

Attachments

UNDER SEPARATE COVER ORDINARY COUNCIL MEETING

6:00PM, TUESDAY, 28 January, 2020

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BOARD INITIATIVE

Climate Change Assessment

JULY 2019

CLIMATE CHANGE ASSESSMENT (CCA) WORKSHOP

Facilitation of one CCA workshop which aims to consider and understand the potential impact of climate change on council's business operations.

WHY IT IS IMPORTANT

Climate Change poses many potential threats to Council operations arising from changing climatic variations. For example, whilst too little rainfall can affect water supply, too much rainfall can cause flooding.

Rising temperatures can also affect the condition of roads and other critical infrastructure such as water and sewer operations.

WHAT IT ENTAILS

An onsite workshop, approximately 5 hours in length, will be conducted with personnel representing all business areas of the organisation. A climate change assessment table will also be prepared and provided to council.

For further information please contact:

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OVERVIEW



1. Statewide Mutual Response to Climate Change 2009 - 2014

- Background
- Potential Implications
- The Findings
- Outcomes



2. Climate Change Risk Assessment - *Ten years on*

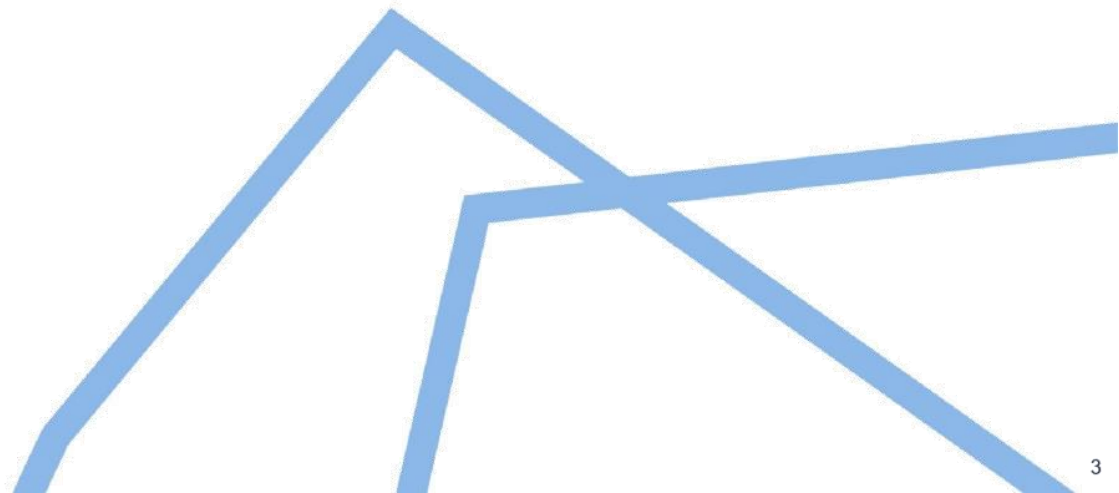
3. How to Participate

4. Questions





1 STATEWIDE MUTUAL CLIMATE CHANGE 2009



3

CLIMATE CHANGE 2009 - 2014 BACKGROUND



- Following IPCC (AR4) – 2007 the Board acknowledged the challenges facing Council
- Aware that the short to medium effect of climate change may impact directly on the functionality and viability of the scheme.



Potential increases in the number of claims in the area of:

- Property Damage
 - Physical damage to Council owned buildings, Infrastructure and assets
- Professional Indemnity
 - Management of the development and building approvals
 - Issuing of certificates
 - Verbal advice
- Corporate Governance
 - Failure to implement legislation
 - Financial responsibility
 - Strategic planning

CLIMATE CHANGE 2009 - 2014

BACKGROUND



- Committed to sponsor the Climate Change Assessment and Adaptation Planning Programme (2009-2014)
- Selected 3 Councils for a pilot project representing Coastal, Inland and Regional areas.
- By 2014, 106 Councils participated (other 30+ scheme members opting for in-house or third party facilitated programme).



CLIMATE CHANGE 2009 - 2014

BACKGROUND



The data used to assess the potential Climate Change impact predicted that by 2030, NSW in general could expect to see the following:

- Become warmer, with more hot days and fewer cold nights
- Have an increased peak summer energy demand for cooling
- Reduced energy demand in winter for heating
- An increase in annual heat-related deaths in those aged over 65
- Potential increase in the spread of vector/water/food borne diseases
- Water resources are likely to be further stressed
- More frequent droughts
- Greater risk of fire
- Increase in flash flooding with a greater number of rain intensity events.



CLIMATE CHANGE 2009 - 2014

CLIMATE CHANGE IN NSW



The data provided for the development of the following Climate Change scenarios:

- Temperature
- Hot days
- Fire Weather
- Rainfall
- Rain Intensity
- Wind
- Sea Level Rise

These scenarios formed part of the programme and one of the parameters used in the project that was rolled out to member councils.

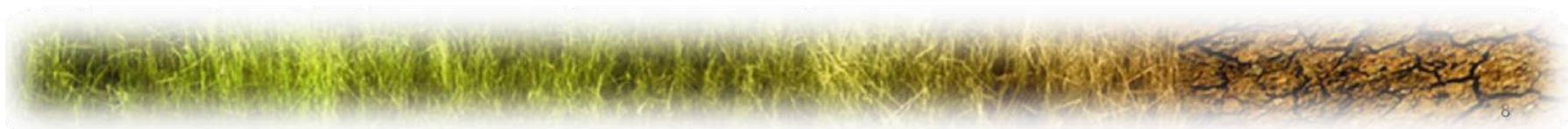


CLIMATE CHANGE 2009 - 2014 METHODOLOGY



- Based on ISO AS/NZS 31000:2009 Risk Management – Principles and guidelines
- Climate Change Scenarios
- Impact on Council's Success Criteria
- Functional Areas

		CONSEQUENCE				
		Insignificant	Minor	Moderate	Major	Catastrophic
LIKELIHOOD	Almost Certain					
	Likely					
	Possible					
	Unlikely					
	Rare					

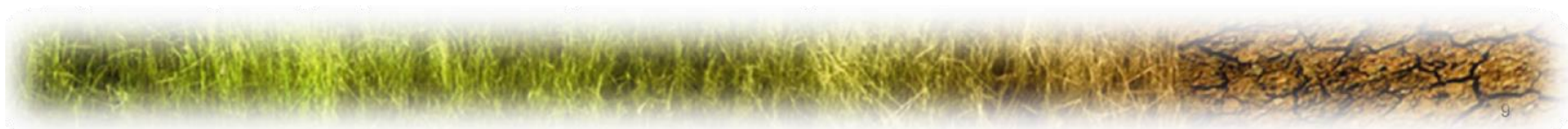


CLIMATE CHANGE 2009 - 2014 PARTICIPATION



- 106 Member Councils over a six – year period

Period	Number of participating councils
2009 <i>Pilot</i>	3
2009-2010	31
2010 – 2011	25
2011 – 2012	6
2012 – 2013	17
2013 – 2014	24
Total	106



CLIMATE CHANGE 2009 - 2014 IMPACT RANKINGS



Data

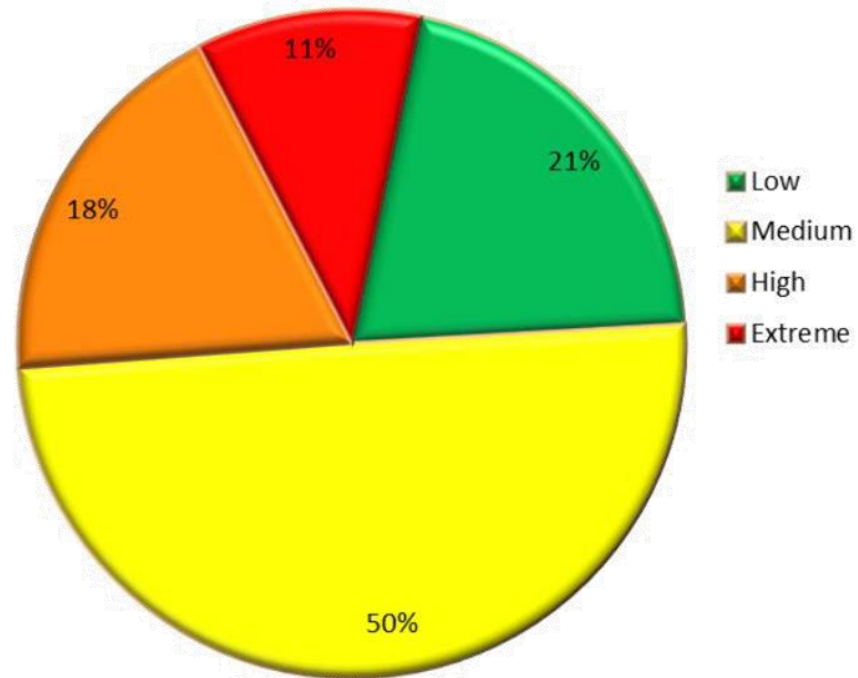
A total of 18,108 climate impacts were identified in this study, of which:

- 1,975 (11%) rated EXTREME
- 3,371 (18%) rated HIGH
- 9,004 (50%) rated MEDIUM and
- 3,758 (21%) rated LOW

In terms of climate scenario the top three with the highest number of impacts were:

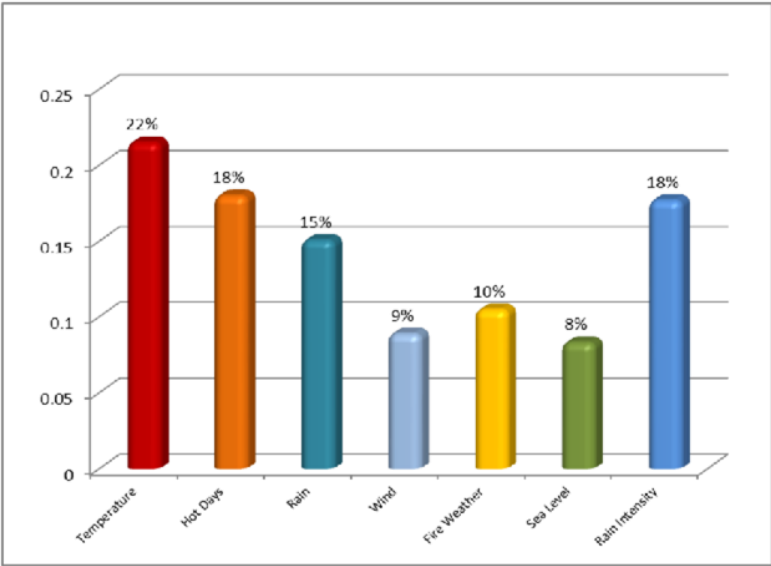
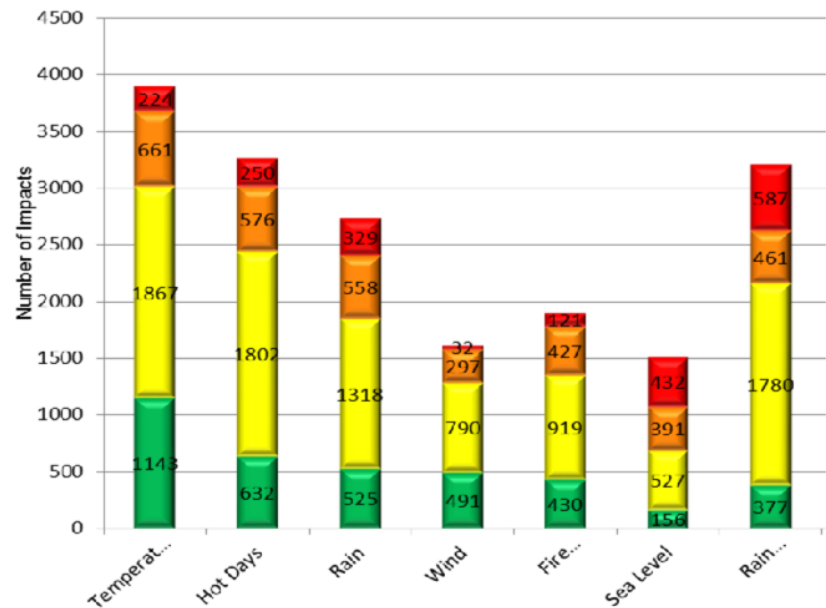
- Temperature - 3,895 impacts
- Hot Days - 3,260 impacts and
- Rain intensity - 3,205 impacts

Figure 1 - Impact Rankings



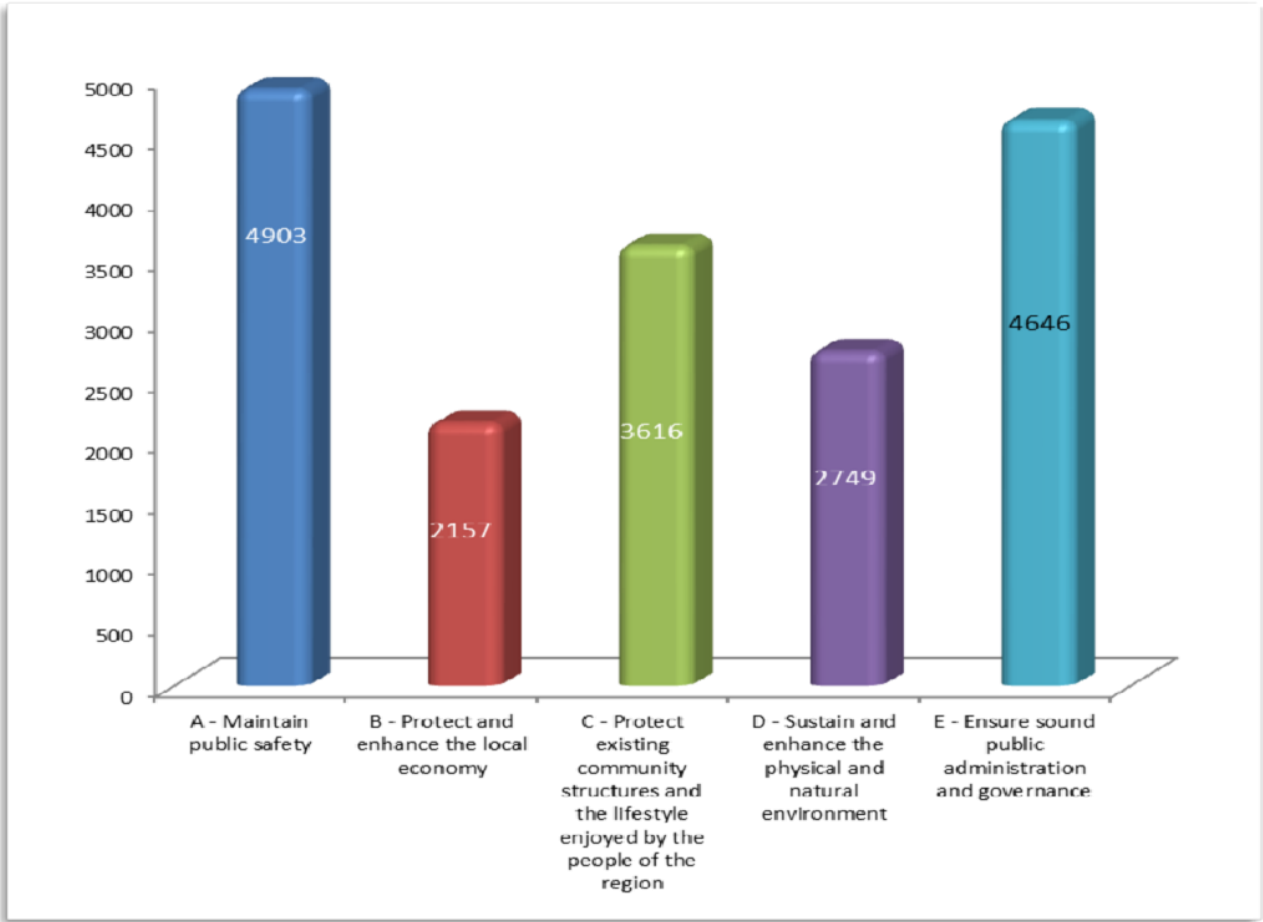
CLIMATE CHANGE 2009 - 2014

DISTRIBUTION OF IMPACT BY SCENARIO



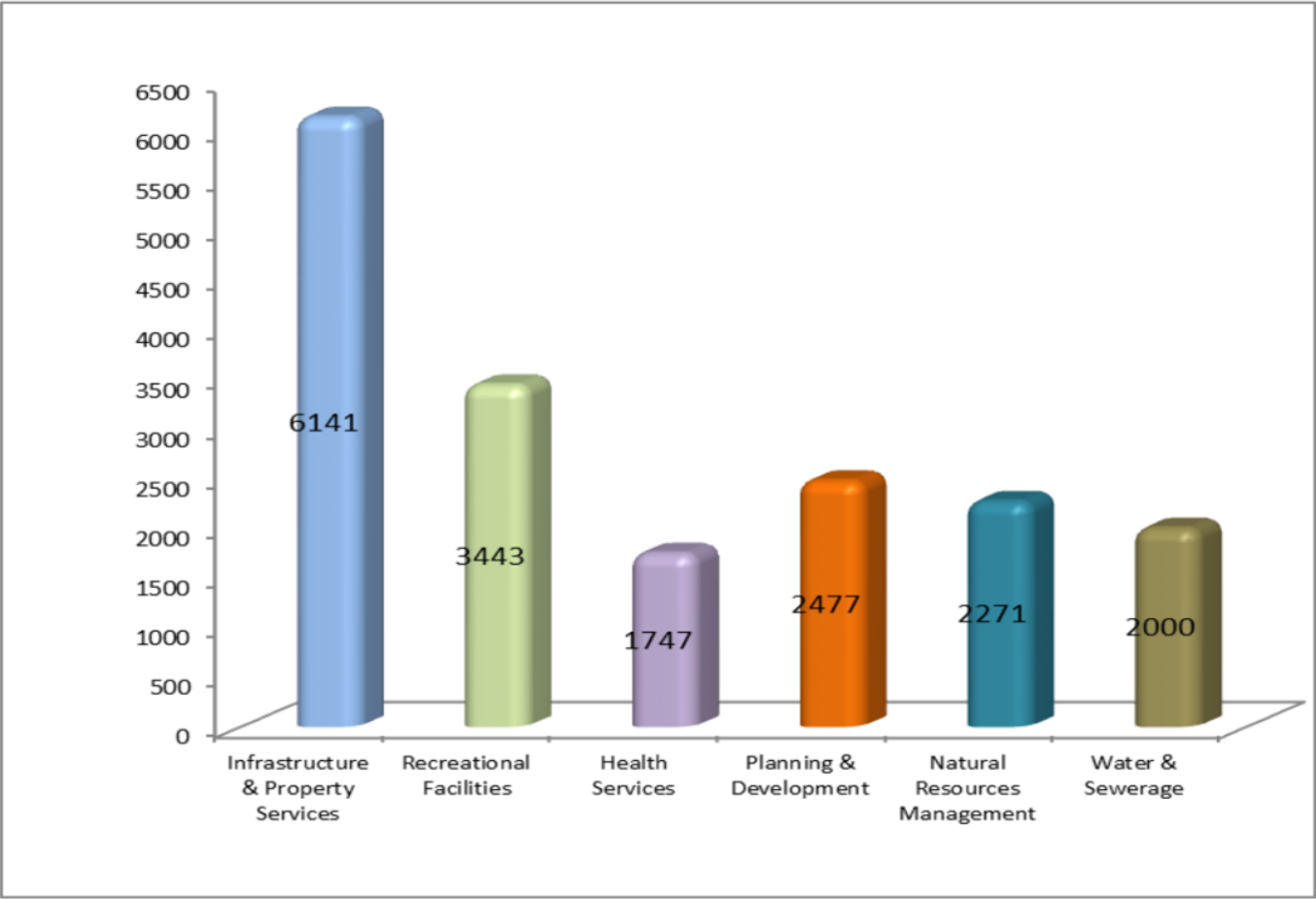
CLIMATE CHANGE 2009 - 2014

DISTRIBUTION OF IMPACT BY SUCCESS CRITERIA



CLIMATE CHANGE 2009 - 2014

DISTRIBUTION OF IMPACT BY FUNCTIONAL AREA



CLIMATE CHANGE 2009 - 2014

INCREASED TEMPERATURES



Increase in the Average Annual Temperature:

