

Tasmanian Emergency Risk
Assessment Guidelines
(TERAG)

TABLES & TEMPLATES

TERAG 2017

VERSION 1.0

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Tables and Templates

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Toolbox description

To assist with the activities in the Tasmanian Emergency Risk Assessment Guidelines, the TERAG TOOLBOX is available on the Tasmania State Emergency Service website:

 www.ses.tas.gov.au

The toolbox consists of:

Guidelines

- The Tasmanian Emergency Risk Assessment Guidelines 2017 (facilitator's guide)
- The Tasmanian Emergency Risk Assessment Quick Guide 2017 (abbreviated version)

Tasmanian standard controls (from TSNDRA 2016)

Criteria tables

- Control effectiveness table
- Consequence table
- Likelihood level table
- Risk level matrix
- Confidence level table
- Priority level tables

Templates

- Risk register template
- Project plan template
- Hazard scenario template
- Local level risk assessment summary document
- Priority risk treatment report (initial)

Interactive spreadsheets

- Tasmania Emergency Risk Register (TERR) Tool – An Excel spreadsheet where you can input your data throughout the ERM process. It will do all necessary calculations, including assigning risk levels.


- Tailored Consequence Table – An Excel spreadsheet that will generate a consequence table specific to your community.
- Generic Risk Statements Database Tool – A spreadsheet containing risk statements which can be tailored to suit your community.

Supporting web based tools

NERAG training – join the Australian Institute for Disaster Resilience (AIDR) to access the NERAG online training course:

<http://elearning.aidr.org.au> 

Torrens Resilience Institute's Community Resilience scorecard – build a better understanding of the community context by preparing a scorecard before assessment events:

www.flinders.edu.au/fms/documents/NPI314_Revised_TRI%20Toolkit%20and%20Scorecard%20Version%202.pdf 

Create a project plan. The Tasmanian Government provides tools and templates on its project management website:

www.egovernment.tas.gov.au/project_management/getting_started_in_project_management 

Create a communication and consultation plan. The Tasmanian Government provides tools and templates on its communications website:

www.communications.tas.gov.au/channels/communication_strategy 

Create an evaluation and monitoring plan for the project. The Tasmanian Government provides tools and templates for evaluation on its project management website:

www.egovernment.tas.gov.au/project_management/supporting_resources/toolkit/finalising_a_project 

Criteria tables

TABLE 1: TASMANIAN STATE CONSEQUENCE TABLE

CONSEQUENCE TABLE					
	INSIGNIFICANT	MINOR	MODERATE	MAJOR	CATASTROPHIC
PEOPLE					
Mortality	Not Applicable	Deaths greater than 1 in 10,000,000 people for the population of interest · 0.05 persons	Deaths greater than 1 in 1,000,000 people for the population of interest · >0.5 persons	Deaths greater than 1 in 100,000 people for the population of interest · >5 persons	Deaths greater than 1 in 10,000 people for the population of interest · >50 persons
Injuries/ Illness	Less than 1 in 1,000,000 of the population seriously injured or any minor injuries	More than 1 in 10,000,000 of the population critically injured with long-term or permanent incapacitation or 1 in 1,000,000 of the population seriously injured	More than 1 in 1,000,000 of the population critically injured with long-term or permanent incapacitation or 1 in 100,000 of the population seriously injured	More than 1 in 100,000 of the population critically injured with long-term or permanent incapacitation or 1 in 10,000 of the population seriously injured	More than 1 in 10,000 of the population critically injured with long-term or permanent incapacitation
ECONOMY					
Loss in economic activity and/ or asset value	· Decline of economic activity and/or loss of asset value <0.004% of gross area product · ~\$100 000	· Decline of economic activity and/or loss of asset value · >0.004% of gross area product · ~\$1 000 000	· Decline of economic activity and/or loss of asset value >0.04% of gross area product · ~\$10 000 000	· Decline of economic activity and/or loss of asset value · >0.4% of gross area product · ~\$100 000 000	· Decline of economic activity and/or loss of asset value · >4% of gross area product · ~\$1 000 000 000
Impact on important industry	Inconsequential business sector disruption	Significant industry or business sector is impacted by the emergency event, resulting in short-term (i.e. less than one year) profit reductions	Significant industry or business sector is significantly impacted by the emergency event, resulting in medium-term (i.e. more than one year) profit reductions	Significant structural adjustment required by a significant industry to respond to and recover from emergency event	Failure of a significant industry or sector
ENVIRONMENT					
Loss of species and/ or landscapes	Minor damage of local or regional level significant and recognised ecosystem or species	· Significant loss/ impairment of state-level significant and recognised ecosystem or species · Minor damage of regionally significant and recognised ecosystem or species	· Significant loss/ impairment of nationally-significant and recognised ecosystem or species · Severe damage of state-level significant and recognised ecosystem or species · Permanent destruction of regionally significant and recognised ecosystem or species	· Severe damage or loss of nationally-significant and recognised ecosystem or species · Permanent destruction of state-level significant and recognised ecosystem or species	Permanent destruction of nationally-significant and recognised ecosystem or species
Loss of environmental value	Inconsequential damage to environmental values of interest	Minor damage to environmental values of interest	Significant damage to environmental values of interest	Severe damage to environmental values of interest	Permanent destruction of environmental values of interest

