
- Transport infrastructure and public utilities
- Residential areas within the immediate vicinity of hazards
- Storage & handling facilities of dangerous goods & hazardous materials
- Critical infrastructure

Environment

- Environment: Flora & Fauna
- Coastal environs
- Unsecured Water Catchment Areas
- Rivers
- Water bodies e.g. lakes
- Air
- Soil

TREATMENT

Australia's comprehensive approach to emergency management (EMA Manual 1[11]) recognizes four types of activities that contribute to the reduction or elimination of hazards and to reducing the susceptibility or increasing the resilience to hazards of a community or environment:

• ***Prevention/ Mitigation activities***, which seek to eliminate or reduce the impact of hazards themselves and/or to reduce the susceptibility and increase the resilience of the community subject to the impact of those hazards

• ***Preparedness activities***, which establish arrangements and plans and provide education and information to prepare the community to deal effectively with such emergencies and disasters as may eventuate;

• ***Response activities***, which activate preparedness arrangements and plans to put in place effective measures to deal with emergencies and disasters if and when they do occur;

• ***Recovery activities***, which assist a community affected by an emergency or disaster in reconstruction of the physical infrastructure and restoration of emotional, social, economic and physical well-being.

Flood Mitigation Dam – Gawler River

Emergency Services Exercise Orroroo

[11] Australian Emergency Manual Series: *Emergency Management in Australia, Concepts and Principles*. Manual No 1 2004

REVIEW and AUDIT

A review and audit structure was adopted by the Project Group as a way of uniformly evaluating plans across the Region.

Plan Evaluation Tool

A Plan Evaluation Tool that consists of worksheets within an MS Excel Workbook was used to perform the review. The tool is based on the three key steps of producing a community emergency risk management plan, namely:

- Step 1 Context
- Step 2 Assessment
- Step 3 Treatment

Application of process is measured by answering five questions within each Step.

The worksheet is shown in the table below.

CERM Plan Review				
	Elements of the Assessment	Scores		
Step 1	Context.	Answer	Comments	Target
1.1	To what extent have you developed and defined an agreed approach?	F		F
1.2	To what extent is your community profiled?	F		F
1.3	To what extent are hazards identified?	F		F
1.4	To what extent are vulnerabilities identified?	F		F
1.5	To what extent are risk assessment criteria established?	F		F
Step 2	Assessment.	Answer	Comments	Target
2.1	To what extent is the risk identification summary sheet complete?	F		F
2.2	To what extent is consequence assessed?	F		F
2.3	To what extent is likelihood assessed?	F		F
2.4	To what extent are risk analysis scenarios applied?	F		F
2.5	To what extent are risks ranked using a risk assessment register?	F		F
Step 3	Treatment.	Answer	Comments	Target
3.1	To what extent is the community engaged in decision making?	F		F
3.2	To what extent is a comprehensive range of options identified?	F		F
3.3	To what extent are identified options evaluated?	F		F
3.4	To what extent are risk treatment plans prepared?	F		F
3.5	To what extent are risk treatment plans implemented?	F		F

i. Introductory Notes | ii. Scoring Sheet | iii. Results - Capability (bar) | iv. Results (numerical)

Each question has four possible answers: 'N', 'P', 'L', 'F'
(drop down options in the answer column), as shown below

Possible answer	Definition
N	Not generally applied or only applied in isolated situations for example in less than 20% of cases
P	Partially applied, not usually documented or applied in less than 50% of cases
L	Largely applied, formally documented and largely repeatable or applied in up to 85% of cases.
F	Fully applied, formally documented and fully repeatable or applied in more than 85% of cases.

The tool takes data and automatically generates the results in graphical (bar chart) and numerical form in subsequent worksheets.