- Degradation of footpaths, cycleways etc. may occur at a far quicker rate, potentially impacting upon public safety.
- There could be an increased load on air conditioning systems within Council buildings leading to increased financial strain and or increased maintenance/ need for replacement of units
- Degradation of green space and increased fuel loads may increase forest and urban fire potential
- Increased risk of water borne bacteria in waterways – e.g. blue green algae
- Increase in average ambient temperature outdoor staff may have to amend current working practices



CLIMATE CHANGE 2009 - 2014

INCREASED NUMBER OF HOT DAYS



Increased Number of Hot Days

- Hot days would lead to increase in beach/pool patronage resulting in increased demand/ cost for safety services (includes costs)
- Increased costs associated with the maintenance of infrastructure and property, potential new facilities / shade structures and waste collection
- There may be a need to cater for a change in usage patterns at swimming pools. i.e. pool staying open for longer periods
- There could be a significant increase in peak water demand on and/or close to those days.
- Due to higher usage rates at leisure centres, Council may be required to increase staffing levels and maintenance regimes which will have subsequent cost implications for Council



CLIMATE CHANGE 2009 - 2014

SEA LEVEL RISE



Increased Sea Level Rise

- Potential for permanent inundation of private assets (e.g. commercial, industrial, residential) – including how we adjust our approach to planning controls and working with emergency response agencies
- Community expectations of Council to invest in and manage strategies that protect public health associated with Sea Level Rise risks
- There may be an inundation of vulnerable Council assets (e.g. foreshore open space, car parks, boat ramps, bicycle paths, boardwalks, buildings, etc.), which are damaged or cannot be used by the community
- Utilities servicing Council assets may become affected due to increasing vulnerability to structural failure and maintenance costs
- Uncertainty about legal consequences for Councils refusing or approving coastal developments causing exposure to cost and reputation risks

Coastal impact of Sea Level Rise on existing infrastructure



CLIMATE CHANGE 2009 - 2014

INCREASED RAIN FREQUENCY/INTENSITY



Increased Number of Extreme Rain Intensity Periods

- Increase in Rainfall Intensity causing changes to our natural environment (e.g. flora, fauna, beaches, headlands, creeks and lagoons) – including secondary (flow-on) effects to other processes such as downstream level rises and landslips
- Could lead to contamination of water dams and result in water restrictions being imposed on the community
- Emergency management issues (staffing / emergency centre / equipment / fatigue etc.) during storm
- Localised flooding caused by the insufficient capacity of stormwater systems and debris build up exacerbating flooding issues in the stormwater systems
- Impact of increased erosion on infrastructure, tree fall and vegetation damage in the waterways and recreational areas caused by heavy rain and flood waters
- Increased pollution in waterways and groundwater (e.g. from waste facilities, septic tanks and sewerage systems) and other contamination.
- More frequent damage to essential transport infrastructure



CLIMATE CHANGE 2009 - 2014

OUTCOMES



Adaptation initiatives were developed for:

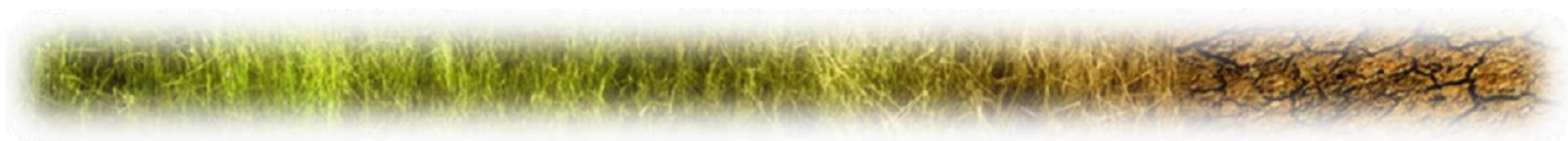
- 3371 risks rated High and
- 1975 risks rated Extreme
- **5346** Total

Included consideration of potential climate change outcomes in:

- Medium to long term management and financial planning
- Work practices
- Education
- Key decision making
- Policy making

Active participation in other Climate Change forums to further work

Sought Grant funding to assist in the implementation of initiatives



CLIMATE CHANGE 2009 - 2014

SEA LEVEL RISE; FLOOD; BUSHFIRE



In response to this clear need, Statewide Mutual funded the development of guidance material for the benefit of its members.

Climate Variation

Type	Name
	DMF - Land Impacted by Sea Level Rise v3.pdf
	DMF Output - Bushfire Prone Land v3.pdf
	DMF Output - Flood Prone Land v3.pdf
	Revised DMF Guidance Note v3 Jun2014.pdf











CLIMATE CHANGE 2009 - 2014

MEMBER CENTRE – www.statewidemutual.com.au







Conference Videos




Welcome



CIP Workbooks




- Strategy
- Policy
- Resourcing
- System
- Documentation




DASHBOARDS
Business Intelligence tools to help visualise and consolidate your risk and claims activity

- Claims Dashboard



BOARD INITIATIVES
Access information on current Statewide Mutual Board Initiatives

- Continuous Improvement Pathway
- Conference Videos & Podcasts
- Conference Presentations
- AV/CRM RPA & Automation Systems
- Insurable Risk Profiling & Business Interruption Reviews
- Mock Trials



MEMBER RESOURCES
Risk articles and recommendations from experts, case studies and Scheme information

- About Statewide
- Scheme Overview

QUICK LINKS

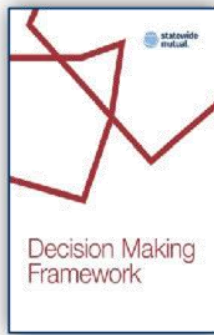
- About Statewide Mutual
- Newsletter Archive
- Annual Reports
- Fact Sheets
- Public Sector Construction Facility
- Change Password

QUICK FORMS

- New Building Checklist
- Unoccupied Building Checklist
- Lodge a New Claim or Incident
- Event Marketing Request Form

MISSION STATEMENT

To apply innovative practices to the management of Local Government insurance to ensure the protection of Members through stable premiums, cost containment and spread of risk.



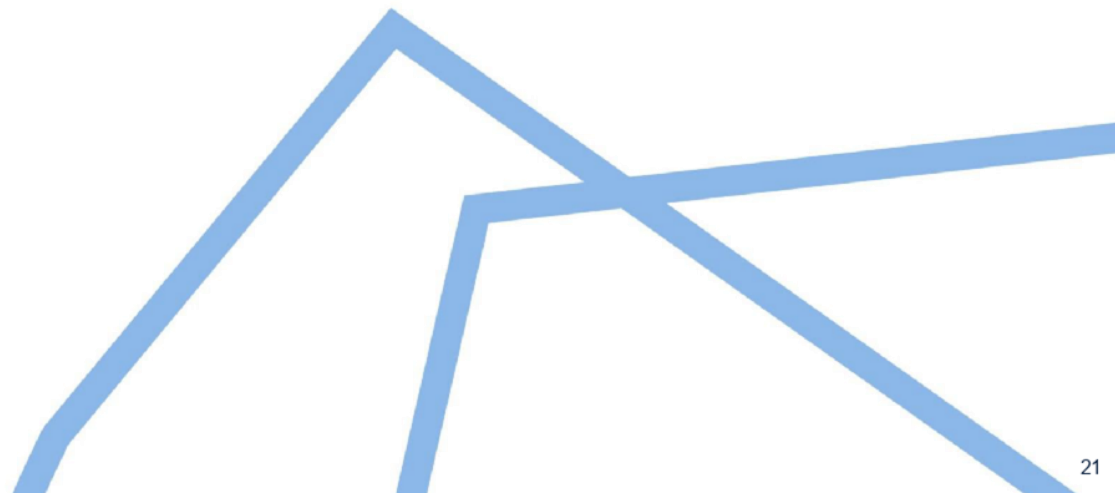
DMF for Bushfire, Flood & Sea Level Rise

Decision Making Framework

Login required to access resources on Member Centre
see your Risk Manager to organise



2 CLIMATE CHANGE RISK ASSESSMENT - *Ten years on*

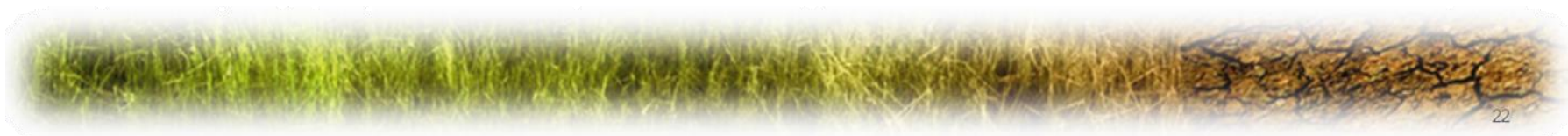


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CLIMATE CHANGE RISK ASSESSMENT SWM INITIATIVES ON DEMAND



- Climate Change Risk Assessment (CCRA)
- Project offered as part of a suite of “Initiatives on Demand” available to Member Councils
- Risk Assessment only



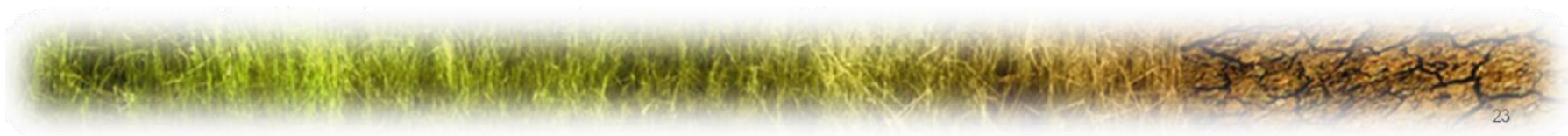
CLIMATE CHANGE RISK ASSESSMENT

SWM INITIATIVES ON DEMAND



1. Purpose

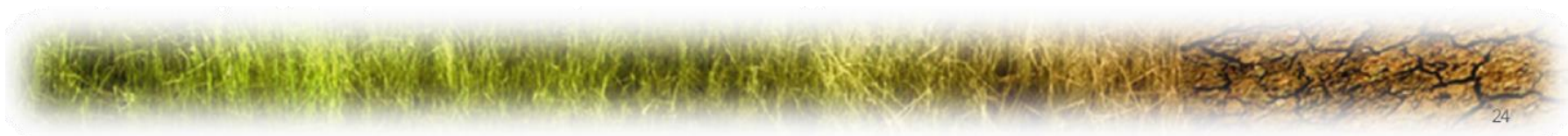
- a. To assess the impact of Climate Change on Council business operations
- b. Based on available projections, determine the level of impact on
 - Council's objectives and
 - Functional areas



CLIMATE CHANGE RISK ASSESSMENT SWM INITIATIVES ON DEMAND



- Using regional data available to the former Office of Environment and Heritage (now the Department of Planning Industry & Environment)
- The NSW and ACT Governments and the Climate Change Research Centre (NARClIM) at the UNSW; together with other NSW Government authorities have partnered to develop Regional Climate Modelling for 12 key catchment areas with climate change projections at a regional scale through interactive mapping.
- Able to consider impacts of region-specific climate projections (not just global).

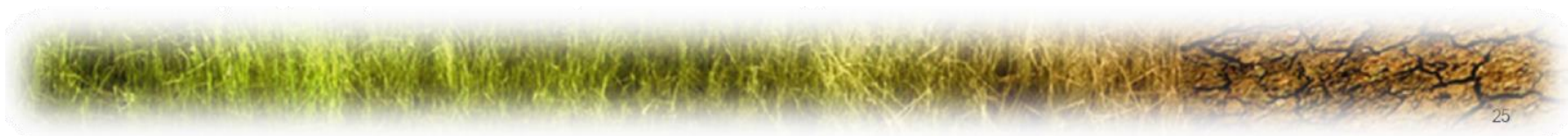


CLIMATE CHANGE RISK ASSESSMENT SWM INITIATIVES ON DEMAND



2. Methodology

- a. ISO AS 31000-2018 Risk management guidelines
- b. Updated regional projections (Climate Scenarios)
- c. Updated list of Functional areas
- d. Success Criteria
- e. Updated risk assessment tools



CLIMATE CHANGE RISK ASSESSMENT SWM INITIATIVES ON DEMAND



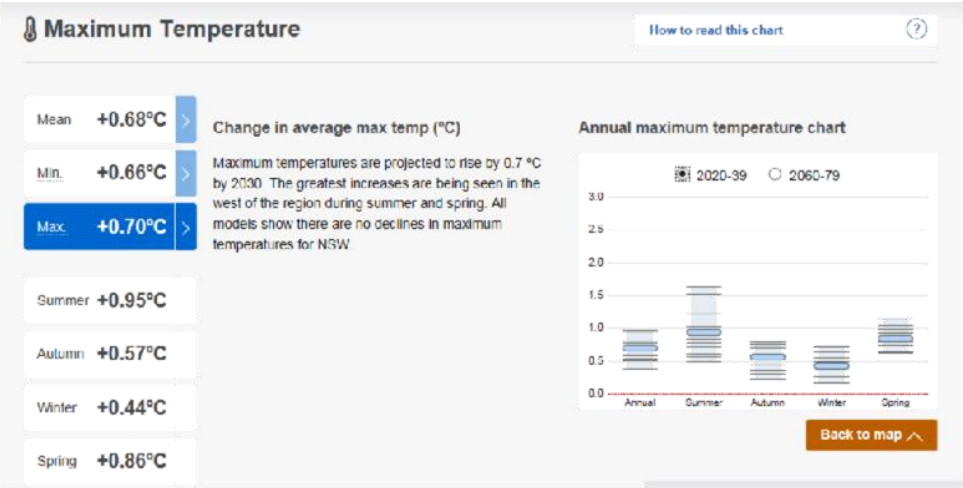
3. Climate Scenarios

- a. **Temperature** – Minimum; Maximum; Mean; Seasonal
- b. **Hot Days** (days above 35 degrees)
- c. **Rainfall** (combined)
- d. **Fire Weather** (FFDI >50)
- e. **Sea Level Rise**

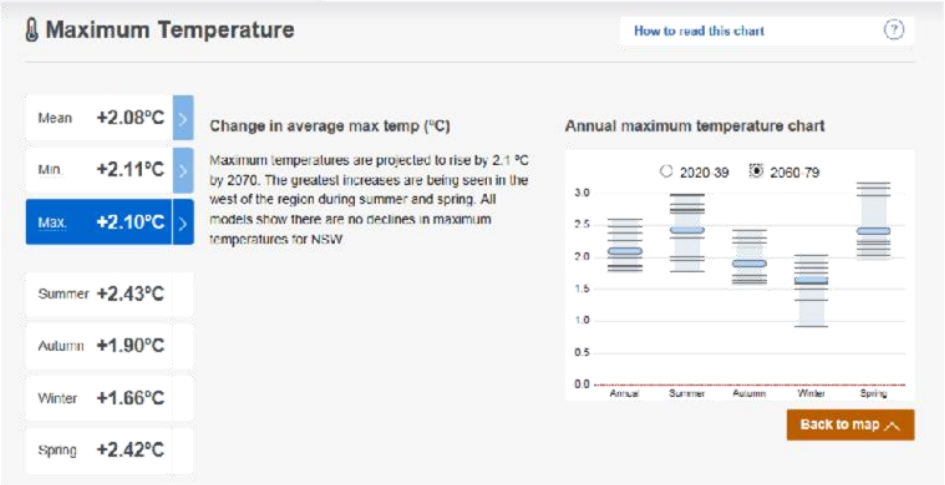


CLIMATE CHANGE RISK ASSESSMENT

SWM INITIATIVES ON DEMAND



- Source: adapt NSW



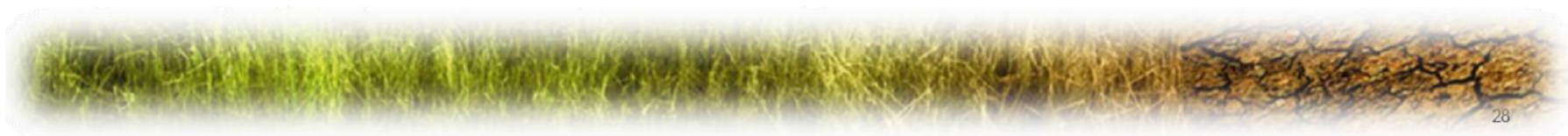
CLIMATE CHANGE RISK ASSESSMENT

SWM INITIATIVES ON DEMAND



4. Success Criteria

- Principal objectives for Local Government
 - A. Maintain Public Safety
 - B. Protect & Enhance the Local Economy
 - C. Protect existing Community Structures & the Lifestyle enjoyed by the people of the region
 - D. Sustain & Enhance the Physical & Natural Environment
 - E. Ensure Sound Public Administration & Governance



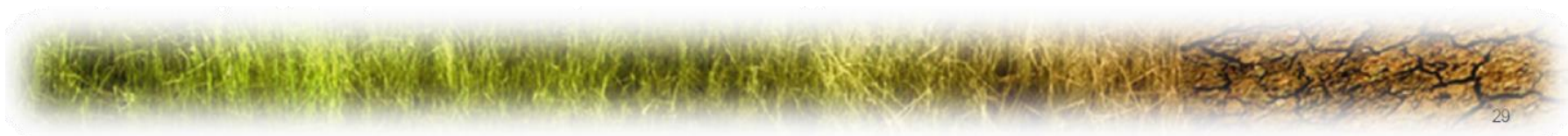
CLIMATE CHANGE RISK ASSESSMENT

SWM INITIATIVES ON DEMAND



5. Functional Areas

- Infrastructure & Assets
- Community Services
- Land-use Planning & Development
- Emergency Management & Natural Disaster preparedness
- Corporate Services

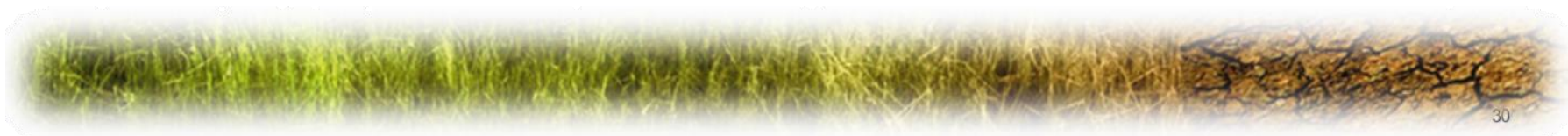


CLIMATE CHANGE RISK ASSESSMENT SWM INITIATIVES ON DEMAND



6. Higher level

- Encouraging a more strategic approach to the risk assessment
- Expect less risks and less repetition