CONSEQUENCE TABLE					
	INSIGNIFICANT	MINOR	MODERATE	MAJOR	CATASTROPHIC
PUBLIC ADMINISTRATION					
Governance functions	Governing bodies' and institutions' delivery of core functions is unaffected or within normal parameters	Governing bodies and institutions encounter limited reduction in delivery of core functions	<ul style="list-style-type: none"> Governing bodies and institutions encounter significant reduction in the delivery of core functions Governing bodies and institutions are required to divert some available resources to deliver core functions or seek external assistance to deliver some of their core functions 	<ul style="list-style-type: none"> Governing bodies and institutions encounter severe reduction in the delivery of core functions Governing bodies and institutions are required to divert a significant amount of available resources to deliver core functions or seek external assistance to deliver the majority of their core functions 	Governing bodies and institutions are unable to deliver their core functions
SOCIAL SETTING					
Community wellbeing	<ul style="list-style-type: none"> Community social fabric is disrupted Existing resources sufficient to return the community to normal function No permanent dispersal 	<ul style="list-style-type: none"> Community social fabric is damaged Some external resources required to return the community to normal function No permanent dispersal 	<ul style="list-style-type: none"> Community social fabric is broken Significant external resources required to return the community to normal function No permanent dispersal 	<ul style="list-style-type: none"> Community social fabric is significantly broken Extraordinary external resources required to return the community to functioning effectively Significant permanent dispersal 	<ul style="list-style-type: none"> Community social fabric is irreparably broken Community ceases to function effectively, breaks down Community disperses in its entirety
Culturally important objects	Minor damage to objects of identified cultural significance	Damage to objects of identified cultural significance	Widespread damage to objects of identified cultural significance	Widespread damage or localised permanent loss of objects of identified cultural significance	Widespread permanent loss of objects of identified cultural significance
Community services	Inconsequential / short-term reduction	Isolated/temporary reductions	Ongoing reductions	Reduced quality of life	Community unable to support itself
Culturally important activities	Minor delay of a major culturally important activity or event	Delay of a major culturally important activity or event	Some delay or reduced scope to a major culturally important activity or event	Temporary cancellation or significant delay to a major culturally important community activity or event	Permanent cancellation of a major culturally important community activity or event

TABLE 2: LIKELIHOOD LEVEL OF EVENT COMPARISON TABLE

LIKELIHOOD LEVEL	ANNUAL EXCEEDANCE PROBABILITY IN % (AEP)	AVERAGE RECURRENCE INTERVAL (ARI) (INDICATIVE)	FREQUENCY (INDICATIVE)
Almost Certain	63% per year or more	1 year or less	Once or more per year
Likely	10 - <63% per year	1-10 years	Once per 10 years
Unlikely	1 - <10% per year	11-100 years	Once per 100 years
Rare	0.1 - <1% per year	101-1000 years	Once per 1000 years
Very Rare	0.01 - <0.1% per year	1001-10,000 years	Once per 10,000 years
Extremely Rare	<0.01% per year	10,001 years or more	Once per 100,000 years

TABLE 3: CONTROL STRENGTH AND EXPEDIENCY MEASURES

Level	Control strength	Control expediency
HIGH	Control is highly effective in reducing the level of risk	The control is frequently applied.
MEDIUM	Control is effective in reducing the level of risk	<p>The control is infrequently applied and is outside of the operators' everyday experience.</p> <p>The use of the control has been foreseen and plans for its application have been prepared and tested.</p> <p>Some extraordinary cost may be required to apply the control.</p>
LOW	Control has some effect in reducing the level of risk	<p>The control is applied rarely and operators may not have experienced using it.</p> <p>The use of the control may have been foreseen and plans for its application may have been considered, but it is not part of normal operational protocols and has been tested.</p> <p>Extraordinary cost is required to apply the control, which may be difficult to obtain.</p>
VERY LOW	Control has almost no effect in reducing the level of risk	<p>Application of the control is outside the experience and planning of operators, with no effective procedures or plans for its operation.</p> <p>It has not been foreseen that the control will ever need to be used.</p> <p>The application of the control requires significant cost over and above existing resources, and the cost will most likely be objected to by a number of stakeholders.</p>

TABLE 4: LEVEL OF EXISTING CONTROL EFFECTIVENESS MATRIX

CONTROL STRENGTH	CONTROL EXPEDIENCY			
	VERY LOW	LOW	MEDIUM	HIGH
High	LOW	MEDIUM	MEDIUM	HIGH
Medium	LOW	MEDIUM	MEDIUM	MEDIUM
Low	VERY LOW	LOW	MEDIUM	MEDIUM
Very Low	VERY LOW	VERY LOW	LOW	LOW