Review and Audit Summary for the Region (March 2008)

Council	Context	Assessment	Treatment
	F	F	L
	F	L	P
	F	F	P
Not in alphabetical order	F	F	L
	F	F	L
	F	L	L
	F	L	L
	F	F	L
	F	P	N
	F	L	P
	F	L	L
	F	L	L
	F	P	N
	F	P	N
	F	P	N

	Definition
N	Not generally applied or only applied in isolated situations for example in less than 20% of cases
P	Partially applied, not usually documented or applied in less than 50% of cases
L	Largely applied, formally documented and largely repeatable or applied in up to 85% of cases.
F	Fully applied, formally documented and fully repeatable or applied in more than 85% of cases.

REGIONAL ISSUES

Zones

The new State boundaries have the fifteen CLGR councils in three different State regions/zones: Far North – one; Barossa – three & Yorke & Mid North – eleven.

The Zone structure and operation of the Zone Emergency Management Committees is seen as crucial to the ongoing strategic development of emergency planning in the Region.

Councils should endeavour to be engaged in this process.

Guidelines for the Zone Emergency Management Committees are presently being considered by the State Emergency Management Committee.

Successful operation of the Zones will be dependent on the inclusion and engagement of local government in the planning process and will require the allocation of adequate resources by the State government to develop and implement strategies.

Communication Protocols

There are two aspects:

Operational Communications
At present there are not any formal communication protocols established between emergency service organisations and councils for the management of emergencies. In some instances very good informal networks are in place and by and large these work well. However they are dependent on personal relationships and can collapse when staff/volunteers transfer to other areas. The resolution of this type of issue would presumably be the responsibility of Zone Emergency Management committees.

Community Communication
In community surveys conducted by metropolitan councils a majority of people indicated that in the event of an emergency their first point of contact would be their local council. Similar experiences have been reported from councils in the Region. Quite often councils are unable to respond to these queries because they are not in the “communication loop” Again an issue that could be addressed through the Zone committees.

Recovery Arrangements

Local Government Grants Commission

Assistance essentially for uninsurable infrastructure replacement damaged as a result of disaster events.

The Commission monitors news and current affairs in relation to disasters and is proactive in contacting councils to ascertain the effect of severe weather events, bushfires etc.
For example after the flooding in the north of the state in early 2007 all councils in the area were contacted within days of the event and asked if they needed assistance.
They were advised to keep records and photographs of damage and to submit assistance requests as soon as possible.
Assistance is forthcoming if the cost of restitution exceeds 5% of rate revenue.
Councils are expected to make a contribution towards the cost.

When a council requests assistance the Commission gets independent advice about the level of damage and repair cost.

The above happens independently of any emergency declaration made under the Emergency Management Act.

Councils should contact the relevant control agency for appraisal e.g. in the event of flooding contact SES.
Their input may well assist later grant applications.
PIRSA may become involved if land and soil degradation issues arise after flooding events.

Generally the Commission attempts to help councils as much as possible

State government

Federal funds only become available when extreme events have occurred – typically cyclones – and the damage bill exceeds approx $20million.
As a result SA very rarely gets access to these monies.
Application for Federal funds is through the State government.

General State Recovery Arrangements

Administered through the Department of Families and Communities[12]

Families SA Emergency Management Program provides advice and practical assistance to help people and communities recover from major emergencies such as floods, droughts, storms and bushfires. This includes the provision of food, accommodation, financial support, information and referral.

Significant events monitored in much the same way as for LG Disaster Fund. i.e. through media & networks. Emergency service organisations might recommend relief arrangements from their own observations and/or experience.
Councils should notify/involve emergency service organisations of disaster events as soon as possible.
The State Recovery Coordinator is responsible for making the necessary recovery arrangements.

An emergency does not have to be declared under the EM Act for recovery arrangements to commence.

Funding can come from State Emergency Relief Fund and from public appeals. Primarily assistance is people oriented e.g. accommodation for displaced persons etc.

[12] http://www.familiesandcommunities.sa.gov.au/default.aspx?tabid=637

Specific Examples of How the Arrangements Work

Recovery arrangements and the role that the State and Councils play are flexible.