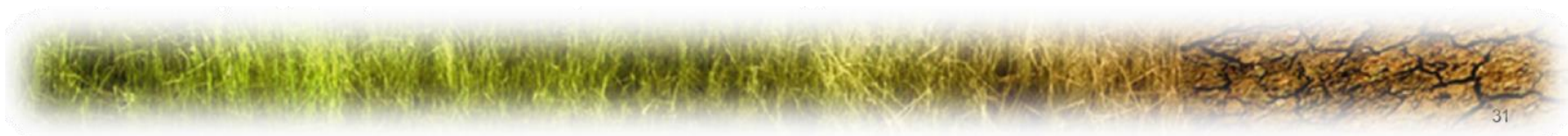


CLIMATE CHANGE RISK ASSESSMENT SWM INITIATIVES ON DEMAND



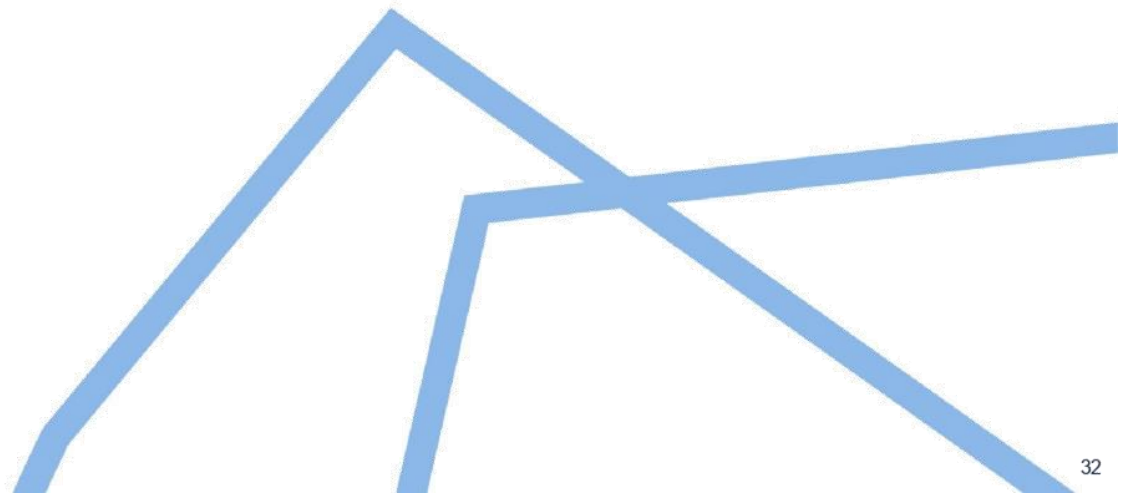
7. The Process

- **One session** – approximately 3.5 to 4 hours
- **Preparation** - Review previous assessment where applicable
 - Participants asked to familiarise with previous assessment
- **Participation** -
 - Broad representation; workable number
 - Encourage Senior management for strategic focus
 - Bring knowledge and lessons from previous project (if applicable)
- **Deliverable**
 - Brief report incorporating risk assessment and analysis of results
 - Recommendation for **Council to develop adaptation initiatives**





3 HOW TO PARTICIPATE



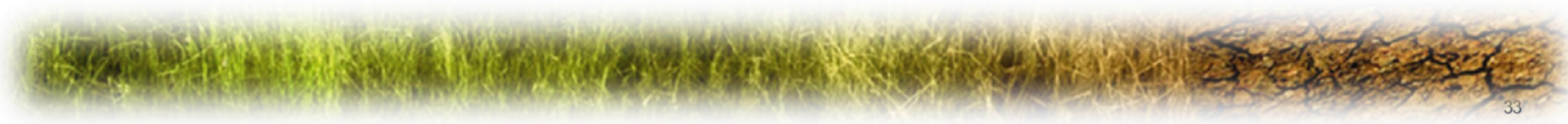
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CLIMATE CHANGE RISK ASSESSMENT SWM INITIATIVES ON DEMAND



1. How to participate

- a. One initiative per year
- b. Selected and approved at Senior Management level
- c. Speak with your organisation's Risk Officer
- d. Submit request via the Statewide Mutual member centre site at www.statewidemutual.com.au (need a login)
- e. Speak to your Regional Risk Manager



Questions

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Climate Change Risk Assessment Adaptation Report

Gundagai Shire Council



May 2011



Prepared for

Gundagai Shire Council

Facilitated and Developed by

Statewide Mutual Liability Scheme and Echelon Australia Pty Ltd

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ABN 96 085 720 056

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The climate change risk management assessments contained within this report have been developed solely on the site-specific information supplied by Gundagai Shire Council and have been prima facie accepted by the authors of this report and have not been independently verified for accuracy. Echelon Australia accepts no responsibility for any loss that arises out of the Gundagai Shire Council having failed to bring all relevant facts to our attention or having provided inaccurate information.

Assumptions & Limitations

It is understood that there is a level of uncertainty regarding climate change projections, including those for New South Wales. Echelon acknowledges that climate change data may change and has committed to the CSIRO scenarios available at the time of the assessment.

The focus of the Climate Change Adaptation Risk Assessment is one of planned adaptation – not mitigation. Planned adaptation is the result of deliberate policy decisions, based on an awareness that conditions have or will change and that action is required to return to, maintain, or achieve a desired state.



Adaptation planning for low and medium impacts is outside the scope of this Project, however Councils are encouraged to continuously monitor, review and manage climate change impacts at all levels and scenarios.

Use of this Report

This report has been prepared for the Gundagai Shire Council for the purpose of climate change risk management and adaptation planning.

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Executive Summary

In 2006, 2007 and 2008, Board Members of the Statewide Mutual Liability Scheme (Statewide) visited London Underwriters to expand on the risk management activities undertaken by Member Councils. During the 2008 visit, Statewide was asked to elaborate on these activities and Council's management of climate change. It was agreed that Local Government has an important 'climate change' role to play given its responsibility for a wide range of issues, such as planning and development, promotion of renewable energy, land use, transport planning, asset and infrastructure management, vegetation clearance and stormwater management to name but a few.

Most underwriters acknowledged that although the task of adapting to climate change will be complex, expensive and will require long term commitment from all Councils, it needs planning, direction and a sound framework to ensure that the potential insurable losses are within expectations.

At the June 2009 meeting of the Board of Statewide Mutual, the Board commissioned a Climate Change Adaptation Project to address the potential climate change impacts confronting member Councils. For the Financial Year ending 30 June 2010, 32 Councils were selected to participate in the Project

Echelon Australia Pty Ltd (Echelon) has responded to the Board's requirement by developing an adaptation planning process that uses CSIRO climate change data and adopts an approach that is consistent with national guidelines established by

the Commonwealth Department of Climate Change and the AS/NZS4 360 risk assessment process.

To be truly representative of Council's risk management activities and the broad range of their risk exposures, Echelon also felt it was important to ensure that Council's operational stakeholders were identified and engaged. A series of meetings was held that targeted this group including, but not limited to, the following members:

- Council Executives
- Council Environmental, Planning, Engineering, Maintenance, Operational, Financial and Risk Management Officers
- Council's existing Environmental Management and Risk Management Committee.

The underlying basis of this project is risk management. It relies heavily on gathering information to produce qualitative risk assessments. The objectives of the project are to:

- Undertake a risk assessment process that aligns with the AS/NZS 4360 and ISO 31000
- Develop strategies that focus on adaptation to potential climate change impacts

- Provide Statewide with comprehensive Climate Change risk assessment and adaptation planning data



- Identify strategies that can be used for Councils' strategic and integrated planning.

The risk assessments were based on the CSRIO climate change scenarios. In New South Wales climate change has been considered in relation to:

- Temperature
- Hot Days
- Average Rainfall
- Fire Weather
- Rain Intensity

This report contains a description of all identified climate change impacts, including the risk level (extreme, high, medium, low). Extreme and High level climate change impacts and adaptation plans are compiled in the body of this report. All risks are listed in Appendix 3.

Adaptation planning for low and medium impacts is outside the scope of this Project, however Councils are encouraged to continuously monitor, review and manage climate change impacts at all levels and scenarios.

The following information provides an analysis of all impacts identified by Council.

Analysis of All Impacts

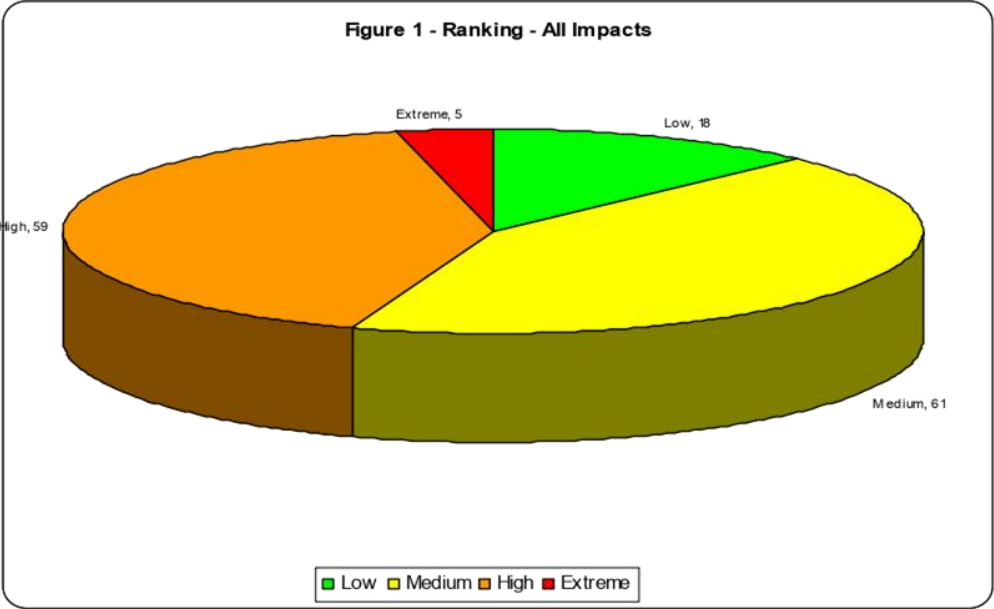


Table 1 - Impact Rankings by Scenario										Table 1 Ranking All ImpactsTotal	
	Temperature	Hot Days	Rain	Wind	Fire Weather	Sea Level	Rain Intensity				
Low	8	2	0	0	2	0	6			Low	18
Medium	17	22	12	0	10	0	0			Medium	61
High	8	10	13	0	7	0	21			High	59
Extreme	0	0	0	0	0	0	5			Extreme	5
	33	34	25	0	19	0	32	0	0	143	143

143 impacts were identified (Table 1 & Figure 1) with 64 ranking in the Extreme and High range. These 64 impacts are the subject of adaptation plan consideration in the report.

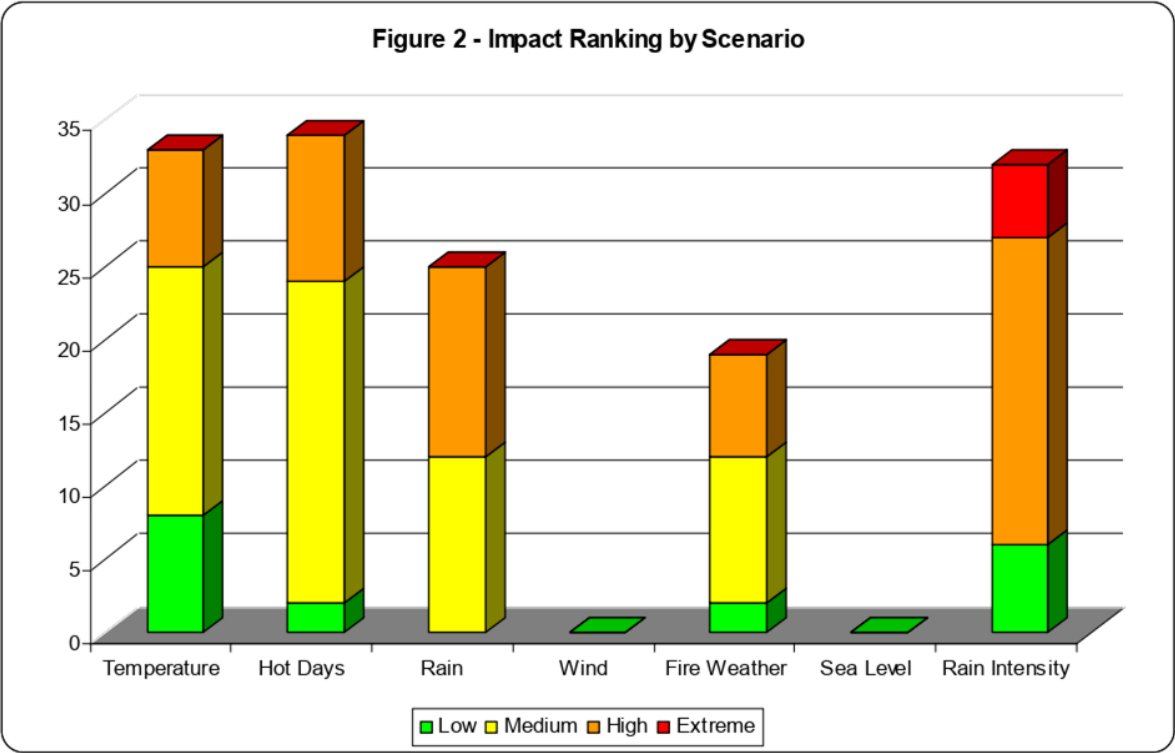


Figure 2 and Table 1 provide a scenario view of rankings. Medium & High impacts account for 84% of the total. While Medium impacts are not included in adaptation planning, they form a significant proportion of the total impacts (43%). It is recommended that Council include all impacts in future reviews and re-evaluations of its climate change program.

It is of note that the Hot Days scenario (34 impacts) accounts for 24 % of the total .

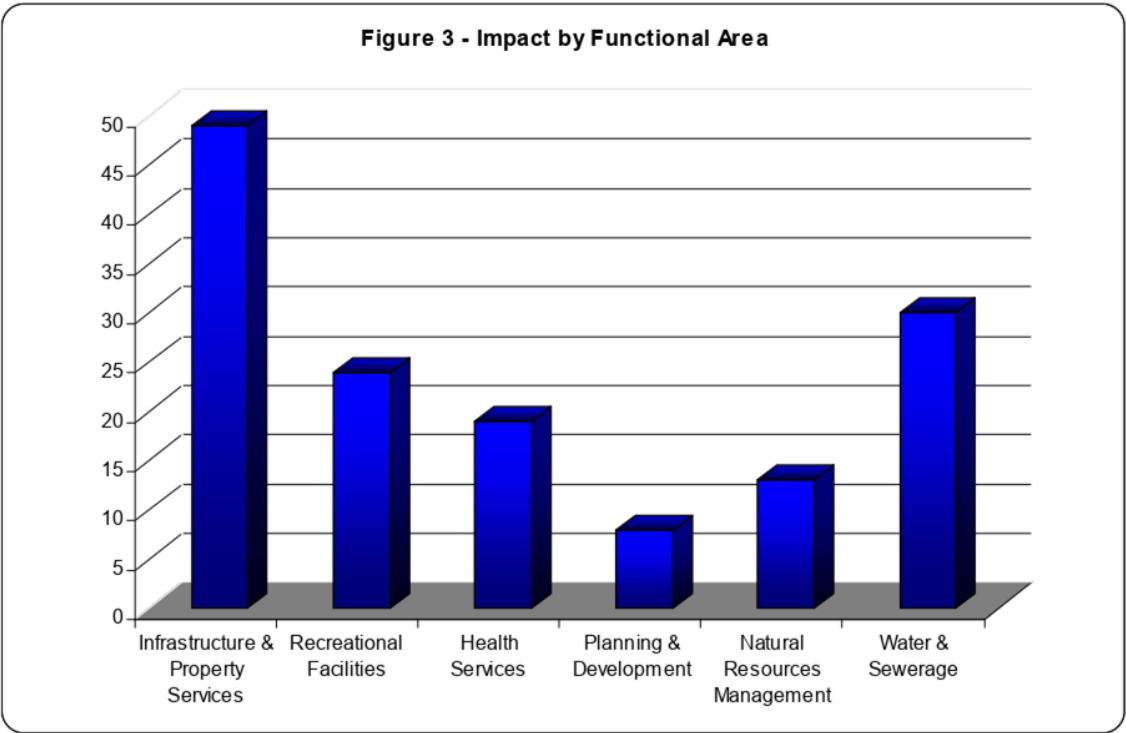


Figure 3 provides an overview of all impacts by Functional area. The greatest number of impacts are attributed to Infrastructure & Property Services; representing 34% of the total with 49 potential impacts.

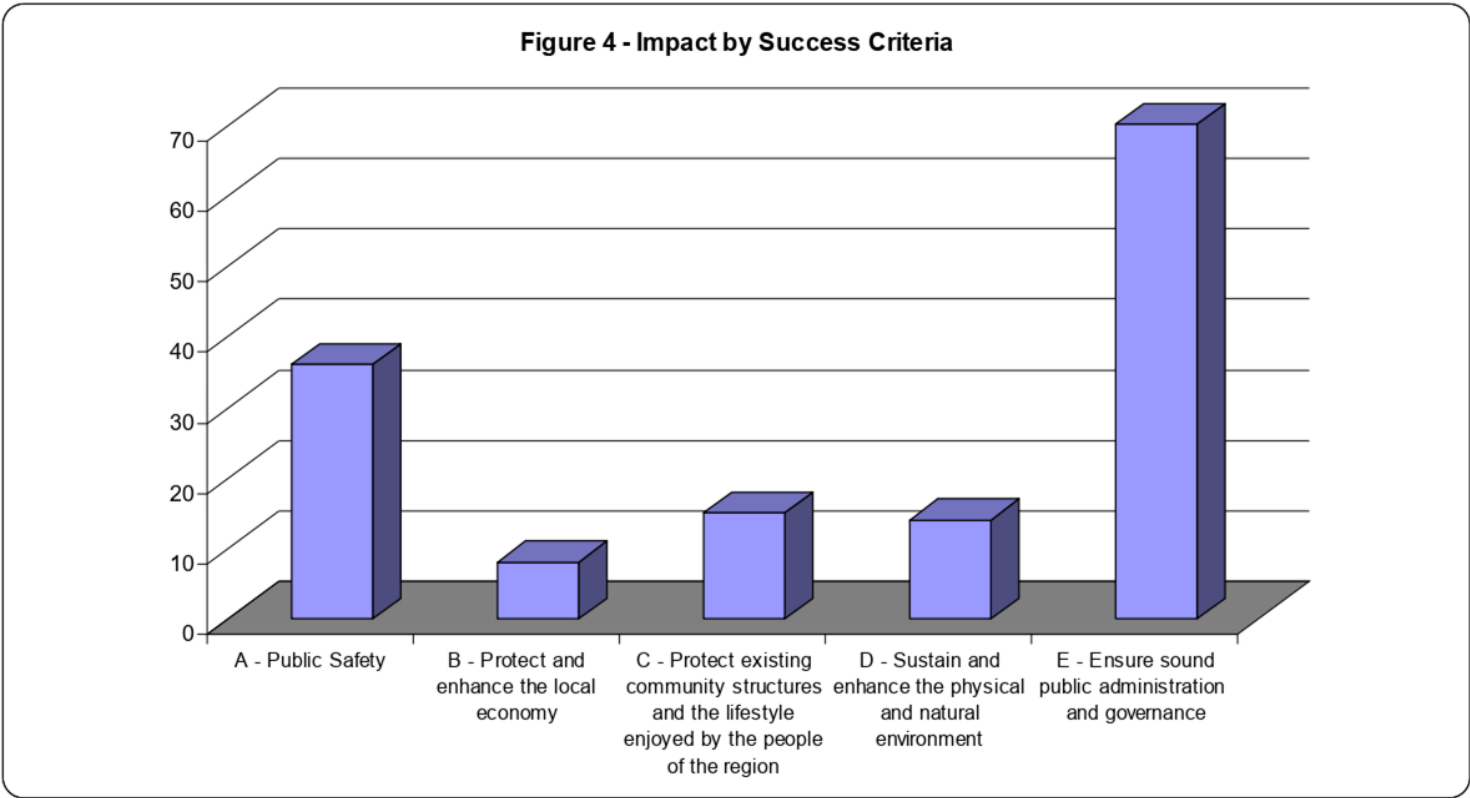


Figure 4 provides an overview of all impacts by Success Criteria. The greatest number of impacts are in the criteria of Ensure sound public administration and good governance, representing 49% of the total impacts

Climate Change Background

Climate change can be described as any significant, long-term change in weather patterns and is the result of an increase in the earth's average temperature. This temperature increase is believed to be caused by increased greenhouse gases in the earth's atmosphere. In 2007 the Intergovernmental Panel on Climate Change (IPCC) released its fourth Assessment Report on the state of knowledge on Climate Change. It concluded that global warming is now unequivocal and that most observed increases in temperatures since the 1950s are very likely due to increased concentrations of greenhouse gases, as a result of human activities (IPCC, 2007). Although there remains some scepticism, the debate has moved beyond the causes of climate change and evaluating the credibility of its science.