TABLE 5: ESTABLISHING ADJUSTED LIKELIHOOD LEVEL DEPENDENT ON CONTROL INFLUENCE

EVENT LIKELIHOOD	CONTROL EFFECTIVENESS			
	VERY LOW	LOW	MEDIUM	HIGH
Almost Certain	ALMOST CERTAIN	ALMOST CERTAIN	LIKELY	LIKELY
Likely	LIKELY	LIKELY	UNLIKELY	UNLIKELY
Unlikely	UNLIKELY	UNLIKELY	UNLIKELY	RARE
Rare	RARE	RARE	RARE	VERY RARE
Very Rare	VERY RARE	VERY RARE	VERY RARE	VERY RARE
Extremely Rare	EXTREMELY RARE	EXTREMELY RARE	EXTREMELY RARE	EXTREMELY RARE

TABLE 6: TASMANIAN EMERGENCY RISK ASSESSMENT LIKELIHOOD/CONSEQUENCE MATRIX

LIKELIHOOD	CONSEQUENCE LEVEL				
	INSIGNIFICANT	MINOR	MODERATE	MAJOR	CATASTROPHIC
Almost Certain	MEDIUM	MEDIUM	HIGH	EXTREME	EXTREME
Likely	LOW	MEDIUM	HIGH	EXTREME	EXTREME
Unlikely	LOW	LOW	MEDIUM	HIGH	EXTREME
Rare	VERY LOW	LOW	MEDIUM	HIGH	HIGH
Very Rare	VERY LOW	VERY LOW	LOW	MEDIUM	HIGH
Extremely Rare	VERY LOW	VERY LOW	LOW	MEDIUM	HIGH

TABLE 7: CONFIDENCE LEVEL

CONFIDENCE LEVEL					
	LOWEST	LOW	MODERATE	HIGH	HIGHEST
Confidence descriptor	Assessed consequence/likelihood could be one of four or more levels, with fundamental uncertainty	Assessed consequence/likelihood risk could be one of three or more levels, with major uncertainty	Assessed consequence/likelihood could be one of two levels, with significant uncertainty	Assessed consequence/likelihood has only one level, but with some uncertainty in the assessment	Assessed consequence/likelihood is easily assessed to one level, with almost no uncertainty
Supporting evidence	No historical events or quantitative modelled results to support the levels	Some comparable historical events through anecdotal information or Quantitative modelling and analysis with extensive extrapolation of data required to derive results of relevance to the event being assessed	Historical event of similar magnitude to that being assessed in a comparable community of interest or Quantitative modelling and analysis with reasonable extrapolation of data required to derive results of direct relevance to the event being assessed	Recent historical event of similar magnitude to that being assessed in a directly comparable community of interest or Quantitative modelling and analysis uses sufficient quality and length of data to derive results of direct relevance to the event being assessed	Recent historical event of similar magnitude to that being assessed in the community of interest or Quantitative modelling and analysis of highest quality and length of data relating directly to the affected community, used to derive results of direct relevance to the scenario being assessed
Expertise	No relevant technical expertise is available to the team for analysis	Risk assessment team contains technical expertise related to the field being assessed and Technical expertise is taken into account by the risk assessment team	Risk assessment team contains relevant technical expertise in the field being assessed, and experience in data and/or modelling of relevance to the event being assessed and Technical expertise is used by the risk assessment team	Risk assessment team contains relevant technical expertise in the field being assessed, and experience with data and/or modelling relating to the event being assessed and Technical expertise is highly influential in the decisions of the risk assessment team	Risk assessment team contains relevant and demonstrated technical expertise in the field being assessed, and experience in data and/or modelling of direct relevance to the scenario being assessed and Technical expertise is highly influential in the decisions of the risk assessment team
Participant agreement	Fundamental disagreement on level of consequence, with little prospect of agreement	Disagreements on fundamental issues relating to the assessment of consequence, which would lead to a range of rating levels	Disagreement on significant issues, which would lead to different levels of consequence depending on which argument was followed	Disagreement on only minor aspects, which have little effect on the assessment of level of consequence	Agreement among participants on the assessment of levels of consequence

TABLE 8: PRIORITY RATING WITH DESCRIPTION AND ACTION PATHWAY

PRIORITY	GENERAL DESCRIPTOR: ACTION PATHWAY	COMMITTEE
1	Highest priority for further investigation and/or treatment, and the highest authority relevant to context of risk assessment must be formally informed of risks. Each risk must be examined, and any actions of further investigation and/or risk treatment are to be documented, reported to and approved by that highest authority.	REMC
2	High priority for further investigation and/or treatment, and the highest authority relevant to context of risk assessment should be formally informed of risks. Further investigations and treatment plans should be developed.	REMC
3	Medium priority for further investigation and/or treatment. Actions regarding investigation and risk treatment should be delegated to appropriate level of organisation, and further investigations and treatment plans may be developed.	MEMC
4	Low priority for further investigation and/or treatment. Actions regarding investigation and risk treatment should be delegated to appropriate level of organisation, and further investigations and treatment plans may be developed.	MEMC
5	Broadly acceptable risk. No action required beyond monitoring of risk level and priority during monitoring and review phase.	MEMC