The breadth of Council's role will depend on the scale of the event, the impact and extent. With the Renmark Storm for example, the State moved in to support the initial relief/recovery phase with the idea of moving leadership to the local Council as a supported transition plan. This usually works because initially Councils are very busy clearing up roads, assessment of damage to Council facilities etc. Experience has shown that during this initial phase it is important for a Council to quickly meet with other key stakeholders' e.g. Karoonda Storm – Council attended the first local recovery committee meeting with SES, DFC etc. organised by the State Recovery Committee and so were quickly linked into an all agency strategic process.

Eyre Peninsula as a different example covered 3 councils and was beyond one local council to manage the recovery – so a Local Recovery Coordinator was appointed by the State Recovery Committee with Council strongly linked via the local Recovery Committee (as opposed to Renmark where they led the local Recovery Committee once they assumed a leadership role*).*

Disaster Relief Appeals
The State Emergency Relief Fund (SERF) is established under the Emergency Management Act 2004 to administer publicly donated and charitable funds collected following disasters

Councils should adopt a coordinated and inclusive approach with the State Government when establishing appeals.

Regional Community Emergency Risk Management Sustainability

The Zone Emergency Management Committees should be a key focal point for ongoing regional collaboration.
However the Region is fragmented by the Zone system and strategies may need to be explored to overcome this problem so that the collaboration that has been initiated by this project is not lost.

Volunteers

A general feeling within the region was that volunteer numbers for the emergency services were declining.

Climate Change

The report *Climate Change, Risk and Vulnerability* [13] noted that CSIRO when applying a range of models to Australia for the range of global emissions scenarios generated by the Intergovernmental Panel on Climate Change (IPCC) for its Third Assessment Report [14] identified a number of possible outcomes:

- an increase in annual national average temperatures of between 0.4° and 2.0°C by 2030 and of between 1.0° and 6.0°C by 2070 — with significantly larger changes in some regions by each date;
- more heat waves and fewer frosts;
- possibly more frequent El Nino Southern Oscillation (ENSO) events — resulting in a more pronounced cycle of prolonged drought and heavy rains;
- possible reductions in average rainfall and run–off in Southern and much of Eastern Australia with rainfall increases across much of the Tropical North — as much as a further 20 per cent reduction in rainfall in Southwest Australia, and up to a 20 per cent reduction in run–off in the Murray Darling Basin by 2030;
- more severe wind speeds in cyclones, associated with storm surges being progressively amplified by rising sea levels;

[13] The Australian Greenhouse Office, Climate Change Risk and Vulnerability: Promoting an efficient adaptation response in Australia. Department of the Environment and Heritage, 2005.

[14] Houghton, J.T., Y. Ding, D.J. Griggs, M. Noguer, P.J. van der Linden and D. Xiaosu (Eds.), *Climate Change 2001: The Scientific Basis*, Contribution of Working Group I to the Third Assessment Report of the Intergovernmental Panel on Climate Changes (IPCC), Cambridge University Press, New York, 2001

- an increase in severe weather events — including storms and high bushfire propensity days; and
- a change in ocean currents, possibly affecting our coastal waters, towards the end of this period.

The IPCC Working Group noted that the current sea rise model predicts a vertical change between the years of 2000 and 2100 of 0.38 m. The Bruun Rule [15] (based on a multiplier of 100) gives a set back of 38 m for sandy shores.
The implications of such a prediction are considerable on many of the regions coastlines.

Conclusions to date suggest that a small change in average temperatures (around 2º C) means a lot in extremes. For example a one-in-20 year event becomes a one-in-4 year event.
Impacts are also likely to be non-linear for example a 25% increase in peak wind gusts could cause a 650% increase in damages. Similarly a 1º C mean temperature increase could see a 28% increase in wildfires.

Staff Resources

A familiar complaint throughout the course of this project was that staff did not have adequate time to devote to the project because of the many other duties they were expected to perform.

NATIONAL ISSUE

Hazard Identification

An Australian Standard for the identification and nomenclature of hazards would greatly assist in the production of community emergency risk management plans and at the same time give national consistency.