Consequently, the debate has largely shifted to methods of reducing our human influence and adapting to the inevitable effects of climate change. The causes of climate change (be it human activity or other phenomena) make little difference with regard to adapting to the impacts that we cannot avoid. Whether we are prepared for the exponential impacts of climate change in the future, depends on today's effective risk management.

Climate Change in NSW

The CSIRO has provided data in the form of climate change scenarios for the year 2030, relative to 1990 (CSIRO, 2006). By 2030, we can expect to see NSW experience the following:

- Become warmer, with more hot days and fewer cold nights
- Have an increased peak summer energy demand for cooling
- Reduced energy demand in winter for heating
- An increase in annual heat-related deaths in those aged over 65
- Potential increase in the spread of vector/water/food borne diseases
- Water resources are likely to be further stressed
- More frequent droughts
- Greater risk of fire

- Increase in flash flooding with a greater number of rain intensity events

Climate Change and the Impacts for Local Government

The nature of Local Government, its services and functions, means it will feel the impacts of climate change considerably. Many impacts of climate change present risks that require treatment at a 'local' level which is why Councils will be heavily involved in the nation's adaptation process. Echelon have identified a number of risks that climate change presents for Local Government. These include:

- Uncertainty over development and building approvals. The potential effects of climate change have been used in the Courts to prevent building in areas at risk of sea level rise.
- Increased public liability exposure as a result of risks exacerbated by climate change impacts. For example, development or building to standards that are subsequently rendered inappropriate due to impacts such as high wind levels, flooding or increased risk of bushfire.
- Public safety issues caused by extreme weather events and temperatures. For example an increase in accidents caused by bushfires/floods and an increased risk of heat stress and disease from vectors.
- Higher insurance costs as a result of increased claims.
- Responsibility for erosion, contamination, landslides, etc due to extreme weather events.
- Failure to preserve 'community' natural assets affected by climate change e.g. water resource availability.

Project Background

Statewide is aware that the short to medium effects of climate change may directly impact on the functionality of the Scheme. Potential increased claims in the area of property damage (physical damage to Council owned buildings, infrastructure and assets), professional indemnity (management of the development and building approvals, issuing of certificates, verbal advice) and corporate governance (failure to implement legislation, financial responsibility, strategic planning) have the potential to create adverse pressure. Statewide decided to assist Member Councils prepare adaptation plans and use this data to advise the London Underwriters on the extent that Councils are preparing for climate change.

Gundagai Shire Council was one of the Councils selected to participate in the Climate Change Adaptation Plan Project during the Financial Year ending 30 June 2011.

As well as the significance to Statewide, Local Government is also concerned with how to effectively identify climate change risks and adapt appropriately. Echelon has responded by designing and facilitating a Project that assists Member Councils to address these concerns. Echelon's Climate Change Adaptation Planning Process uses CSIRO climate change data as assessment criteria and adopts an approach that is consistent with national guidelines established by the Australian government and other leading authorities.

The following guides and standards were used to establish the assessment framework and project methodology:

- *Climate Change Impacts & Risk Management A Guide for Business*, Australian Green house Office 2006
- *Government and Climate Change Adaptation Actions for Local Government* Australian Government Department of Climate Change 2009
- *Australian and New Zealand Standard for Risk Management AS/NZS 4360:2004*.
- *International Standard ISO31000, Risk Management – Principles and Guidelines*

- NSW Catchment Reports, CSIRO 2007
- *A framework for stakeholder engagement on climate adaptation*, Climate Adaptation CSIRO Climate Adaptation Flagship Working Paper No.3, 2009

Project Objectives

- Undertake a risk assessment process that aligns with AS/NZS 4360 and ISO 31000
- Develop strategies that focus on adaptation to potential climate change impacts
- Provide Statewide with comprehensive Climate Change risk assessment and adaptation planning data
- Identify strategies that can be used for Councils' strategic and integrated planning.

Acknowledgements

The Echelon facilitation team and the Board of Management of Statewide Mutual would like to thank the following Gundagai Shire Council staff who contributed to the project:

Table 4 – Project Participants	
Phil McMurray, Director Engineering Services	
Glenn Harris, OH&S & Risk Management Officer	

Project Methodology

The Climate Change Adaptation Risk Assessment process is broken down into a number of sessions, facilitated by an Echelon Risk Consultant. The role of the facilitator is to guide attendees through the risk assessment and adaptation planning stages.

The Australian Standard for Risk Management, AS/NZS 4360:2004 (the Standard) was selected as the framework for assessing climate change impacts. This Standard meets or aligns with one that is typically mainstreamed within Council and has the flexibility to deal with new climate change information with efficiency.

Assessment criteria were based on likelihood and consequence descriptors provided by the Australian Greenhouse Office, which are located in Appendix 1

and 2. To evaluate the impacts, these criteria were combined with functional areas and 'Success Criteria' (or Council's objectives).

Figure 5 below represents the Standard's approach to the Climate Change Adaptation Risk Assessment process.

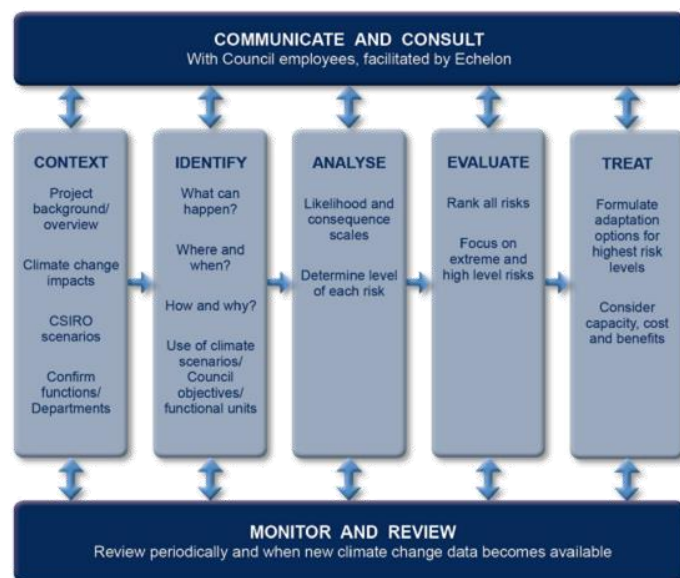


Figure 5. AS/NZS 4360 applied to climate change risk assessments

CSIRO Climate Change Scenarios

A key feature of the Risk Assessment process is the use of CSIRO climate change scenarios to identify risks. The following scenarios have been chosen. They represent the CSIRO scenarios available at the time of the assessments that are the closest to Gundagai Shire Council's geographical location.

- T** Temperature: There is a risk that the average annual temperature may increase by 0.2°C - 1.8°C by 2030.
- HD** Hot Days above 35°C (Based upon Wagga Wagga currently 20 days): There is a risk that there will be an additional 1-14 hot days by 2030.

- R** Rainfall (Based upon Wagga Wagga currently 586mm): There is a risk that the average annual rainfall will reduce by 13% by 2030.
- FW** Fire Weather (Based upon Wagga Wagga currently 50): There is a risk that the number of days annually when the Forest Fire Danger Index (FFDI) is extreme or catastrophic will increase by 3-5 days by 2030.
- RI** Rain Intensity: There is a risk that intense rain periods (i.e. the number of 1 in 40 year one day events) will increase by 7% by 2030.

Functional Areas of Council

Potential Climate Change impacts were considered in relation to the following Council Functional Areas:

- I** Infrastructure and Property Services
- R** Recreational Facilities
- H** Health Services
- P** Planning and Development
- N** Natural Resources and Management
- W** Water and Sewage

Note: 'Functional Areas' are a summary of Council operations, as defined in the *Climate Change Adaptation Actions for Local Government*, Department of Climate Change 2009.

Success Criteria

The success criteria were defined as:

- A** Maintain public safety
- B** Protect and enhance the local economy
- C** Protect existing community structures and the lifestyle enjoyed by the people of the region
- D** Sustain and enhance the physical and natural environment
- E** Ensure sound public administration

Note: 'Success Criteria' are a summary of Council's long term objectives, as defined in *Climate Change Impacts & Risk Management A Guide for Business*, Australian Greenhouse Office 2006.

Recommendations

Echelon recommends that Council proceed with adoption of adaptation plans and ongoing review. It is recommended that the following key features be part of Council's ongoing climate change adaptation program:

1. Review of adaptation plans within review dates or earlier as necessary.
2. Review of all risk assessments including low and medium risks on a regular basis.
3. Consideration of new climate change risks when reviewing risk assessments, or as and when they arise.
4. Consideration of changes in relevant climate change data, operating environment, legislation, economy, demographics, and other relevant factors when reviewing adaptation plans and risk assessments.
5. Categorising of adaptation plans into e.g. short (< 1year), medium, (1-3 years) and long term (>3 years).
6. Inclusion of climate change risk management and adaptation plans into strategic and other management planning processes.
- 7.
- 8.
- 9.

Climate Change Impacts Data

The following information outlines the impacts, ratings, current controls and adaptation plans for extreme and high risks, for all scenarios.

Risk assessment results for all impacts are at Appendix 3.

Adaptation Plans Summary

Gundagai Shire Council identified 5 extreme climate change risks and 59 high climate change impacts. The risks and recommended adaptation plans are summarised in the tables below.

Scenario for Temperature (T)

There is a risk that the average annual temperature may increase between +0.2°C and 1.8°C by 2030.

Impact ID	Impact Description	Impact Rating	Current Controls	Future Adaptation Plans
TER7	There is a risk that as a result of an increase in ambient temperature, roads, footpaths and bridges infrastructure will degrade at a greater rate	High	<ul style="list-style-type: none"> Strategic Asset Management Plan, routine maintenance and inspection regime, incident reporting from both members of the public and council staff and follow up investigations. Also prioritisation of necessary repairs 	<ul style="list-style-type: none"> Current controls would be sufficient to address this risk
TAI8	There is a risk that an increase in average annual temperature may result in increased costs of road maintenance/construction impacting upon public safety	High	<ul style="list-style-type: none"> Refer to TER7 	<ul style="list-style-type: none"> Refer to TER7
TEI18	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	High	<ul style="list-style-type: none"> At present Council can only lobby at a political level to seek amendments to those policies/procedures/legislation that it feels are not in the best interests of LGA residents. 	<ul style="list-style-type: none"> Existing control would remain.
TER19	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	High	<ul style="list-style-type: none"> Refer to TEI18 	<ul style="list-style-type: none"> Refer to TEI19

Impact ID	Impact Description	Impact Rating	Current Controls	Future Adaptation Plans
TEH20	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	High	<ul style="list-style-type: none"> Refer to TEI18 	<ul style="list-style-type: none"> Refer to TEI19
TEP21	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	High	<ul style="list-style-type: none"> Refer to TEI18 	<ul style="list-style-type: none"> Refer to TEI19
TEN22	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	High	<ul style="list-style-type: none"> Refer to TEI18 	<ul style="list-style-type: none"> Refer to TEI19
TEW23	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	High	<ul style="list-style-type: none"> Refer to TEI18 	<ul style="list-style-type: none"> Refer to TEI19

Scenario for Hot Days (HD)

There is a risk that there will be an additional 1-14 hot days by 2030.

Impact ID	Impact Description	Impact Rating	Current Controls	Future Adaptation Plans
HDEI1	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	High	<ul style="list-style-type: none"> At present Council can only lobby at a political level to seek amendments to those policies/procedures/legislation that it feels are not in the best interests of LGA residents. 	<ul style="list-style-type: none"> Existing control would remain.
HDER2	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	High	<ul style="list-style-type: none"> Refer to HDEI1 	<ul style="list-style-type: none"> Refer to HDEI1
HDEH3	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	High	<ul style="list-style-type: none"> Refer to HDEI1 	<ul style="list-style-type: none"> Refer to HDEI1
HDEP4	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	High	<ul style="list-style-type: none"> Refer to HDEI1 	<ul style="list-style-type: none"> Refer to HDEI1

Impact ID	Impact Description	Impact Rating	Current Controls	Future Adaptation Plans
HDEN5	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	High	<ul style="list-style-type: none"> Refer to HDEI1 	<ul style="list-style-type: none"> Refer to HDEI1
HDEW6	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	High	<ul style="list-style-type: none"> Refer to HDEI1 	<ul style="list-style-type: none"> Refer to HDEI1
HDAI31	There is a risk that an increase in the number of hot days will result in an increased demand for water carts to maintain/repair roads infrastructure, as well as requirements for dust suppression	High	<ul style="list-style-type: none"> On such days Council brings in additional water carts to address this risk 	<ul style="list-style-type: none"> Current control would remain in place
HDDI32	There is a risk that an increase in the number of hot days will result in an increased demand for water carts to maintain/repair roads infrastructure, as well as requirements for dust suppression	High	<ul style="list-style-type: none"> Refer to HDAI3 	<ul style="list-style-type: none"> Refer to HDAI3
HDEI33	There is a risk that an increase in the number of hot days will result in an increased demand for water carts to maintain/repair roads infrastructure	High	<ul style="list-style-type: none"> Refer to HDAI3 	<ul style="list-style-type: none"> Refer to HDAI3
HDAN34	There is a risk that an increase in the number of hot days will result in an increased demand for water carts to maintain/repair roads infrastructure	High	<ul style="list-style-type: none"> Refer to HDAI3 	<ul style="list-style-type: none"> Refer to HDAI3

Scenario for Rainfall (R)

There is a risk that the average annual rainfall will reduce by 13% by 2030.

Impact ID	Impact Description	Impact Rating	Current Controls	Future Adaptation Plans
RAH2	There is a risk that as a result of a decrease in average rainfall levels, Council will be faced with increased costs for weed control/noxious pest control	High	<ul style="list-style-type: none"> Increased vegetation control, slashing and poisoning for greater duration throughout year 	<ul style="list-style-type: none"> Current control would remain in pace
REH3	There is a risk that as a result of a decrease in average rainfall levels, Council will be faced with increased costs for weed control/noxious pest control and roadside vegetation control	High	<ul style="list-style-type: none"> Council at present has a budget for pest/weed control, costs and budgets reviewed regularly 	<ul style="list-style-type: none"> REROC will lobby other Govt issues in relation to this risk
REI4	There is a risk that a decrease in average annual rainfall may result in increased operational use of plant and equipment (AC, Lawn mowers)	High	<ul style="list-style-type: none"> Council at present has a budget for maintenance and repair of plant and machinery, costs and budgets reviewed regularly 	<ul style="list-style-type: none"> Council would undertake a systematic review of it's plant replacement programme
REI5	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	High	<ul style="list-style-type: none"> At present Council can only lobby at a political level to seek amendments to those policies/procedures/legislation that it feels are not in the best interests of LGA residents. 	<ul style="list-style-type: none"> Existing control would remain.
RER6	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	High	<ul style="list-style-type: none"> Refer to REI5 	<ul style="list-style-type: none"> Refer to REI5
REH7	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	High	<ul style="list-style-type: none"> Refer to REI5 	<ul style="list-style-type: none"> Refer to REI5

Impact ID	Impact Description	Impact Rating	Current Controls	Future Adaptation Plans
REP8	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	High	<ul style="list-style-type: none"> Refer to REI5 	<ul style="list-style-type: none"> Refer to REI5
REN9	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	High	<ul style="list-style-type: none"> Refer to REI5 	<ul style="list-style-type: none"> Refer to REI5
REW10	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	High	<ul style="list-style-type: none"> Refer to REI5 	<ul style="list-style-type: none"> Refer to REI5
RAH21	Due to reduced rainfall levels there will be a reduction in fire fighting capacity within rural, remote and village areas (Strategic planning consideration)	High	<ul style="list-style-type: none"> Utilisation of existing water sources on private properties 	<ul style="list-style-type: none"> No change to current control
RCH22	Due to reduced rainfall levels there will be a reduction in fire fighting capacity within rural	High	<ul style="list-style-type: none"> Refer to RAH21 	<ul style="list-style-type: none"> Refer to RAH21
RDH23	Due to reduced rainfall levels there will be a reduction in fire fighting capacity within rural	High	<ul style="list-style-type: none"> Refer to RAH21 	<ul style="list-style-type: none"> Refer to RAH21
REH24	Due to reduced rainfall levels there will be a reduction in fire fighting capacity within rural	High	<ul style="list-style-type: none"> Refer to RAH21 	<ul style="list-style-type: none"> Refer to RAH21

Scenario for Fire Weather (FW)

There is a risk that the number of days annually when the Forest Fire Danger Index (FFDI) is extreme or catastrophic will increase by 3-5 days by 2030.

Impact ID	Impact Description	Impact Rating	Current Controls	Future Adaptation Plans
FWEI1	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	High	<ul style="list-style-type: none"> At present Council can only lobby at a political level to seek amendments to those policies/procedures/legislation that it feels are not in the best interests of LGA residents. 	<ul style="list-style-type: none"> Existing control would remain.
FWER2	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	High	<ul style="list-style-type: none"> Refer to FWEI1 	<ul style="list-style-type: none"> Refer to FWEI1
FWEH3	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	High	<ul style="list-style-type: none"> Refer to FWEI1 	<ul style="list-style-type: none"> Refer to FWEI1
FWEP4	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	High	<ul style="list-style-type: none"> Refer to FWEI1 	<ul style="list-style-type: none"> Refer to FWEI1
FWEN5	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	High	<ul style="list-style-type: none"> Refer to FWEI1 	<ul style="list-style-type: none"> Refer to FWEI1

Impact ID	Impact Description	Impact Rating	Current Controls	Future Adaptation Plans
FWEW6	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	High	<ul style="list-style-type: none"> Refer to FWEI1 	<ul style="list-style-type: none"> Refer to FWEI1
FWAH7	There is a risk that the number of days annually when the FFDI is very high or extreme will increase and have a greater risk to public safety.	High	<ul style="list-style-type: none"> Advise people on where major evacuation centres are, advise people of fire safety in conjunction with RFS and Fire Services. 	<ul style="list-style-type: none"> Current controls will remain in place and will be implemented in relation to the relative risk.