TABLE 9: PRIORITY LEVELS AT HIGHEST CONFIDENCE

CONSEQUENCE					
LIKELIHOOD	INSIGNIFICANT	MINOR	MODERATE	MAJOR	CATASTROPHIC
Almost Certain	4	4	3	2	1
Likely	5	4	4	2	2
Unlikely	5	5	4	3	2
Rare	5	5	5	3	3
Very Rare	5	5	5	4	3
Extremely Rare	5	5	5	4	4

TABLE 10: PRIORITY LEVELS AT HIGH CONFIDENCE

CONSEQUENCE					
LIKELIHOOD	INSIGNIFICANT	MINOR	MODERATE	MAJOR	CATASTROPHIC
Almost Certain	4	3	2	1	1
Likely	4	4	3	2	1
Unlikely	5	4	3	2	2
Rare	5	5	4	3	2
Very Rare	5	5	4	3	3
Extremely Rare	5	5	5	4	3

TABLE 11: PRIORITY LEVELS AT MODERATE CONFIDENCE

CONSEQUENCE					
LIKELIHOOD	INSIGNIFICANT	MINOR	MODERATE	MAJOR	CATASTROPHIC
Almost Certain	3	3	2	1	1
Likely	4	3	2	1	1
Unlikely	4	4	3	2	1
Rare	5	4	3	2	2
Very Rare	5	5	4	3	2
Extremely Rare	5	5	4	3	3

TABLE 12: PRIORITY LEVELS AT LOW CONFIDENCE

CONSEQUENCE					
LIKELIHOOD	INSIGNIFICANT	MINOR	MODERATE	MAJOR	CATASTROPHIC
Almost Certain	3	2	1	1	1
Likely	3	3	2	1	1
Unlikely	4	3	2	1	
Rare	4	4	3	2	1
Very Rare	5	4	3	2	2
Extremely Rare	5	5	4	3	2

TABLE 13: PRIORITY LEVELS AT LOWEST CONFIDENCE

CONSEQUENCE					
LIKELIHOOD	INSIGNIFICANT	MINOR	MODERATE	MAJOR	CATASTROPHIC
Almost Certain	2	2	1	1	1
Likely	3	2	1	1	1
Unlikely	3	3	2	1	1
Rare	4	3	2	1	1
Very Rare	4	4	3	2	1
Extremely Rare	5	4	3	2	2

Source: Australian Government Attorney-General's Department, accessed under Creative Commons BY licence.

Tasmanian Standard Controls

*(Tasmanian State Natural
Disaster Risk Assessment)*

TABLE 14: BUSHFIRE CONTROLS

BUSHFIRE CONTROLS								
MATERIAL/ PHYSICAL	STR.	EXP.	PROCEDURAL	STR.	EXP.	BEHAVIOURAL	STR.	EXP.
Fuel Reduction Program	M	L	Community Alerts	M	M	Media liaison	M	H
Brigade Network	M	M	Fire permit system	M	M	School fire education programs	VL	VL
State Fire Operations Centre	M	H	Household/property insurance	M	L	Bushfire survival plans	M	L
Community Protection Plans	H	H	Bushfire response plans	M	M	Community development strategies	H	L
Regional Fire Operation Centres	M	L	Bushfire mitigation plans	M	L	Fire ready schools & sites	M	L
Incident Management Teams	M	H	Community education	L	L	Weather warning system	L	L
NAFC & contract aircraft	M	H	Community protection plans	M	L	Fire ready neighbourhood program	H	L
LMA resources	M	M	Land use planning	M	L	Forced evacuation	L	VL
Fire Management Area Committees	M	L	Building & development controls	M	L	Community education	L	M
Fire Trails/Breaks/ & maintenance	M	L	Total fire bans	M	M	Recovery advice	M	L
Seasonal fire-fighters	H	H	Per-incident planning/ exercises	M	L	Community engagement in fuel reduction burning	M	L
Additional PWS tankers	M	H	Closing parks/ reserves	L	M	Public behaviour change	M	VL
			Prepositioning staff/ resources	M	M	External training programs	M	L
			Hot day response systems	M	M	TFS website	L	H
			Media & website use	L	H	Seasonal forecast system	M	M
			Clean-up procedures	L	VL			
			Fuel stove only areas	H	H			

TABLE 15: COASTAL INUNDATION CONTROLS

COASTAL INUNDATION CONTROLS								
MATERIAL/ PHYSICAL	STR.	EXP.	PROCEDURAL	STR.	EXP.	BEHAVIOURAL	STR.	EXP.
Building Codes / Standards	L	L	Coastal erosion / Hazard maps	M	H	Community observations of shoreline shifts	H	H
Sea wall	L	VL	Coastal development limit legislation	–	–	Resident coast shift awareness	H	L
Erosion protection	M	VL	Management plans	VL	VL	Evacuation plans	L	L
Relocation / Buy out	M	L	BoM early warning system	H	H	Household preparation / maintenance	VL	VL
Raised access routes	M	VL	Evacuation plans	L	L	Political will	H	H
Modifying infrastructure	M	L	Statewide coastal policy	M	L	Public awareness	H	H
Planning standards	M	VL	Evacuation zones and safe havens	H	H	Public education resources	H	H
Temporary defences	H	M	Coastal inundation mapping	H	H			
Weather forecasting / warnings	H	H	Recovery centres	M	H			
Coastal levees	L	H	Community evacuation plans	L	–			
Keeping drainage lines clear	H	M						
Tide flaps	L	L						
Early warning system	H	H						
Floating infrastructure (future)	M	L						