[15] Bruun, P 1962: Sea Level Rise as a Cause of Shore Erosion. Journal of the Waterways and Harbours Division, American Society of Engineers 88: 117 - 130

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ANNEXURES

Annexure 1 Hazard Listing

Hazards for consideration from "hazard listings" such as Annex A (at A.5.3.2) of "NFPA 1600, Standard on Disaster/Emergency Management and Business Continuity" by the National Fire Protection Association, USA (2007). The listing from the Standard is displayed below with one addition – a Hazard Number [HN] after each specific hazard. The Standard states: "The hazard identification should include the following types of potential hazards. This list is not all-inclusive but reflects the general categories that should be assessed in the hazard identification".

(1) Naturally occurring hazards that can occur without the influence of people and have potential direct or indirect impact on the entity (people, property, the environment), such as the following:

(a) Geological hazards (does not include asteroids, comets, meteors)
- i. Earthquake [HN=01]
- ii. Tsunami [HN=02]
- iii. Volcano [HN=03]
- iv. Landslide, mudslide, subsidence [HN=04]
- v. Glacier, iceberg [HN=05]

(b) Meteorological hazards
- i. Flood, flash flood, seiche, tidal surge [HN=10]
- ii. Drought [HN=11]
- iii. Fire (forest, range, urban, wildland, urban interface) [HN=12]
- iv. Snow, ice, hail, sleet, avalanche [HN=13]
- v. Windstorm, tropical cyclone, hurricane, tornado, water spout, dust/sand storm [HN=14]
- vi. Extreme temperatures (heat, cold) [HN=15]
- vii. Lightning strikes [HN=16]
- viii. Famine [HN=17]
- ix. Geomagnetic storm [HN=18]

(c) Biological hazards
- i. Emerging diseases that impact humans or animals [plague, smallpox, anthrax, West Nile virus, foot and mouth disease, SARS, pandemic disease, BSE (Mad Cow Disease)] [HN=24]
- ii. Animal or insect infestation or damage [HN=25]

(2) Human-caused events such as the following:

(a) Accidental
- i. Hazardous material (explosive, flammable liquid, flammable gas, flammable solid, oxidizer, poison, radiological, corrosive) spill or release [HN=45]
- ii. Explosion/fire [HN=46]
- iii. Transportation accident [HN=47]
- iv. Building/structure collapse [HN=48]
- v. Energy/power/utility failure [HN=49]
- vi. Fuel/resource shortage [HN=50]
- vii. Air/water pollution, contamination [HN=51]
- viii. Water control structure/dam/levee failure [HN=52]
- ix. Financial issues, economic depression, inflation, financial system collapse [HN=53]
- x. Communications systems interruptions [HN=54]
- xi. Misinformation [HN=55]

Annexure 1 (cont.)

(b) Intentional
- i. Terrorism (explosive, chemical, biological, radiological, nuclear, cyber) [HN=60]
- ii. Sabotage [HN=61]
- iii. Civil disturbance, public unrest, mass hysteria, riot [HN=62]
- iv. Enemy attack, war [HN=63]
- v. Insurrection [HN=64]
- vi. Strike or labor dispute [HN=65]
- vii. Disinformation [HN=66]
- viii. Criminal activity (vandalism, arson, theft, fraud, embezzlement, data theft) [HN=67]
- ix. Electromagnetic pulse [HN=68
- x. Physical or information security breach [HN=69]
- xi. Workplace violence [HN=70]
- xii. Product defect or contamination [HN=71]
- xiii. Harassment [HN=72]
- xiv. Discrimination [HN=73]

(3) Technological-caused events that can be unrelated to natural or human-caused events, such as the following:
- (a) Central computer, mainframe, software, or application (internal/external) [HN=80]
- (b) Ancillary support equipment [HN=81]
- (c) Telecommunications [HN=82]
- (d) Energy/power/utility [HN=83]

Where a hazard is not listed, but exists in your context, it should be included for consideration. Each Hazard should be researched and the summary of that research should be recorded in Hazard Description Tables