Scenario for Rain Intensity (RI)

There is a risk that intense rain periods (that is number of 1in 40year one day rainfall events) will increase between 7%

Impact ID	Impact Description	Impact Rating	Current Controls	Future Adaptation Plans
RIE1	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	High	<ul style="list-style-type: none"> At present Council can only lobby at a political level to seek amendments to those policies/procedures/legislation that it feels are not in the best interests of LGA residents. 	<ul style="list-style-type: none"> Existing control would remain.
RIER2	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	High	<ul style="list-style-type: none"> Refer to RIER1 	<ul style="list-style-type: none"> Refer to RIER1
RIEH3	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	High	<ul style="list-style-type: none"> Refer to RIER1 	<ul style="list-style-type: none"> Refer to RIER1
RIEP4	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	High	<ul style="list-style-type: none"> Refer to RIER1 	<ul style="list-style-type: none"> Refer to RIER1
RIEN5	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	High	<ul style="list-style-type: none"> Refer to RIER1 	<ul style="list-style-type: none"> Refer to RIER1

Impact ID	Impact Description	Impact Rating	Current Controls	Future Adaptation Plans
RIEW6	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	High	<ul style="list-style-type: none"> Refer to RIER1 	<ul style="list-style-type: none"> Refer to RIER1
RIAI7	In the event that the projected scenario for increased extreme rainfall events is realised, there is a risk that localised flooding will occur with greater frequency and severity across the shire.	Extreme	<ul style="list-style-type: none"> Management of incident under the Local Flood Management plan. Involvement of Emergency Services where and when required 	<ul style="list-style-type: none"> Current controls would remain in place
RIBI8	In the event that the projected scenario for increased extreme rainfall events is realised, there is a risk that localised flooding will occur with greater frequency and severity across the shire.	Extreme	<ul style="list-style-type: none"> Refer to RIAI7 	<ul style="list-style-type: none"> Refer to RIAI7
RICI9	In the event that the projected scenario for increased extreme rainfall events is realised, there is a risk that localised flooding will occur with greater frequency and severity across the shire.	Extreme	<ul style="list-style-type: none"> Refer to RIAI7 	<ul style="list-style-type: none"> Refer to RIAI7
RIDI10	In the event that the projected scenario for increased extreme rainfall events is realised, there is a risk that localised flooding will occur with greater frequency and severity across the shire.	Extreme	<ul style="list-style-type: none"> Refer to RIAI7 	<ul style="list-style-type: none"> Refer to RIAI7
RIEI11	In the event that the projected scenario for increased extreme rainfall events is realised, there is a risk that localised flooding will occur with greater frequency and severity across the shire.	Extreme	<ul style="list-style-type: none"> Refer to RIAI7 	<ul style="list-style-type: none"> Refer to RIAI7

Impact ID	Impact Description	Impact Rating	Current Controls	Future Adaptation Plans
RIAI18	There is a risk that due to an increase in intense rainfall events that transport infrastructure (roads, bridges, culverts) would be damaged with greater frequency impacting upon public safety	High	<ul style="list-style-type: none"> Road closures, bridge closures, advertising on various media. Council will also utilise Emergency Services personnel if and when required (evacuation) 	<ul style="list-style-type: none"> Current controls would continue
RICI19	There is a risk that due to an increase in intense rainfall events that transport infrastructure (roads, bridges, culverts) would be damaged with greater frequency impacting upon existing community structures and lifestyle enjoyed by shire residents	High	<ul style="list-style-type: none"> Refer to RIAI18 	<ul style="list-style-type: none"> Refer to RIAI18
RIDI20	There is a risk that due to an increase in intense rainfall events that transport infrastructure (roads, bridges, culverts) would be damaged with greater frequency impacting upon the physical and natural environment within Gundagai shire LGA.	High	<ul style="list-style-type: none"> Refer to RIAI18 	<ul style="list-style-type: none"> Refer to RIAI18
RIEI21	There is a risk that due to an increase in intense rainfall events that transport infrastructure (roads, bridges, culverts) would be damaged with greater frequency impacting upon sound public administration and good governance.	High	<ul style="list-style-type: none"> Refer to RIAI18 	<ul style="list-style-type: none"> Refer to RIAI18
RIAI22	There is a risk that as a result of increased intense rainfall events Councils urban drainage infrastructure may exceed capacity with greater frequency	High	<ul style="list-style-type: none"> Maintenance inspections, identified areas will have system upgrades, maintenance regime (clearage of blockages etc.) 	<ul style="list-style-type: none"> Continue with current controls. Stormwater infrastructure will be renewed over a 10 year period.
RIBI23	There is a risk that as a result of increased intense rainfall events Councils urban drainage infrastructure may exceed capacity with greater frequency	High	<ul style="list-style-type: none"> Refer to RIAI22 	<ul style="list-style-type: none"> Refer to RIAI22

Impact ID	Impact Description	Impact Rating	Current Controls	Future Adaptation Plans
RICI24	There is a risk that as a result of increased intense rainfall events Councils urban drainage infrastructure may exceed capacity with greater frequency	High	<ul style="list-style-type: none"> Refer to RIAI22 	<ul style="list-style-type: none"> Refer to RIAI22
RIDI25	There is a risk that as a result of increased intense rainfall events Councils urban drainage infrastructure may exceed capacity with greater frequency	High	<ul style="list-style-type: none"> Refer to RIAI22 	<ul style="list-style-type: none"> Refer to RIAI22
RIEI26	There is a risk that as a result of increased intense rainfall events Councils urban drainage infrastructure may exceed capacity with greater frequency	High	<ul style="list-style-type: none"> Refer to RIAI22 	<ul style="list-style-type: none"> Refer to RIAI22
RIAW27	There is a risk that as a result of increased frequency and intensity of severe rainfall events, Councils sewerage infrastructure may become inundated and exceeds capacity due to inflow and infiltration of stormwater	High	<ul style="list-style-type: none"> No controls currently in place 	<ul style="list-style-type: none"> Public education programmes, gradual replacement or upgrade of existing sewerage infrastructure
RICW28	There is a risk that as a result of increased frequency and intensity of severe rainfall events, Councils sewerage infrastructure may become inundated and exceeds capacity due to inflow and infiltration of stormwater	High	<ul style="list-style-type: none"> Refer to RICW29 	<ul style="list-style-type: none"> Refer to RICW29
RIDW29	There is a risk that as a result of increased frequency and intensity of severe rainfall events, Councils sewerage infrastructure may become inundated and exceeds capacity due to inflow and infiltration of stormwater	High	<ul style="list-style-type: none"> Refer to RICW29 	<ul style="list-style-type: none"> Refer to RICW29
RIDN31	There is a risk that as a result of increased frequency and intensity of extreme rainfall events, creek and river systems may be subject to greater erosion causing greater carriage of pollutants i.e. chemicals, sediments, organics and gross pollutants	High	<ul style="list-style-type: none"> Council works with local Bush Care group planting along creek lines to minimise incidence of erosion and scouring 	<ul style="list-style-type: none"> Continue with existing controls.
RIEI32	There is a risk that as a result of increased frequency and intensity of extreme rainfall events, creek and river systems may be subject to greater erosion causing greater carriage of pollutants i.e. chemicals, sediments, organics and gross pollutants	High	<ul style="list-style-type: none"> Refer to RIDN31 	<ul style="list-style-type: none"> Refer to RIDN31

Appendices

Appendix 1: Likelihood Descriptors

Likelihood Rating	Recurrent Risks	Single Events
Almost Certain	Could occur several times per year	More likely than not - Probability greater than 50%
Likely	May arise about once a year	As likely as not - 50/50 chance
Possible	May arise once in ten years	Less likely than not but still appreciable - Probability less than 50% but still quite high
Unlikely	May arise once in ten to 25 years	Unlikely but not negligible - Probability low but noticeably greater than zero
Rare	Unlikely during the next 25 years	Negligible -Probability very small, close to zero

Appendix 2: Consequence Descriptors

Success Criteria	Consequence Rating				
	Insignificant	Minor	Moderate	Major	Catastrophic
A Maintain public safety	Appearance of a threat but no actual harm	Serious near misses or minor injuries	Small numbers of injuries	Isolated instances of serious injuries or loss of life	Large numbers of serious injuries or loss of lives
B Protect and enhance the local economy	Minor shortfall relative to current forecasts	Individually significant but isolated areas of reduction in economic performance relative to current forecasts	Significant general reduction in economic performance relative to current forecasts	Regional stagnation such that businesses are unable to thrive and employment does not keep pace with population growth	Regional decline leading to widespread business failure, loss of employment and hardship
C Protect existing community structures and the lifestyle enjoyed by the people of the region	There would be minor areas in which the region was unable to maintain its current services	Isolated but noticeable examples of decline in services	General appreciable decline in services	Severe and widespread decline in services and quality of life within the community	The region would be seen as very unattractive, moribund and unable to support its community
D Sustain and enhance the physical and natural environment	No environmental damage	Minor instances of environmental damage that could be reversed	Isolated but significant instances of environmental damage that might be reversed with intensive efforts	Severe loss of environmental amenity and a danger of continuing environmental damage	Major widespread loss of environmental amenity and progressive irrecoverable environmental damage
E Ensure sound public administration and governance	There would be minor instances of public administration being under more than usual stress but it could be managed	Isolated instances of public administration being under severe pressure	Public administration would be under severe pressure on several fronts	Public administration would struggle to remain effective and would be seen to be in danger of failing completely	Public administration would fall into decay and cease to be effective

Appendix 3: Risk Assessment Results

Scenario for Temperature (T) : There is a risk that the average annual temperature may increase by 0.2°C - 1.8°C by 2030.

Risk Code	Risk Number	Risk Description	Likelihood	Consequence	Risk
TEI	1	There is a risk that as a result of an increase in the average ambient temperature, Council may be faced with the need to upgrade existing A/C systems	Likely	Insignificant	Medium
TAI	2	There is a risk that due to an increase in the ambient temperature, older Council Buildings/Assets/Structures that have not been insulated will experience increases in temperature that could adversely impact upon Buildings/Assets/Structure users	Likely	Insignificant	Medium
TCR	3	There is a risk that due to an increase in the ambient temperature, older Council Buildings/Assets/Structures that have not been insulated will experience increases in temperature that could adversely impact upon Buildings/Assets/Structure users	Possible	Insignificant	Low
TEP	4	There is a risk that due to an increase in the ambient temperature, older Council Buildings/Assets/Structures that have not been insulated will experience increases in temperature that could adversely impact upon Buildings/Assets/Structure users (Strategic Planning Processes)	Possible	Insignificant	Low
TAR	5	There is a risk that as a result of an increase in ambient temperature, roads, footpaths and bridges infrastructure will degrade at a greater rate	Possible	Minor	Medium
TCR	6	There is a risk that as a result of an increase in ambient temperature, roads, footpaths and bridges infrastructure will degrade at a greater rate	Possible	Minor	Medium
TER	7	There is a risk that as a result of an increase in ambient temperature, roads, footpaths and bridges infrastructure will degrade at a greater rate	Likely	Moderate	High
TAI	8	There is a risk that an increase in average annual temperature may result in increased costs of road maintenance/construction impacting upon public safety	Possible	Moderate	High

Risk Code	Risk Number	Risk Description	Likelihood	Consequence	Risk
TBI	9	There is a risk that an increase in average annual temperature may result in increased costs of road maintenance/construction impacting local economy	Unlikely	Insignificant	Low
TCI	10	There is a risk that an increase in average annual temperature may result in increased costs of road maintenance/construction impacting upon existing community structures and lifestyle enjoyed by LGA residents	Likely	Insignificant	Medium
TEI	11	There is a risk that an increase in average annual temperature may result in increased costs of road maintenance/construction impacting upon sound public administration and good governance	Likely	Insignificant	Medium
TAI	12	There is a risk that due to an increase in ambient temperature, incidents of dehydration/heat stress amongst outdoor staff may increase	Possible	Insignificant	Low
TAR	13	There is a risk that due to an increase in ambient temperature, incidents of dehydration/heat stress amongst outdoor staff may increase	Possible	Insignificant	Low
TAH	14	There is a risk that due to an increase in ambient temperature, incidents of dehydration/heat stress amongst outdoor staff may increase	Likely	Insignificant	Medium
TAN	15	There is a risk that due to an increase in ambient temperature, incidents of dehydration/heat stress amongst outdoor staff may increase	Likely	Insignificant	Medium
TAW	17	There is a risk that due to an increase in ambient temperature, incidents of dehydration/heat stress amongst outdoor staff may increase	Likely	Insignificant	Medium

Risk Code	Risk Number	Risk Description	Likelihood	Consequence	Risk
TEI	18	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	Almost Certain	Moderate	High
TER	19	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	Almost Certain	Moderate	High
TEH	20	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	Almost Certain	Moderate	High
TEP	21	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	Almost Certain	Moderate	High
TEN	22	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	Almost Certain	Moderate	High
TEW	23	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	Almost Certain	Moderate	High
TAI	24	As a result of the projected 0.2°C - 1.8°C there is a risk that there will be a greater demand for shade structures at Council recreational facilities. A failure to address this risk could lead to Councils exposure to public liability claims arising from impacts upon public safety increasing.	Almost Certain	Insignificant	Medium
TAR	25	As a result of the projected 0.2°C - 1.8°C there is a risk that there will be a greater demand for shade structures at Council recreational facilities. A failure to address this risk could lead to Councils exposure to public liability claims arising from impacts upon public safety increasing.	Almost Certain	Insignificant	Medium

Risk Code	Risk Number	Risk Description	Likelihood	Consequence	Risk
TAI	26	There is a risk that as a result of an increase in average annual temperature the working practices of outdoor working staff within the Infrastructure & Property Services functional areas of Council may have to be amended to give consideration to evolving climatic conditions and minimise their exposure to health/safety risks.	Unlikely	Insignificant	Low
TAR	27	There is a risk that as a result of an increase in average annual temperature the working practices of outdoor working staff within the Infrastructure & Property Services functional areas of Council may have to be amended to give consideration to evolving climatic conditions and minimise their exposure to health/safety risks.	Unlikely	Insignificant	Low
TAW	28	There is a risk that as a result of an increase in average annual temperature the working practices of outdoor working staff within the Infrastructure & Property Services functional areas of Council may have to be amended to give consideration to evolving climatic conditions and minimise their exposure to health/safety risks.	Unlikely	Insignificant	Low
TEI	29	There is a risk that due to the projected increase in ambient annual temperature Council will be faced with increased levels of expenditure to pay for electricity supply to all assets/buildings which in turn would increase the level of demand/expectation currently experienced by the administrative and governance functions of Council.	Almost Certain	Insignificant	Medium
TER	30	There is a risk that due to the projected increase in ambient annual temperature Council will be faced with increased levels of expenditure to pay for electricity supply to all assets/buildings which in turn would increase the level of demand/expectation currently experienced by the administrative and governance functions of Council.	Almost Certain	Insignificant	Medium
TEH	31	There is a risk that due to the projected increase in ambient annual temperature Council will be faced with increased levels of expenditure to pay for electricity supply to all assets/buildings which in turn would increase the level of demand/expectation currently experienced by the administrative and governance functions of Council.	Almost Certain	Insignificant	Medium
TEP	32	There is a risk that due to the projected increase in ambient annual temperature Council will be faced with increased levels of expenditure to pay for electricity supply to all assets/buildings which in turn would increase the level of demand/expectation currently experienced by the administrative and governance functions of Council.	Almost Certain	Insignificant	Medium

Risk Code	Risk Number	Risk Description	Likelihood	Consequence	Risk
TEN	33	There is a risk that due to the projected increase in ambient annual temperature Council will be faced with increased levels of expenditure to pay for electricity supply to all assets/buildings which in turn would increase the level of demand/expectation currently experienced by the administrative and governance functions of Council.	Almost Certain	Insignificant	Medium
TEW	34	There is a risk that due to the projected increase in ambient annual temperature Council will be faced with increased levels of expenditure to pay for electricity supply to all assets/buildings which in turn would increase the level of demand/expectation currently experienced by the administrative and governance functions of Council.	Almost Certain	Insignificant	Medium

Scenario for Hot Days (HD) : There is a risk that there will be an additional 1-14 hot days by 2030.

Risk Code	Risk Number	Risk Description	Likelihood	Consequence	Risk
HDEI	1	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	Almost Certain	Moderate	High
HDER	2	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	Almost Certain	Moderate	High
HDEH	3	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	Almost Certain	Moderate	High
HDEP	4	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	Almost Certain	Moderate	High
HDEN	5	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	Almost Certain	Moderate	High
HDEW	6	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	Almost Certain	Moderate	High
HDAI	7	There is a risk that due to an increase in the number of hot days there may be reduced thermal comfort and/or increased cooling system loads within Council buildings, leading to a break down of those systems, impacting upon the safety and wellbeing of building users.	Likely	Insignificant	Medium
HDEI	8	There is a risk that due to an increase in the number of hot days there may be reduced thermal comfort and/or increased cooling system loads within Council buildings, leading to a break down of those systems, impacting upon sound public administration and good governance.	Likely	Insignificant	Medium

Risk Code	Risk Number	Risk Description	Likelihood	Consequence	Risk
HDAR	9	There is a risk that due to an increase in the number of hot days operational staff & contractors and volunteers may be exposed to adverse health risks (sun exposure, heat stress, heat stroke, dehydration) (Operational Management Planning)	Likely	Insignificant	Medium
HDAN	10	There is a risk that due to an increase in the number of hot days operational staff & contractors and volunteers may be exposed to adverse health risks (sun exposure, heat stress, heat stroke, dehydration) (Operational Management Planning)	Likely	Insignificant	Medium
HDAW	11	There is a risk that due to an increase in the number of hot days operational staff & contractors and volunteers may be exposed to adverse health risks (sun exposure, heat stress, heat stroke, dehydration) (Operational Management Planning)	Likely	Insignificant	Medium
HDAR	12	There is a risk that an increase in the number of hot days where the ambient temperature exceeds 35o C there may be an expectation in Council to provide greater amenities at recreational facilities, (e.g. shade structures).	Likely	Insignificant	Medium
HDCR	13	There is a risk that an increase in the number of hot days where the ambient temperature exceeds 35o C there may be an expectation in Council to provide greater amenities at recreational facilities, (e.g. shade structures).	Likely	Insignificant	Medium
HDER	14	There is a risk that an increase in the number of hot days where the ambient temperature exceeds 35o C there may be an expectation in Council to provide greater amenities at recreational facilities, (e.g. shade structures).	Likely	Insignificant	Medium
HDAW	15	There is a risk that due to an increase in the number of hot days where the ambient temperature exceeds 35o C there will be a significant increase in peak water demand on and/or close to those days.	Likely	Insignificant	Medium
HDCW	16	There is a risk that due to an increase in the number of hot days where the ambient temperature exceeds 35o C there will be a significant increase in peak water demand on and/or close to those days.	Likely	Insignificant	Medium

Risk Code	Risk Number	Risk Description	Likelihood	Consequence	Risk
HDDW	17	There is a risk that due to an increase in the number of hot days where the ambient temperature exceeds 35o C there will be a significant increase in peak water demand on and/or close to those days.	Likely	Insignificant	Medium
HDEW	18	There is a risk that due to an increase in the number of hot days where the ambient temperature exceeds 35o C there will be a significant increase in peak water demand on and/or close to those days.	Likely	Insignificant	Medium
HDAI	19	There is a risk that due to an increase in extreme heat events, Council may be obliged to undertake maintenance of transport infrastructure on a more frequent basis to minimise incidence of bitumen bleeding	Almost Certain	Insignificant	Medium
HDBI	20	There is a risk that due to an increase in extreme heat events, Council may be obliged to undertake maintenance of transport infrastructure on a more frequent basis to minimise incidence of bitumen bleeding	Almost Certain	Insignificant	Medium
HDCI	21	There is a risk that due to an increase in extreme heat events, Council may be obliged to undertake maintenance of transport infrastructure on a more frequent basis to minimise incidence of bitumen bleeding	Almost Certain	Insignificant	Medium
HDEI	22	There is a risk that due to an increase in extreme heat events, Council may be obliged to undertake maintenance of transport infrastructure on a more frequent basis to minimise incidence of bitumen bleeding	Almost Certain	Insignificant	Medium
HDAI	23	There is a risk that due to an increase in the number of hot days there may be increased heat stress amongst vulnerable community members (elderly, infirm and young) within Council facilities e.g. libraries	Unlikely	Minor	Low
HDAH	24	There is a risk that due to an increase in the number of hot days there may be increased heat stress amongst vulnerable community members (elderly, infirm and young) within Council facilities e.g. libraries	Unlikely	Minor	Low

Risk Code	Risk Number	Risk Description	Likelihood	Consequence	Risk
HDCR	25	There is a risk that due to an increase in the number of hot days there may be changes in the patterns of demand for assets that allow for longer use of recreational facilities including. lighting, irrigation	Likely	Insignificant	Medium
HDER	26	There is a risk that due to an increase in the number of hot days there may be changes in the patterns of demand for assets that allow for longer use of recreational facilities including. lighting, irrigation	Likely	Insignificant	Medium
HDCR	27	There is a risk that as a result of an increase in the number of Hot Days Council may experience a greater demand for the irrigation of parks and sporting grounds	Likely	Insignificant	Medium
HDER	28	There is a risk that as a result of an increase in the number of Hot Days Council may experience a greater demand for the irrigation of parks and sporting grounds	Likely	Insignificant	Medium
HDAR	29	Increase in number of hot days above 35 degrees could increase the risk of tree limb drop resulting in potential personal injury or property damage	Likely	Insignificant	Medium
HDAN	30	Increase in number of hot days above 35 degrees could increase the risk of tree limb drop resulting in potential personal injury or property damage	Likely	Insignificant	Medium
HDAI	31	There is a risk that an increase in the number of hot days will result in an increased demand for water carts to maintain/repair roads infrastructure, as well as requirements for dust suppression	Almost Certain	Minor	High
HDDI	32	There is a risk that an increase in the number of hot days will result in an increased demand for water carts to maintain/repair roads infrastructure, as well as requirements for dust suppression	Almost Certain	Minor	High

Risk Code	Risk Number	Risk Description	Likelihood	Consequence	Risk
HDEI	33	There is a risk that an increase in the number of hot days will result in an increased demand for water carts to maintain/repair roads infrastructure, as well as requirements for dust suppression	Almost Certain	Minor	High
HDAN	34	There is a risk that an increase in the number of hot days will result in an increased demand for water carts to maintain/repair roads infrastructure, as well as requirements for dust suppression	Almost Certain	Minor	High

Scenario for Rainfall (R) : There is a risk that the average annual rainfall will reduce by 13% by 2030.