TABLE 16: EARTHQUAKE CONTROLS

EARTHQUAKE CONTROLS								
MATERIAL/ PHYSICAL	STR.	EXP.	PROCEDURAL	STR.	EXP.	BEHAVIOURAL	STR.	EXP.
Pre-1990 building code	VL	VL	Seismic monitoring network	H	H	Household response preparation & awareness	-	-
Post-1990 building code	M	M	Infrastructure maintenance	H	H	Household maintenance	-	-
Structural stability	H	L	Land-use planning schemes	H	VL	Media liaison systems	-	-
Assessing hazards	VL	VL	Household / property insurance	M	L	Community warnings	-	-
Eliminating utilities	L	VL	Recovery	L	VL	Community resilience	-	-
Community warnings	VL	VL	Activate SDP	H	H	Targeted awareness programs	-	-
Reconnaissance	–	–	Maintenance of infrastructure	H	H			
Control affected areas	VL	VL	Earthquake hazard maps	VL	VL			
Recovery	VL	H	Fault studies – monitoring	L	L			
Retrofitting of old structures	VL	VL	Emergency management plans	H	H			
Automatic systems / Mechanical shutdowns	M	M	Incident management arrangements	H	H			
			Funding arrangements	H	L			
			Exercise programs	H	M			
			Building standards	H	H			
			Dam safety legislation	H	H			
			National road / bridges specifications	H	H			

TABLE 17: FLOOD CONTROLS

FLOOD CONTROLS								
MATERIAL/ PHYSICAL	STR.	EXP.	PROCEDURAL	STR.	EXP.	BEHAVIOURAL	STR.	EXP.
Permanent levee systems	M	L	Dam maintenance & audit programs	M	M	Community awareness programs	M	L
Raised access routes	H	L	Floodplain models & mapping	L	L	Household preparedness	M	L
Sandbag stockpiles	L	VL	Flood response plans	M	L	Local knowledge of floodplains	M	L
Building code	H	L	Water Management Act	L	L	Community resilience	M	M
Total flood warning system	H	H	Response capability	H	M	Targeted awareness programs	H	L
Land use and building controls	H	L	Recovery arrangements	H	M	Floodplain behaviour awareness	H	L
Dams	VL	VL	Floodplain studies	M	M	Warning / alert access	M	L
Detention basins	L	VL	Community flood response plans	L	M	Media liaison arrangements	M	L
Diversions	H	L	Plans / Dam Safety Act	M	M	Response advice	H	M
Flood barriers	H	M	Flood risk management framework	L	L	Recovery advice	M	L
Investment in infrastructure	H	L	Rainfall / Flood forecasting	M	M	Community awareness of info sites	M	L
Alternative access routes / roads	H	L	Weather warnings & broadcasts	M	M	Awareness of clean-up procedures	L	L
Vessels (SAR)	VL	VL	Planning schemes	VL	L	Emergency response training	H	H
Evacuation centres	H	H	Rainfall / river gauges	M	H	Personnel interagency networks	H	H
Recovery centres	H	H	Interagency coordination	M	H			
Portable levee systems	H	M	NDRP funding arrangements	M	M			
Utility zoning (re: flood zones)	H	H	Rapid impact / damage assessments	M	H			
Clearance / cleaning of creeks	H	L	NDRRA program	M	M			
			Flood insurance	L	L			
			Levee gate systems	L	L			
			Levee maintenance / audit	L	VL			
			Flood evacuation plans	M	M			

TABLE 18: HEATWAVE CONTROLS

HEATWAVE CONTROLS								
MATERIAL/ PHYSICAL	STR.	EXP.	PROCEDURAL	STR.	EXP.	BEHAVIOURAL	STR.	EXP.
Emergency response resources	M	M	Community alerts	H	H	Community knowledge of heat behaviour	M	L
TasNetworks control operations	H	M	Emergency management plans	M	M	Workplace knowledge of heat behaviour	M	L
Public cool spaces	L	VL	Training for responders	H	M	Media awareness / liaison	M	L
MPDS protocol	M	L	Effective response plan	M	M	Tourist knowledge of heat behaviour	M	VL
A/C power availability	H	H	Forecasting and alerts for EMS	H	H	Community education programs	L	VL
Extreme heat equipment standards	M	M	Research and understanding	H	M	Personnel knowledge of assets	H	H
Public health resources	M	M	Exercises to test arrangements	H	VL	Operating assets to avoid fail	H	H
Emergency hospital planning	M	M	Media engagement protocols	M	M	Training for responders	H	H
Public advice (radio / website)	M	H	Interoperability and support	M	M	Agreements with bus services	H	H
Drinking water availability	H	M	Heat stress response plans	M	L			
Access to swimming areas	H	L	Heat alert systems	H	H			
			Heat procedures for asset operations	H	H			
			Asset heat threshold monitoring	H	M			
			Asset auto detection systems	H	H			
			Contact with vulnerable people	H	VL			
			Manual load shedding	H	M			