Risk Code	Risk Number	Risk Description	Likelihood	Consequence	Risk
RDH	1	There is a risk that as a result of a decrease in average rainfall levels, Council will be faced with increased costs for weed control/noxious pest control	Almost Certain	Insignificant	Medium
RAH	2	There is a risk that as a result of a decrease in average rainfall levels, Council will be faced with increased costs for roadside vegetation control	Almost Certain	Moderate	High
RDH	3	There is a risk that as a result of a decrease in average rainfall levels, Council will be faced with increased costs for weed control/noxious pest control and roadside vegetation control	Almost Certain	Insignificant	Medium
REH	4	There is a risk that as a result of a decrease in average rainfall levels, Council will be faced with increased costs for weed control/noxious pest control and roadside vegetation control	Almost Certain	Moderate	High
REI	5	There is a risk that a decrease in average annual rainfall may result in increased operational use of plant and equipment (AC, Lawn mowers)	Almost Certain	Minor	High
REI	6	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	Almost Certain	Moderate	High
RER	7	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	Almost Certain	Moderate	High
REH	8	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	Almost Certain	Moderate	High

Risk Code	Risk Number	Risk Description	Likelihood	Consequence	Risk
REP	9	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	Almost Certain	Moderate	High
REN	10	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	Almost Certain	Moderate	High
REW	11	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	Almost Certain	Moderate	High
RAW	12	Due to reduced water inflow into catchment areas there will be less water available within water storage areas for potable drinking water (town water)	Likely	Minor	Medium
RBW	13	Due to reduced water inflow into catchment areas there will be less water available within water storage areas for potable drinking water (town water)	Likely	Minor	Medium
RCW	14	Due to reduced water inflow into catchment areas there will be less water available within water storage areas for potable drinking water (town water)	Likely	Minor	Medium
REW	15	Due to reduced water inflow into catchment areas there will be less water available within water storage areas for potable drinking water (town water)	Likely	Minor	Medium
RBW	16	Due to lower average annual rainfall there is a risk that there will be less water within the shire available for irrigation purposes.	Likely	Insignificant	Medium

Risk Code	Risk Number	Risk Description	Likelihood	Consequence	Risk
RBW	18	There is a risk that due to diminishing water supplies, Council will be unable to meet the demands of local industries (abattoir) for water.	Unlikely	Major	Medium
RBW	19	There is a risk that due to decreased average annual rainfall, stream inflow into catchments may get to a level whereby Council finds it increasingly difficult to encourage new businesses to set up within the Gundagai shire LGA	Likely	Insignificant	Medium
RDW	20	As a result of decreased rainfall levels there is a risk that there will be an increased incidence of sediment entering the river system as a result of reduced ground coverage	Likely	Insignificant	Medium
RDN	21	As a result of decreased rainfall levels there is a risk that there will be an increased incidence of sediment entering the river system as a result of reduced ground coverage	Likely	Insignificant	Medium
RAH	22	Due to reduced rainfall levels there will be a reduction in fire fighting capacity within rural, remote and village areas (Strategic planning consideration)	Likely	Moderate	High
RCH	23	Due to reduced rainfall levels there will be a reduction in fire fighting capacity within rural, remote and village areas (Strategic planning consideration)	Likely	Moderate	High
RDH	24	Due to reduced rainfall levels there will be a reduction in fire fighting capacity within rural, remote and village areas (Strategic planning consideration)	Likely	Moderate	High
REH	25	Due to reduced rainfall levels there will be a reduction in fire fighting capacity within rural, remote and village areas (Strategic planning consideration)	Likely	Moderate	High

Scenario for Fire Weather (FW) : There is a risk that the number of days annually when the Forest Fire Danger Index (FFDI) is very high or extreme will increase by 3-5 days by 2030.

Risk Code	Risk Number	Risk Description	Likelihood	Consequence	Risk
FWEI	1	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	Almost Certain	Moderate	High
FWER	2	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	Almost Certain	Moderate	High
FWEH	3	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	Almost Certain	Moderate	High
FWEP	4	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	Almost Certain	Moderate	High
FWEN	5	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	Almost Certain	Moderate	High
FEWE	6	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	Almost Certain	Moderate	High
FWAH	7	There is a risk that the number of days annually when the FFDI is very high or extreme will increase and have a greater risk to public safety.	Likely	Major	High
FWAI	8	There is a risk that the number of days annually when the FFDI is very high or extreme Council will face increased obligations to manage fire trails and monitor fuel loads (Strategic planning consideration)	Likely	Insignificant	Medium

Risk Code	Risk Number	Risk Description	Likelihood	Consequence	Risk
FWCI	9	There is a risk that the number of days annually when the FFDI is very high or extreme Council will face increased obligations to manage fire trails and monitor fuel loads (Strategic planning consideration)	Likely	Insignificant	Medium
FWEI	10	There is a risk that the number of days annually when the FFDI is very high or extreme Council will face increased obligations to manage fire trails and monitor fuel loads (Strategic planning consideration)	Likely	Insignificant	Medium
FWDI	11	There is a risk that the number of days annually when the FFDI is very high or extreme Council will face increased obligations to manage fire trails and monitor fuel loads (Strategic planning consideration)	Likely	Insignificant	Medium
FWEI	12	There is a risk that as a result of an increase in the number of days where the FFDI is either Extreme or Catastrophic there could be increased fire damage to council assets will increase clean-up and maintenance costs	Possible	Minor	Medium
FWER	13	There is a risk that as a result of an increase in the number of days where the FFDI is either Extreme or Catastrophic there could be increased fire damage to council assets will increase clean-up and maintenance costs	Possible	Minor	Medium
FWAW	14	There is a risk that as a result of a fire event on such days, Councils raw water catchment area could be impacted by pollutants from fire e.g. ash, debris, chemicals from fire fighting	Possible	Insignificant	Low
FWDW	15	There is a risk that as a result of a fire event on such days, Councils raw water catchment area could be impacted by pollutants from fire e.g. ash, debris, chemicals from fire fighting	Possible	Insignificant	Low
FWEW	16	There is a risk that as a result of a fire event on such days, Councils raw water catchment area could be impacted by pollutants from fire e.g. ash, debris, chemicals from fire fighting	Possible	Minor	Medium

Risk Code	Risk Number	Risk Description	Likelihood	Consequence	Risk
FWAH	17	There is a risk that as a result of an increase in the number of days where the number of days where the FFDI is Extreme or Catastrophic that fire mitigation strategies i.e. hazard reduction, may not be able to be undertaken and thus increase the vegetation fuel load	Possible	Minor	Medium
FWEI	18	There is a risk that as a result of an increase in the number of days where the FFDI is either extreme or catastrophic, there may be an increase in the amount of downtime of operational staff and subsequent impacts/consequences for productivity in relation to Council activities	Likely	Minor	Medium
FWEI	19	There is a risk that as a result of an increase in the number of days where the FFDI is either extreme or catastrophic, there may be an increase in the amount of downtime of operational staff and subsequent cost impacts for Council	Likely	Minor	Medium

Scenario for Rain Intensity (RI) : There is a risk that intense rain periods (i.e. the number of 1 in 40 year one day events) will increase by 7% by 2030.

Risk Code	Risk Number	Risk Description	Likelihood	Consequence	Risk
RIEI	1	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	Almost Certain	Moderate	High
RIER	2	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	Almost Certain	Moderate	High
RIEH	3	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	Almost Certain	Moderate	High
RIEP	4	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	Almost Certain	Moderate	High
RIEN	5	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	Almost Certain	Moderate	High
RIEW	6	There is a risk that Council may have policies/procedures/legislation imposed upon them by State and Federal Government that have detrimental cost implications for Council increasing the levels of pressure/expectation currently placed upon the administrative and governance functions of Council.	Almost Certain	Moderate	High
RIAI	7	In the event that the projected scenario for increased extreme rainfall events is realised, there is a risk that localised flooding will occur with greater frequency and severity across the shire.	Almost Certain	Major	Extreme
RIBI	8	In the event that the projected scenario for increased extreme rainfall events is realised, there is a risk that localised flooding will occur with greater frequency and severity across the shire.	Almost Certain	Major	Extreme

Risk Code	Risk Number	Risk Description	Likelihood	Consequence	Risk
RICI	9	In the event that the projected scenario for increased extreme rainfall events is realised, there is a risk that localised flooding will occur with greater frequency and severity across the shire.	Almost Certain	Major	Extreme
RIDI	10	In the event that the projected scenario for increased extreme rainfall events is realised, there is a risk that localised flooding will occur with greater frequency and severity across the shire.	Almost Certain	Major	Extreme
RIEI	11	In the event that the projected scenario for increased extreme rainfall events is realised, there is a risk that localised flooding will occur with greater frequency and severity across the shire.	Almost Certain	Major	Extreme
RIEI	12	There is a risk that as a result of an increase in intense rainfall events and localised flooding, the damage to Council infrastructure may not meet the threshold for Natural Disaster Declaration and Council would bare the costs for this themselves.	Unlikely	Minor	Low
RIER	13	There is a risk that as a result of an increase in intense rainfall events and localised flooding, the damage to Council infrastructure may not meet the threshold for Natural Disaster Declaration and Council would bare the costs for this themselves.	Unlikely	Minor	Low
RIEH	14	There is a risk that as a result of an increase in intense rainfall events and localised flooding, the damage to Council infrastructure may not meet the threshold for Natural Disaster Declaration and Council would bare the costs for this themselves.	Unlikely	Minor	Low
RIEP	15	There is a risk that as a result of an increase in intense rainfall events and localised flooding, the damage to Council infrastructure may not meet the threshold for Natural Disaster Declaration and Council would bare the costs for this themselves.	Unlikely	Minor	Low
RIEN	16	There is a risk that as a result of an increase in intense rainfall events and localised flooding, the damage to Council infrastructure may not meet the threshold for Natural Disaster Declaration and Council would bare the costs for this themselves.	Unlikely	Minor	Low

Risk Code	Risk Number	Risk Description	Likelihood	Consequence	Risk
RIEW	17	There is a risk that as a result of an increase in intense rainfall events and localised flooding, the damage to Council infrastructure may not meet the threshold for Natural Disaster Declaration and Council would bare the costs for this themselves.	Unlikely	Minor	Low
RIAI	18	There is a risk that due to an increase in intense rainfall events that transport infrastructure (roads, bridges, culverts) would be damaged with greater frequency impacting upon public safety	Likely	Major	High
RICI	19	There is a risk that due to an increase in intense rainfall events that transport infrastructure (roads, bridges, culverts) would be damaged with greater frequency impacting upon existing community structures and lifestyle enjoyed by shire residents	Likely	Major	High
RIDI	20	There is a risk that due to an increase in intense rainfall events that transport infrastructure (roads, bridges, culverts) would be damaged with greater frequency impacting upon the physical and natural environment within Gundagai shire LGA.	Likely	Major	High
RIEI	21	There is a risk that due to an increase in intense rainfall events that transport infrastructure (roads, bridges, culverts) would be damaged with greater frequency impacting upon sound public administration and good governance.	Likely	Major	High
RIAI	22	There is a risk that as a result of increased intense rainfall events Councils urban drainage infrastructure may exceed capacity with greater frequency	Likely	Moderate	High
RIBI	23	There is a risk that as a result of increased intense rainfall events Councils urban drainage infrastructure may exceed capacity with greater frequency	Likely	Moderate	High
RICI	24	There is a risk that as a result of increased intense rainfall events Councils urban drainage infrastructure may exceed capacity with greater frequency	Likely	Moderate	High

Risk Code	Risk Number	Risk Description	Likelihood	Consequence	Risk
RIDI	25	There is a risk that as a result of increased intense rainfall events Councils urban drainage infrastructure may exceed capacity with greater frequency	Likely	Moderate	High
RIEI	26	There is a risk that as a result of increased intense rainfall events Councils urban drainage infrastructure may exceed capacity with greater frequency	Likely	Moderate	High
RIAW	27	There is a risk that as a result of increased frequency and intensity of severe rainfall events, Councils sewerage infrastructure may become inundated and exceeds capacity due to inflow and infiltration of stormwater	Likely	Moderate	High
RICW	28	There is a risk that as a result of increased frequency and intensity of severe rainfall events, Councils sewerage infrastructure may become inundated and exceeds capacity due to inflow and infiltration of stormwater	Likely	Moderate	High
RIDW	29	There is a risk that as a result of increased frequency and intensity of severe rainfall events, Councils sewerage infrastructure may become inundated and exceeds capacity due to inflow and infiltration of stormwater	Likely	Moderate	High
RIEW	30	There is a risk that as a result of increased frequency and intensity of severe rainfall events, Councils sewerage infrastructure may become inundated and exceeds capacity due to inflow and infiltration of stormwater	Likely	Moderate	High
RIDN	31	There is a risk that as a result of increased frequency and intensity of extreme rainfall events, creek and river systems may be subject to greater erosion causing greater carriage of pollutants i.e. chemicals, sediments, organics and gross pollutants	Likely	Moderate	High
RIEI	32	There is a risk that as a result of increased frequency and intensity of extreme rainfall events, creek and river systems may be subject to greater erosion causing greater carriage of pollutants i.e. chemicals, sediments, organics and gross pollutants	Likely	Moderate	High

End of Report

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Insight Report

The Global Risks Report 2019 14th Edition

In partnership with Marsh & McLennan Companies and Zurich Insurance Group



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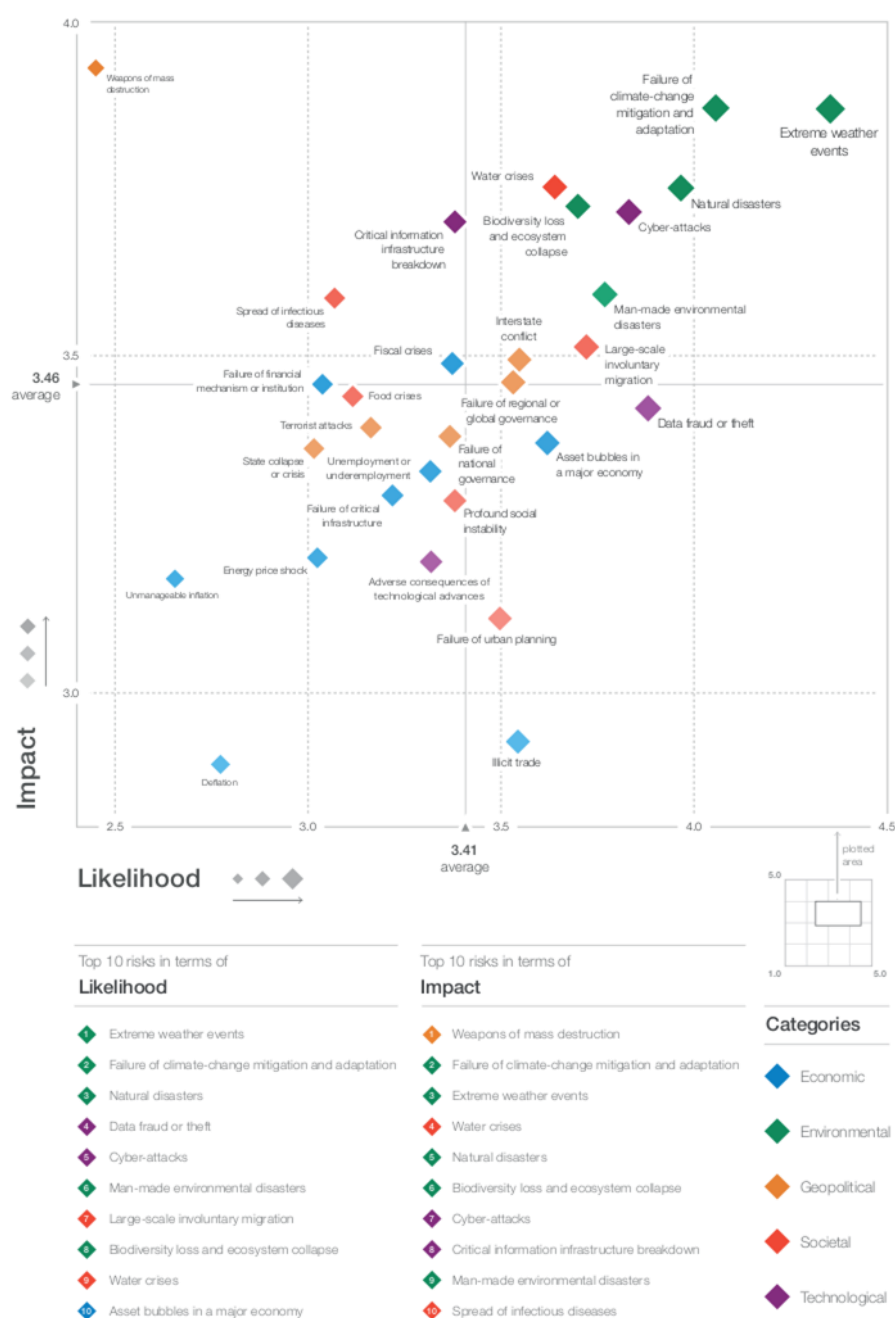
The report and an interactive data platform are available at <http://wef.ch/risks2019>

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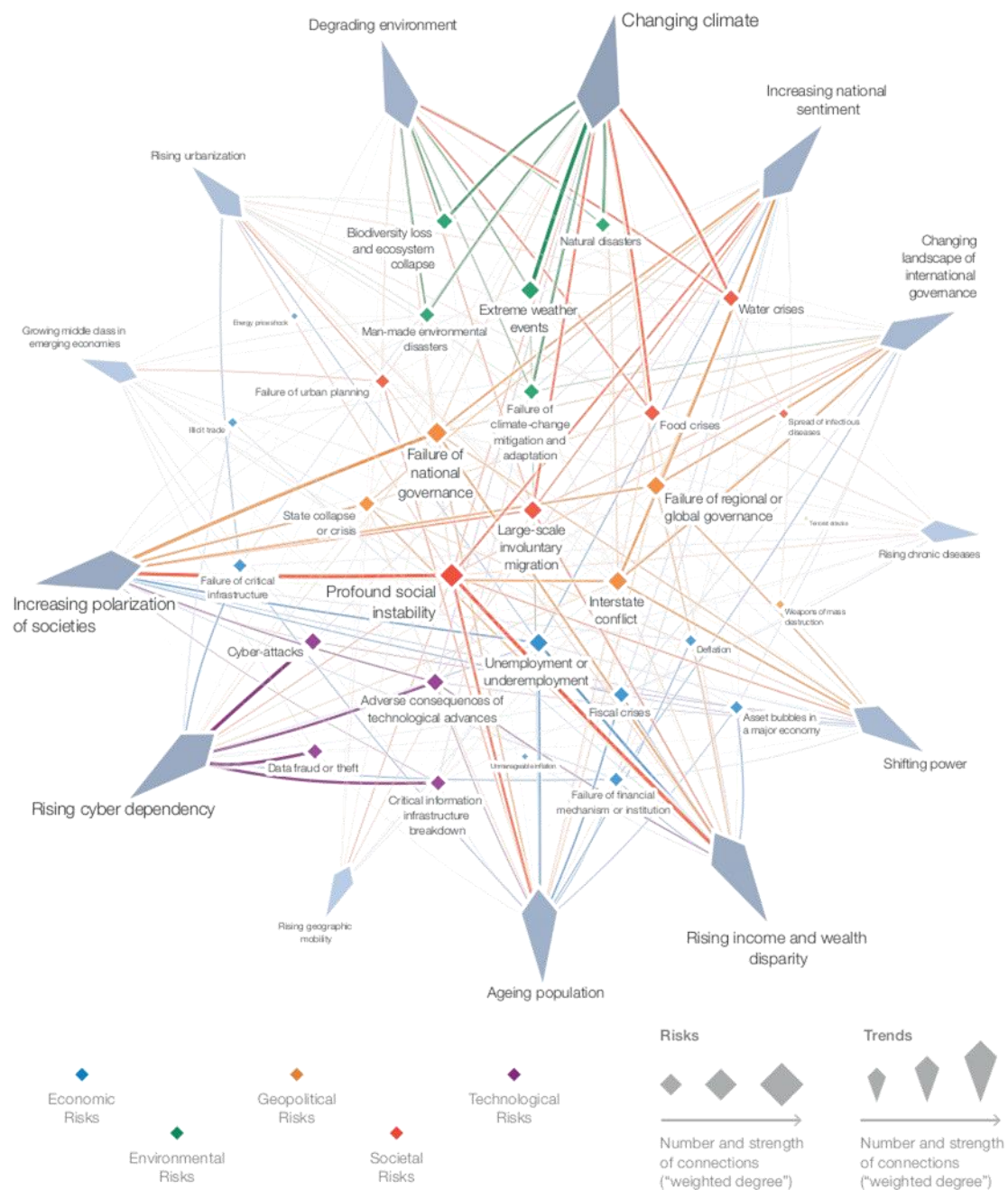
Figure I: The Global Risks Landscape 2019



Source: World Economic Forum Global Risks Perception Survey 2018–2019.

Note: Survey respondents were asked to assess the likelihood of the individual global risk on a scale of 1 to 5, 1 representing a risk that is very unlikely to happen and 5 a risk that is very likely to occur. They also assess the impact on each global risk on a scale of 1 to 5 (1: minimal impact, 2: minor impact, 3: moderate impact, 4: severe impact and 5: catastrophic impact). See Appendix B for more details. To ensure legibility, the names of the global risks are abbreviated; see Appendix A for the full name and description.

Figure II: The Risks-Trends Interconnections Map 2019



Source: World Economic Forum Global Risks Perception Survey 2018–2019.

Note: Survey respondents were asked to select the three trends that are the most important in shaping global development in the next 10 years. For each of the three trends identified, respondents were asked to select the risks that are most strongly driven by those trends. See Appendix B for more details. To ensure legibility, the names of the global risks are abbreviated; see Appendix A for the full name and description.

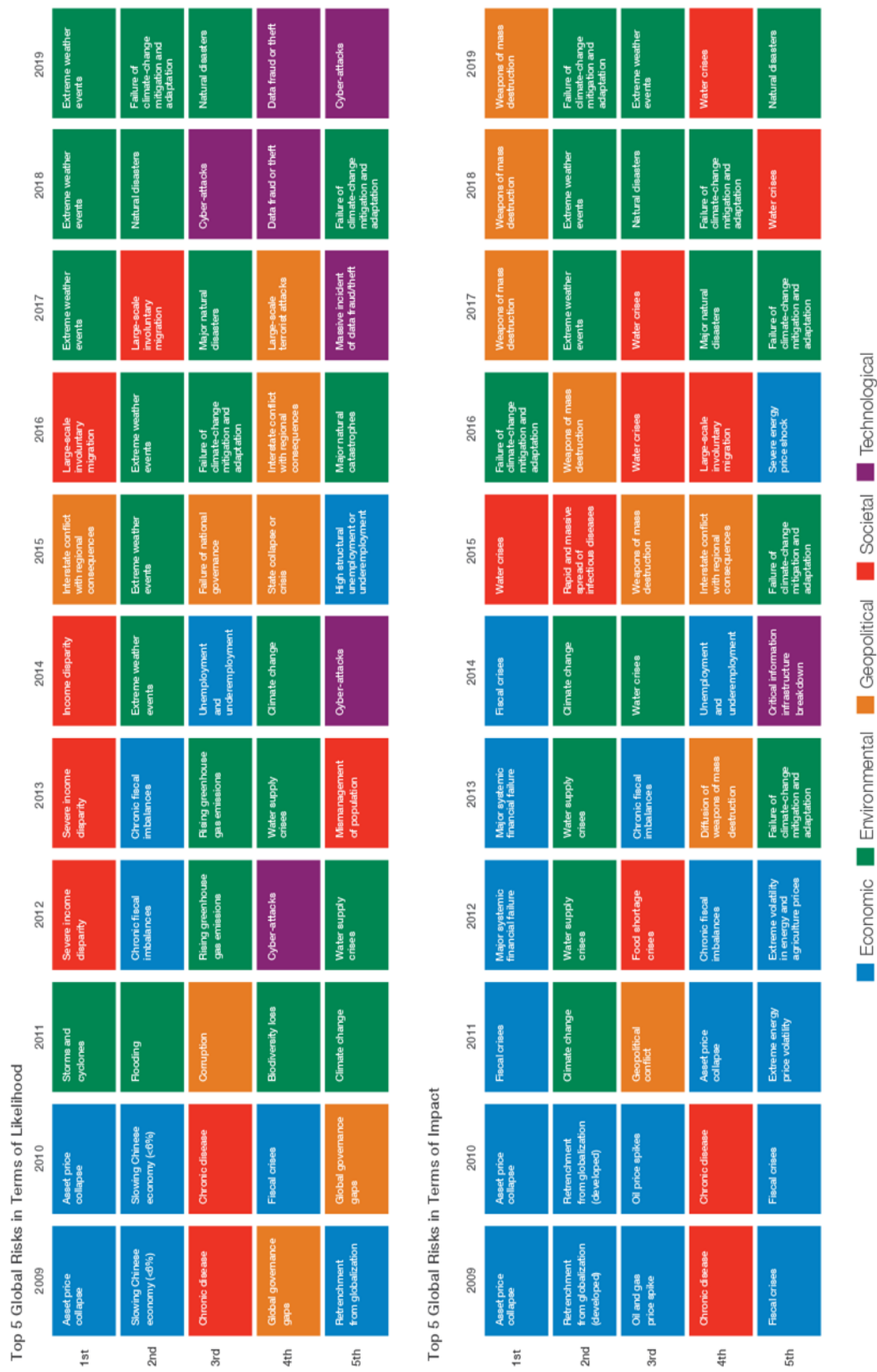
Figure III: The Global Risks Interconnections Map 2019



Source: World Economic Forum Global Risks Perception Survey 2018–2019.

Note: Survey respondents were asked to select up to six pairs of global risks they believe to be most interconnected. See Appendix B for more details. To ensure legibility, the names of the global risks are abbreviated; see Appendix A for the full name and description.

Figure IV: The Evolving Risks Landscape, 2009 – 2019



Source: World Economic Forum 2009–2019, Global Risks Reports.
 Note: Global risks may not be strictly comparable across years, as definitions and the set of global risks have evolved with new issues emerging on the 10-year horizon. For example, cyberattacks, income disparity and unemployment entered the set of global risks in 2012. Some global risks were reclassified: water crises and rising income disparity were re-categorized first as societal risks and then as a trend in the 2015 and 2016 Global Risks Reports, respectively.

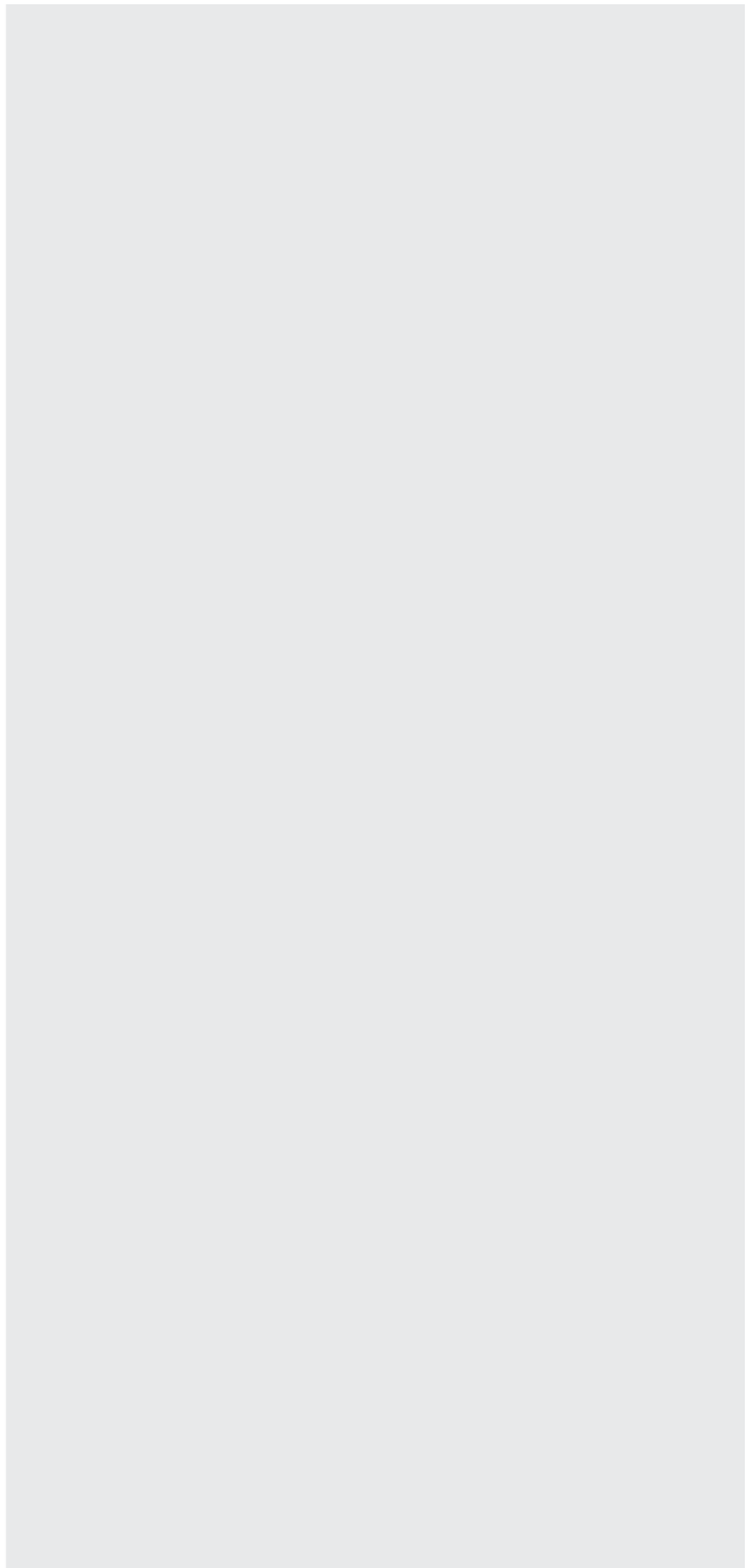
The Global Risks Report 2019 14th Edition

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Preface



Børge Brende
President
World Economic Forum

We publish the 2019 edition of the World Economic Forum's *Global Risks Report* at an important moment. The world is facing a growing number of complex and interconnected challenges—from slowing global growth and persistent economic inequality to climate change, geopolitical tensions and the accelerating pace of the Fourth Industrial Revolution. In isolation, these are daunting challenges; faced simultaneously, we will struggle if we do not work together. There has never been a more pressing need for a collaborative and multistakeholder approach to shared global problems.

This is a globalized world, as a result of which historic reductions in global poverty have been achieved. But it is also increasingly clear that change is needed. Polarization is on the rise in many countries. In some cases, the social contracts that hold societies together are fraying. This is an era of unparalleled resources and technological advancement, but for too many people it is also an era of insecurity. We are going to need new ways of doing globalization that respond to this insecurity. In some areas, this may mean redoubling efforts at the international level—implementing new approaches to a range of issues: technology and climate change to trade, taxation, migration and humanitarianism. In other areas renewed commitment and resources will be needed at the national level—tackling inequality, for example, or strengthening social protections and the bonds of political community.

Renewing and improving the architecture of our national and international political and economic systems is this generation's defining task. It will be a monumental undertaking, but an indispensable one. The *Global Risks Report* demonstrates how high the stakes are—my hope is that this year's report will also help to build momentum behind the need to act. It begins with a sweep of the global

risks landscape and warns of the danger of sleepwalking into crises. It goes on to consider a number of risks in depth: geopolitical and geo-economic disruptions, rising sea levels, emerging biological threats, and the increasing emotional and psychological strain that many people are experiencing. The Future Shocks section again focuses on potential rapid and dramatic changes in the systems we rely on—topics this year include quantum computing, human rights and economic populism.

The *Global Risks Report* embodies the collaborative and multistakeholder ethos of the World Economic Forum. It sits at the heart of our new Centre for Regional and Geopolitical Affairs, which is responsible for our crucial partnerships with the world's governments and international organizations. But the breadth and depth of its analysis also hinge on constant interaction with the Forum's industry and thematic teams, which shape our systems-based approach to the challenges facing the world. I am grateful for the collaboration of so many colleagues in this endeavour.

I am also particularly grateful for the insight and dedication of the report's Advisory Board. I would like to thank our long-standing strategic partners, Marsh & McLennan Companies and Zurich Insurance Group, as well as our academic advisers at the National University of Singapore, the Oxford Martin School at the University of Oxford and the Wharton Risk Management and Decision Processes Center at the University of Pennsylvania. As in previous years, the *Global Risks Report* draws on our annual Global Risks Perceptions Survey, which is completed by around 1,000 members of our multistakeholder communities. The report has also benefitted greatly from the input of many individuals in the Forum's global expert networks.

Executive Summary

Is the world sleepwalking into a crisis? Global risks are intensifying but the collective will to tackle them appears to be lacking. Instead, divisions are hardening. The world's move into a new phase of strongly state-centred politics, noted in last year's *Global Risks Report*, continued throughout 2018. The idea of "taking back control"—whether domestically from political rivals or externally from multilateral or supranational organizations—resonates across many countries and many issues. The energy now expended on consolidating or recovering national control risks weakening collective responses to emerging global challenges. We are drifting deeper into global problems from which we will struggle to extricate ourselves.

During 2018, **macroeconomic risks** moved into sharper focus. Financial market volatility increased and the headwinds facing the global economy intensified. The rate of global growth appears to have peaked: the latest International Monetary Fund (IMF) forecasts point to a gradual slowdown over the next few years.¹ This is mainly the result of developments in advanced economies, but projections of a slowdown in China—from 6.6% growth in 2018 to 6.2% this year and 5.8% by 2022—are a source of concern. So too is the global debt burden, which is significantly higher than before the global financial crisis, at around 225% of GDP. In addition, a tightening of global financial conditions has placed particular strain on countries that built up dollar-denominated liabilities while interest rates were low.

Geopolitical and geo-economic tensions are rising among the world's major powers. These tensions represent the most urgent global risks at present. The world is

evolving into a period of divergence following a period of globalization that profoundly altered the global political economy. Reconfiguring the relations of deeply integrated countries is fraught with potential risks, and trade and investment relations among many of the world's powers were difficult during 2018. Against this backdrop, it is likely to become more difficult to make collective progress on other global challenges—from protecting the environment to responding to the ethical challenges of the Fourth Industrial Revolution. Deepening fissures in the international system suggest that systemic risks may be building. If another global crisis were to hit, would the necessary levels of cooperation and support be forthcoming? Probably, but the tension between the globalization of the world economy and the growing nationalism of world politics is a deepening risk.

Environmental risks continue to dominate the results of our annual Global Risks Perception Survey (GRPS). This year, they accounted for three of the top five risks by likelihood and four by impact. Extreme weather was the risk of greatest concern, but our survey respondents are increasingly worried about environmental policy failure: having fallen in the rankings after Paris, "failure of climate-change mitigation and adaptation" jumped back to number two in terms of impact this year. The results of climate inaction are becoming increasingly clear. The accelerating pace of biodiversity loss is a particular concern. Species abundance is down by 60% since 1970. In the human food chain, biodiversity loss is affecting health and socioeconomic development, with implications for well-being, productivity, and even regional security.

¹ International Monetary Fund (IMF). 2018. *World Economic Outlook, October 2018: Challenges to Steady Growth*. Washington, DC: IMF. <https://www.imf.org/en/publications/weo>

Technology continues to play a profound role in shaping the global risks landscape. Concerns about data fraud and cyber-attacks were prominent again in the GRPS, which also highlighted a number of other **technological vulnerabilities**: around two-thirds of respondents expect the risks associated with fake news and identity theft to increase in 2019, while three-fifths said the same about loss of privacy to companies and governments. There were further massive data breaches in 2018, new hardware weaknesses were revealed, and research pointed to the potential uses of artificial intelligence to engineer more potent cyber-attacks. Last year also provided further evidence that cyber-attacks pose risks to critical infrastructure, prompting countries to strengthen their screening of cross-border partnerships on national security grounds.

The importance of the various structural changes that are under way should not distract us from **the human side of global risks**. For many people, this is an increasingly anxious, unhappy and lonely world. Worldwide, mental health problems now affect an estimated 700 million people. Complex transformations—societal, technological and work-related—are having a profound impact on people's lived experiences. A common theme is psychological stress related to a feeling of lack of control in the face of uncertainty. These issues deserve more attention: declining psychological and emotional well-being is a risk in itself—and one that also affects the wider global risks landscape, notably via impacts on social cohesion and politics.

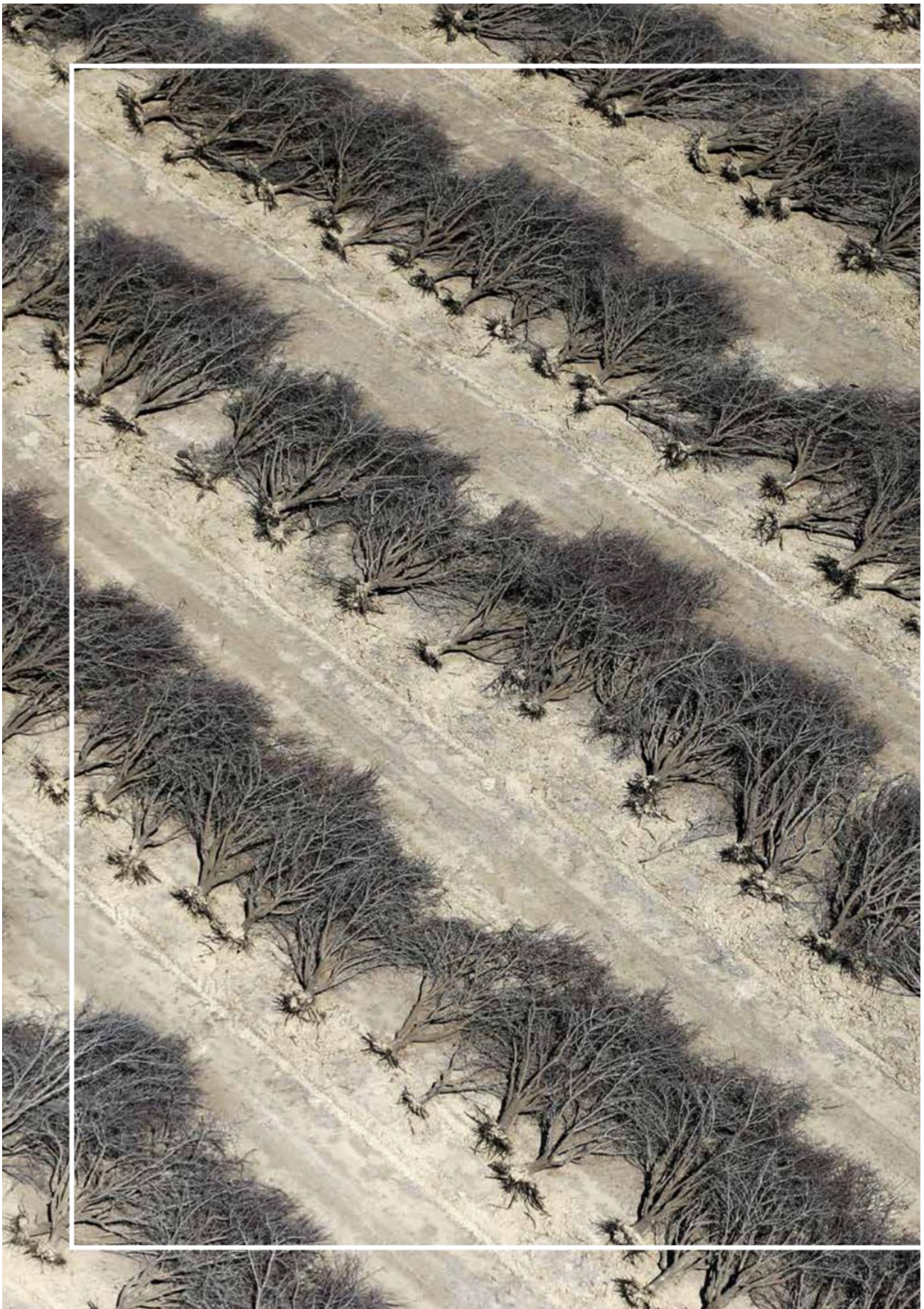
Another set of risks being amplified by global transformations relate to biological pathogens. Changes in how we live have increased

the risk of a devastating outbreak occurring naturally, and emerging technologies are making it increasingly easy for new **biological threats** to be manufactured and released either deliberately or by accident. The world is badly under-prepared for even modest biological threats, leaving us vulnerable to potentially huge impacts on individual lives, societal well-being, economic activity and national security. Revolutionary new biotechnologies promise miraculous advances, but also create daunting challenges of oversight and control—as demonstrated by claims in 2018 that the world's first gene-modified babies had been created.