TABLE 19: LANDSLIDE CONTROLS

LANDSLIDE CONTROLS								
MATERIAL/ PHYSICAL	STR.	EXP.	PROCEDURAL	STR.	EXP.	BEHAVIOURAL	STR.	EXP.
Building codes / standards	M	M	Mapping	H	H	Community awareness programs	L	M
Stabilisation plantations	L	VL	Land-use planning schemes	M	M	Preparedness / maintenance	VL	L
Stabilisation mechanisms	H	L	Arrangements & response	H	H	Knowledge of hazard	L	M
Catch fences / barriers	L	H	Household / property insurance	VL	VL	Community resilience	VL	VL
Drainage control	M	L	Planning controls	H	H	Targeted awareness programs	VL	VL
Land-use planning	H	H	Known landslide monitoring	L	L			
Weather observations	H	H	Education of regulators	M	L			
Monitoring / landslide gauges	H	H	Building Act (TAS)	M	M			
			Maintenance of infrastructure	M	L			
			Site-specific risk assessments	H	H			
			Emergency management plans	M	M			
			Landslip zones management	L	L			
			Incident management arrangements	H	H			
			Funding arrangements	H	H			
			Exercise programs	VL	VL			

TABLE 20: PANDEMIC INFLUENZA CONTROLS

PANDEMIC INFLUENZA CONTROLS								
MATERIAL/ PHYSICAL	STR.	EXP	PROCEDURAL	STR.	EXP	BEHAVIOURAL	STR	EXP.
Personal protective equipment for healthcare workers	M	M	Emergency management framework	H	H	Restriction of hospital visitors	H	H
Emergency departments	H	M	Evidence-based research	H	H	Public information	M	L
GP clinics	H	M	AHMPPI	M	M	Border control	M	L
Ambulances	H	M	Surveillance	M	H	Hand hygiene	H	M
Antivirals	H	M	Hospital pandemic plans	M	H	Workplace knowledge	M	L
Hospital wards	M	M	Business continuity planning	H	M	Health sector knowledge	H	M
Hospital isolation rooms	L	L	Australian infection control guidelines	M	L	Community knowledge	M	L
Hospital equipment (e.g. ventilators)	L	VL	Pandemic exercises and staff training	M	L	Respiratory hygiene	H	L
Healthdirect Australia	L	H	Expert committees and networks *	H	M	Home isolation of cases	M	L
GP Assist (an after-hours GP support service)	M	M	State Service interoperability arrangements	L	M	Home quarantine of case contacts	M	L
Tasmanian Health Service primary health facilities and flu clinics	H	L	State Special Emergency Management Plan: Human Influenza Pandemic Emergencies	L	M	Cancellation of mass gatherings	M	L
The Tasmanian Emergency Information Service	M	H	Tasmanian Health Action Plan for Pandemic Influenza 2016	M	M	Social distancing – 1 metre	L	VL
Hand, respiratory hygiene facilities	L	H	Tasmanian Notifiable Diseases Database	L	M	Public health alerts	M	H
TasALERT	M	H	Hospital influenza patient management protocols	M	M			
Vaccine, when available	H	L	Public Health Act 1997	H	H			
Public information material, signage	L	H	Biosecurity Act 2015	H	L			
Testing laboratories	VL	M						
Public Health Emergency Operations Centre	H	M						

TABLE 21: SEVERE STORM CONTROLS

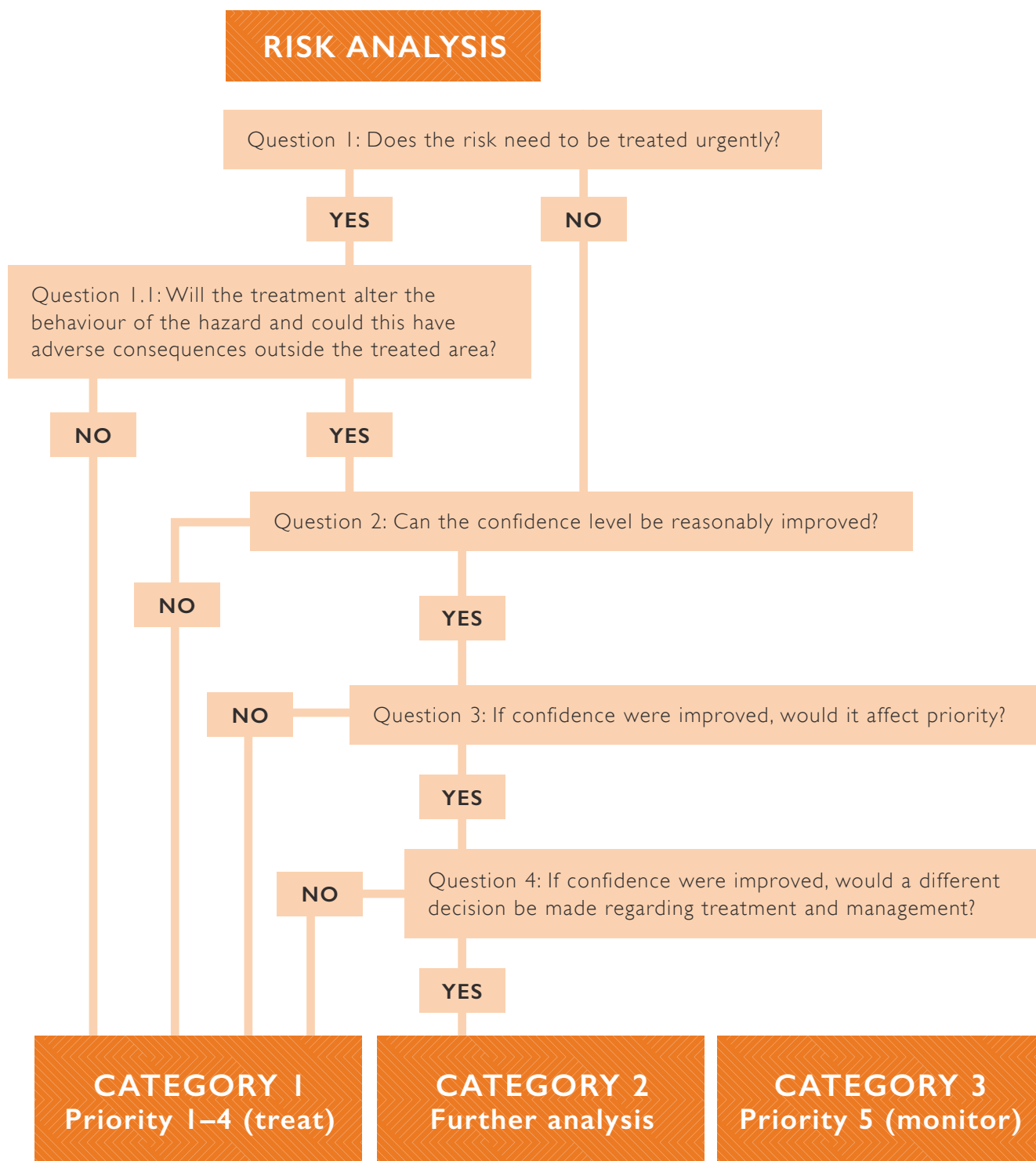
SEVERE STORM CONTROLS								
MATERIAL/ PHYSICAL	STR.	EXP.	PROCEDURAL	STR.	EXP.	BEHAVIOURAL	STR.	EXP.
Drainage systems	M	M	Agency training	H	L	Storm preparation awareness program	M	M
Sandbag stockpiles	L	L	Drainage/maintenance schedules	M	M	Shared responsibility	H	M
Building standards	H	H	Exercising	H	VL	Recovery advice	L	H
Planning standards	H	H	Extreme wind hazard mapping	H	M	Media & communications	L	L
Weather forecasts	M	H	Situation awareness by Control Room	M	H	Household preparation	M	L
Power restoration procedures	H	H	Insurance	H	M	Community resilience	H	M
Asset design standards	H	M	Interagency coordination	H	H	Community acceptance	–	–
Storm shutters	H	H	Local council planning schemes	H	M	Clean-up programs	–	–
Hail covers	M	L	Municipal emergency management plans	M	H	Awareness of clean-up procedures	–	–
Government generators	H	M	NDRP funding arrangements	H	L			
Post-event improvements	–	–	Rapid impact / damage assessment	M	H			
Clearance around power lines	M	L	SES permanent staff training	H	VL			
Evacuation centres	–	–	BoM advice management by SES	H	L			
			SES volunteer training	H	H			
			SOPs for adverse conditions	L	L			
			State emergency management plans	M	H			
			Storm preparation awareness programs	H	VL			
			Storm response plans	–	–			
			Warning systems	H	H			
			Water Management Act	–	–			
			Weather forecasts / GIS displays	H	H			
			Weather monitoring stations	H	H			

TABLE 22: TSUNAMI CONTROLS

TSUNAMI CONTROLS								
MATERIAL/ PHYSICAL	STR.	EXP.	PROCEDURAL	STR.	EXP.	BEHAVIOURAL	STR.	EXP.
Sea walls	VL	VL	Community alerts	H	H	Media liaison	M	H
Coastal embankments	VL	VL	Development permits	L	VL	Tsunami education programs	VL	VL
Building code / standards	VL	L	Inundation mapping	L	M	Maintenance & mitigation	L	L
Tsunami detection buoys	M	M	Signage	M	VL	Community resilience	VL	VL
Tide gauges	VL	VL	Maintenance of infrastructure	H	H	Targeted awareness programs	VL	VL
Satellite data	VL	L	Land-use planning schemes	L	VL			
Recovery resourcing	M	M	Tsunami warning service	H	H			
			Seismic monitoring	H	H			
			Emergency management plans	M	M			
			Incident management arrangements	H	M			
			Funding arrangements	H	L			
			Exercise programs	H	L			
			Agency training	H	H			
			Insurance	H	VL			
			Interagency arrangements	H	H			
			Rapid impact / damage assessment	H	H			

Decision support

FIGURE 1: DECISION TREE FOR RISK TREATMENT BASED ON PRIORITY



Templates

TABLE 23: RISK ASSESSMENT SUMMARY REPORT

(Name)	Emergency Management Committee	Date: / /
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Hazard(s) assessed:	Date of risk assessment workshop:
---------------------	-----------------------------------

Risk assessment workshop coordinator:

Risk assessment workshop facilitator:

Other people who aided in workshop development (including scenario development)

Name:	Task responsibility:
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Tailored risk criteria elements used in the risk assessment workshops

Population:

Gross Area Product: \$

Attachments

Participants list

Scenario template

Risk register

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TABLE 24: PRIORITY RISKS

Please enter all priority risks, including priority level as shown in your risk register. If treatment is required, please enter preliminary treatment suggestions.

[illegible]

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TABLE 25: RISK ASSESSMENT WORKSHOP ATTENDANCE

[illegible]

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TABLE 26: WORKSHOP CHECKLIST

Tasks to do and materials required for the risk assessment workshop.

Task	Responsible agent	Completed
Ensure these tasks have been/will be carried out:		
Stakeholder invitations sent		
Venue and catering arranged		
Hazard scenario finalised		
Risk statements finalised		
Vulnerability/impact presentation (if applicable)		
Scenario presentation (if applicable)		
Agenda sent		
Hazard context presentations arranged (if applicable)		
Workshop materials		
Agenda		
Risk statements in template for all participants and facilitators		
TERR Tool with preloaded risk statements		
PowerPoint presentation with risk statements		
Printed consequence and confidence tables		
Participant name tags		
Tasmanian Emergency Risk Management Guidelines		
Laptop, projector, speakers, laser pointer		
Maps, handouts etc., as appropriate		
Stationery, notepads, markers etc.		


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TABLE 27: ESTABLISH THE SCOPE

PROJECT SCOPE REQUIREMENTS TEMPLATE

Objectives

Responsibilities

Scope

Supporting evidence and expertise

Communication and consultation

Stakeholders

Risk criteria

People:

Economy:

Public Administration:

Social Setting:

Environment:

Source: Australian Government Attorney-General's Department, accessed under Creative Commons BY licence.


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TABLE 28: HAZARD SCENARIO TEMPLATE

Hazard and AEP	Anticipated high level impacts
Source	Deaths/injuries
Magnitude	Infrastructure affected (e.g. roads, rail, bridges, services)
Duration	Other
Location/path	
Time of year/time of day	
Timeline of events	
Characteristics (e.g. amount of rainfall, wind conditions, fire weather, aftershocks, type of freight, antecedent conditions of flood plains)	

TABLE 29: COMPLETE EXAMPLE OF A RISK REGISTER BASED ON A FICTIONAL FLOOD SCENARIO

Risk No.	Risk Statement	Risk Source	Hazard	Impact Area	Controls Strength	Controls Expediency	Control Effectiveness	AEP
1	A significant rainfall event in <location> causing flooding will impact the health of persons and cause death(s).	Severe Rainfall	Flood	People			Med	0.05 Rare
2	A significant rainfall event in <location> causing flooding will impact crops and consequently harvest, resulting in financial losses.	Severe Rainfall	Flood	Economy			Med	0.05 Rare
3	There is a risk that a flood will cause substantial damage to infrastructure services that may result in shutdown and inconvenience to residents for periods of 24 hours or more.	Severe Rainfall	Flood	Social Setting			Med	0.05 Rare

Consequence Level	Likelihood Level	Risk Level	Confidence Level	Risk Priority	Treatment	Municipalities	Treatment/Strategy/ Options
Major	Likely	Extreme	Moderate	1			<ul style="list-style-type: none"> · Further develop and implement early warning systems · Run pre-season advisory/ awareness campaign on risk mitigation activity and options · Develop a specific flood response plan including a detailed evacuation plan · Establish arrangements with medical services cooperated response
Moderate	Unlikely	Medium	Moderate	3			<ul style="list-style-type: none"> · Encourage business continuity plans, e.g. use harvest for stock feed · Plan land use · Maintain culverts · Improve farm dams
Moderate	Likely	High	High	3			<ul style="list-style-type: none"> · Identify access routes for safe self-evacuation · Increase SES resources, e.g. rescue boats · Further develop a detailed evacuation plan including roles, responsibilities and resourcing · Run pre-season advisory/ awareness campaign on risk mitigation activity and options

TABLE 30: PRINTED RISK REGISTER TEMPLATE

Treatment Strategy / Options
Municipalities
Treatment Type
Risk Priority
Confidence Level
Risk Level
Likelihood Level
Consequence Level
Event Likelihood AEP
Control Effectiveness
Existing PPRR Controls
Existing PPRR Controls Strength
Impact Area
Hazard
Risk Source
Risk Statement
Risk No.

Note: The assessment covers a number of municipalities. Feel free to add the appropriate extra columns.

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