Rapidly growing cities and ongoing effects of climate change are making more people vulnerable to **rising sea levels**. Two-thirds of the global population is expected to live in cities by 2050 and already an estimated 800 million people live in more than 570 coastal cities vulnerable to a sea-level rise of 0.5 metres by 2050. In a vicious circle, urbanization not only concentrates people and property in areas of potential damage and disruption, it also exacerbates those risks—for example by destroying natural sources of resilience such as coastal mangroves and increasing the strain on groundwater reserves. Intensifying impacts will render an increasing amount of land uninhabitable. There are three main strategies for adapting to rising sea-levels: (1) engineering projects to keep water out, (2) nature-based defences, and (3) people-based strategies, such as moving households and businesses to safer ground or investing in social capital to make flood-risk communities more resilient.

In this year's **Future Shocks** section, we focus again on the potential for threshold effects that

could trigger dramatic deteriorations and cause cascading risks to crystallize with dizzying speed. Each of the 10 shocks we present is a “what-if” scenario—not a prediction, but a reminder of the need to think creatively about risk and to expect the unexpected. Among the topics covered this year are quantum cryptography, monetary populism, affective computing and the death of human rights. In the **Risk Reassessment** section, experts share their insights about how to manage risks. John Graham writes about weighing the trade-offs between different risks, and András Tilcsik and Chris Clearfield write about how managers can minimize the risk of systemic failures in their organizations. And in the **Hindsight** section, we revisit three of the topics covered in previous reports: food security, civil society and infrastructure investment.





(REUTERS/Lucy Nicholson)

2019 Global Risks

Out of control

Is the world sleepwalking into a crisis? Global risks are intensifying but the collective will to tackle them appears to be lacking. Instead, divisions are hardening. The world's move into a new phase of state-centred politics, noted in last year's *Global Risks Report*, continued throughout 2018. The idea of "taking back control"—whether domestically from political rivals or externally from multilateral or supranational organizations—resonates across many countries and many issues. The energy now being expended on consolidating or recovering national control risks weakening collective responses to emerging global challenges. We are drifting deeper into global problems from which we will struggle to extricate ourselves.

The following sections focus on five areas of concern highlighted in this year's Global Risks Perception Survey (GRPS), which frame much of the analysis in subsequent chapters: (1) economic vulnerabilities, (2) geopolitical tensions, (3) societal and political strains, (4) environmental fragilities, and (5) technological instabilities.

Economic worries

Geo-economic tensions ratcheted up during 2018, as discussed in Chapter 2 (Power and Values). GRPS respondents were concerned in the short term about the deteriorating international economic environment, with the vast majority expecting increasing risks in 2019 related to “economic confrontations between major powers” (91%) and “erosion of multilateral trading rules and agreements” (88%).

Last year’s report advised caution about broader macroeconomic fragilities, even at a time of strengthening growth. Economic risks have since moved into sharper focus. Financial market volatility increased in 2018, and the headwinds facing the global economy intensified. The rate of global growth appears to have peaked: the latest International Monetary Fund (IMF) forecasts point to a gradual slowdown over the next few years.¹ This is mainly the result of developments in advanced economies, where the IMF expects real GDP growth to decelerate from 2.4% in 2018 to 2.1% this year and to 1.5% by 2022. However, while developing economies’ aggregate growth is expected to remain broadly unchanged, projections of a slowdown in China—from 6.6% in 2018 to 6.2% this year and 5.8% by 2022—are a source of concern.

High levels of global indebtedness were one of the specific financial vulnerabilities we highlighted last year. These concerns have not eased. The total global debt burden is now significantly higher than it was before the global financial crisis, at around 225% of GDP.² In its latest *Global Financial Stability Report*, the IMF notes that in countries with systemically significant financial sectors, the debt burden is higher still, at 250% of GDP—this compares with a figure of 210% in 2008.³ In addition, a tightening of global financial conditions has placed particular strain on countries that built up dollar-denominated liabilities while interest rates were low. By October last year, more than 45% of low-income countries were in or at high risk of debt distress, up from one-third in 2016.⁴

Inequality continues to be seen as an important driver of the global risks landscape. “Rising income and wealth disparity” ranked fourth in GRPS respondents’ list of

underlying trends. Although global inequality has dipped this millennium, within-country inequality has continued to rise. New research published last year attributes economic inequality largely to widening divergences between public and private levels of capital ownership over the past 40 years: “Since 1980, very large transfers of public to private wealth occurred in nearly all countries, whether rich or emerging. While national wealth has substantially increased, public wealth is now negative or close to zero in rich countries”;⁵ (see Figure 1.1).

Coupled with political polarization, inequality erodes a country’s social fabric in an economically damaging way: as cohesion and trust diminish, economic performance is likely to follow.⁶ One study attempts to quantify by how much various countries’ per capita income would hypothetically increase if their levels of trust were as high as they are in Sweden.⁷ Even in richer developed countries, the estimated gains





would be significant, ranging from 6% in the United Kingdom to 17% in Italy. In some other countries they are much greater: 29% in the Czech Republic, 59% in Mexico and 69% in Russia. Given these results, it is sobering that the 2018 Edelman Trust Barometer categorizes 20 of the 28 countries surveyed as “distrusters”.⁸ Beyond economic impacts, eroding trust is part of a wider pattern that

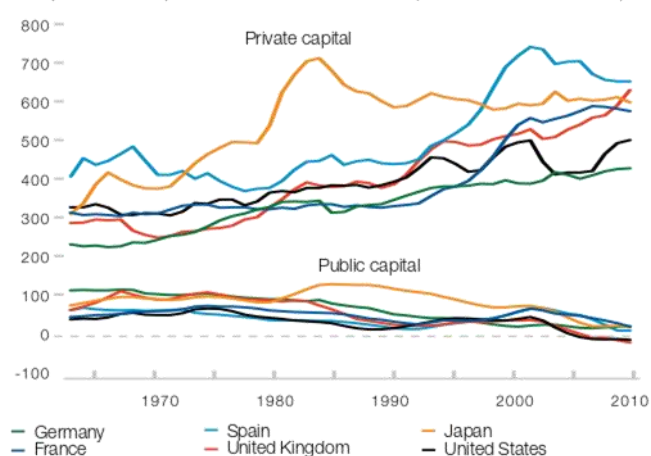
threatens to corrode the social contract in many countries. This is an era of strong-state politics, but also one of weakening national communities.

Interest is increasing in approaches to economics and finance that draw on moral theory and social psychology to reconcile individual and communitarian goals. For example, more attention is

being paid to economist and philosopher Adam Smith and to placing his work on the “invisible hand” of market capitalism in the context of his ideas on moral obligation and community. Some argue that too much emphasis has been placed on “the ‘wants’ of *The Wealth of Nations*” over “the ‘oughts’ of *The Theory of Moral Sentiments*.”⁹ There are no easy remedies: the moral psychology of partisan differences is not conducive to compromise on values,¹⁰ while the geopolitical divergences discussed in Chapter 2 (Power and Values) will complicate any attempt to find consensus on bold attempts to rethink global capitalism. However, that is the new challenge, and it is one to which the World Economic Forum will devote itself at its Annual Meeting 2019 in Davos.

Figure 1.1: Private Gains

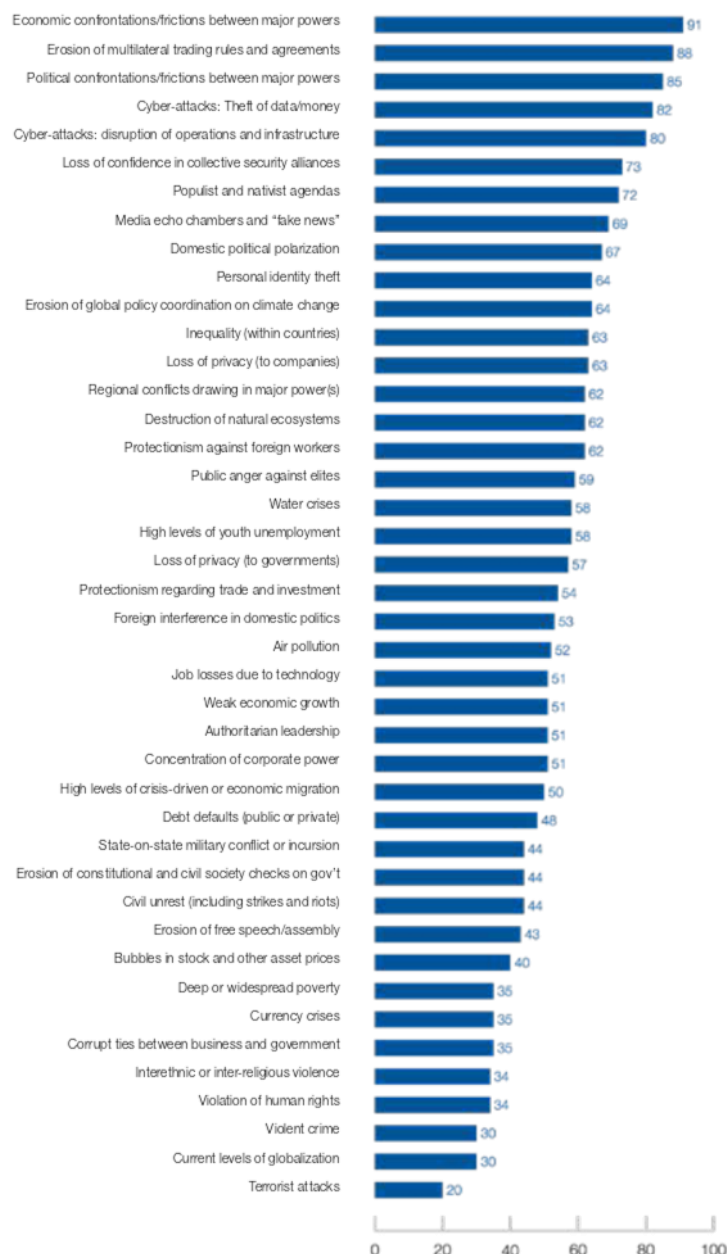
Net private and public wealth 1970–2015 (% of national income)



Source: World Inequality Database, <https://wir2018.wid.world>

Figure 1.2: Short-Term Risk Outlook

Percentage of respondents expecting risks to increase in 2019



Source: World Economic Forum Global Risks Perception Survey 2018–2019.

Note: For details of the question respondents were asked, see Appendix B.

Major-power tensions

Last year saw rising geopolitical tensions among the world's major powers. These mostly played out in the economic field, as discussed in Chapter 2 (Power and Values), but more fundamental spillovers are possible. The respondents to this year's GRPS are pessimistic: 85% said they expect 2019 to involve increased risks of "political confrontations between major powers" (see Figure 1.2).

Polarization and weak governance raise serious questions about many countries' political health

The evolving China-US relationship is part of the emerging geopolitical landscape described in last year's *Global Risks Report* as "multipolar and multiconceptual". In other words, the instabilities that are developing reflect not just changing power balances, but also the fact that post-Cold War assumptions—particularly in the West—that the

world would converge on Western norms have been shown to be naïvely optimistic. As Chapter 2 (Power and Values) discusses, differences in fundamental norms are likely to play an important role in geopolitical developments in the years and decades ahead. These differences will affect the global risks landscape in significant ways—from weakening security alliances to undermining efforts to protect the global commons.

With multilateralism weakening and relations between the world's major powers in flux, the current geopolitical backdrop is inauspicious for resolving the many protracted conflicts that persist around the world. In Afghanistan, for example, civilian deaths in the first six months of 2018 were the highest in 10 years, according to the UN, while the share of districts controlled by the United States-supported Afghan government fell from 72% in 2015 to 56% in 2018.¹¹ In Syria, multiple states are now embroiled in a civil conflict in which hundreds of thousands have died. And in Yemen, the direct casualties of war are estimated at 10,000 and as many as 13 million people are at risk of starvation as a result of disruptions to food and other supplies, according to a UN warning in October 2018.¹²

One positive geopolitical development since the last edition of this report has been an easing of tensions and volatility related to

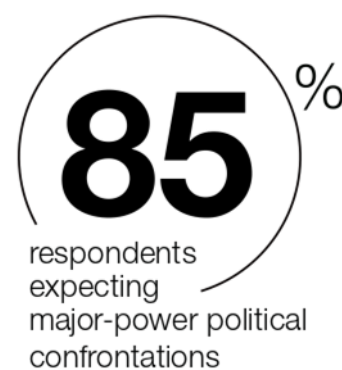
North Korea's nuclear programme, following increased diplomacy involving the United States, South Korea and North Korea. This may have played a part in a sharp fall—from 79% to 44%—in the proportion of the survey respondents expecting the risk of “state-on-state military conflict or incursion” to increase over the next year. Nonetheless, for the third year running, weapons of mass destruction ranked as the number one global risk in terms of potential impact.

Political strains

Around the world, mounting geopolitical instabilities are matched—and frequently exacerbated—by continuing domestic political strains. GRPS respondents ranked “increasing polarization of societies” second only to climate change as an underlying driver of developments in the global risks landscape. Many Western democracies are still struggling with post-crisis patterns of political fragmentation and polarization that have complicated the process of providing stable and effective governance. But this is a global issue, not just a “first-world problem”. In the World Economic Forum's inaugural *Regional Risks for Doing Business* report, published last year, “failure of national governance” ranked second globally and first in Latin America and South Asia, based

on a survey of around 12,000 business leaders covering more than 130 countries.¹³

Polarization and weak governance raise serious questions about numerous countries' political health. In many cases, partisan differences are deeper than they have been for a long time. A vicious circle may develop in which diminishing social cohesion places ever-greater strain on political institutions, undermining their ability to anticipate or respond to societal challenges. This problem is even more acute when global challenges require multilateral cooperation or integration: weaker levels of legitimacy and accountability invite an anti-elitist backlash. So too do failures of multilateral policy and institutional design. For example, it is now widely acknowledged that more should have been done to provide protection or remedies to the losers from globalization.¹⁴ It should not have taken a crisis to recognize this. In the GRPS, 59% of respondents said they expect risks associated with “public anger against elites” to increase in 2019.



Chapter 3 (Heads and Hearts) looks at the causes and potential consequences of rising levels of anger, along with other forms of emotional and psychological distress.

Identity politics continue to drive global social and political trends, and immigration and asylum policy raise fundamental questions about control over the composition of political communities. Migration has triggered political disruption in recent years, ranging from Asia and Latin America to Europe and the United States. Global trends—from demographic projections to climate change—practically guarantee further crises, and some leaders are likely to take a tougher line in defence of dominant national cultures. In the GRPS, 72% of respondents said they expect risks associated with “populist and nativist agendas” to increase in 2019.

In some countries, efforts to secure recognition and equality for a widening range of minority social groups—defined by characteristics such as race, ethnicity, religion, gender identity or sexual orientation—have become increasingly electorally significant. In the United States, for example, attitudes towards identity politics mark increasingly bitter divisions between Republican and Democratic voting blocs.¹⁵ November 2018’s mid-term Congressional elections saw a record number of women and non-white candidates elected.

There has been a period of renewed politicization around gender, sexism and sexual assault in the United States. The #MeToo movement, which began in October 2017, continued in 2018 and has also drawn attention to—and in some cases amplified—similar campaigns against sexual

violence.¹⁶ The increased attention being paid globally to violence against women was also reflected in the Nobel Peace Prize going to Nadia Murad and Denis Mukwege for their work to end the use of sexual violence as a tool of conflict. Beyond being directly targeted with violence and discrimination, women around the world are also disproportionately affected by many of the risks discussed in the *Global Risks Report*, often as a result of experiencing higher levels of poverty and being the primary providers of childcare, food and fuel. For example, climate change means women in many communities must walk farther to fetch water. Women often do not have the same freedom or resources as men to reach safety after natural disasters—in parts of Sri Lanka, Indonesia and India, men who survived the 2004 tsunami outnumbered women by almost three to one.¹⁷ According to the International Monetary Fund (IMF),



women are also more likely than men to have their jobs displaced by automation.¹⁸

Climate catastrophe

Environment-related risks dominate the GRPS for the third year in a row, accounting for three of the top five risks by likelihood and four by impact (see Figure IV). Extreme weather is again out on its own in the top-right (high-likelihood, high-impact) quadrant of the Global Risks Landscape 2019 (see Figure I).

Environment-related risks account for three of the top five risks by likelihood and four by impact

The year 2018 was another one of storms, fires and floods.¹⁹ Of all risks, it is in relation to the environment that the world is most clearly sleepwalking into catastrophe. The Intergovernmental Panel on Climate Change (IPCC) bluntly said in October 2018 that we have at most 12 years to make the drastic and unprecedented changes needed to prevent average global temperatures from rising beyond the Paris Agreement's 1.5°C target. In the United States, the Fourth National

Climate Assessment warned in November that without significant reductions in emissions, average global temperatures could rise by 5°C by the end of the century.²⁰ GRPS respondents seem increasingly worried about environmental policy failure: having fallen in the rankings after Paris, "failure of climate-change mitigation and adaptation" jumped back to number two in terms of impact this year. And the most frequently cited risk interconnection was the pairing of "failure of climate-change mitigation and adaptation" and "extreme weather events".

The accelerating pace of biodiversity loss is a particular concern. The Living Planet Index, which tracks more than 4,000 species across the globe, reports a 60% decline in average abundance since 1970.²¹ Climate change is exacerbating biodiversity loss and the causality goes both ways: many affected ecosystems—such as oceans and forests—are important for absorbing carbon emissions. Increasingly fragile ecosystems also pose risks to societal and economic

stability. For example, 200 million people depend on coastal mangrove ecosystems to protect their livelihoods and food security from storm surges and rising sea levels, as discussed in Chapter 5 (Fight or Flight).²² One estimate of the notional economic value of "ecosystem services"—benefits to humans, such as drinking water, pollination or protection against floods—puts it at US\$125 trillion per year, around two-thirds higher than global GDP.²³

In the human food chain, loss of biodiversity affects health and socio-economic development, with implications for well-being, productivity and even regional security. Micronutrient malnutrition affects as many as 2 billion people. It is typically caused by a lack of access to food of sufficient variety and quality.²⁴ Nearly half the world's plant-based calories are provided by just three crops: rice, wheat and maize.²⁵ Climate change compounds the risks. In 2017, climate-related disasters caused acute food insecurity for approximately 39 million people across 23 countries.²⁶ Less obviously, increased levels of carbon dioxide in the atmosphere are affecting the nutritional composition of staples such as rice and wheat. Research suggests that by 2050 this could lead to zinc deficiencies for 175 million people, protein deficiencies for 122 million, and loss of dietary iron for 1 billion.²⁷

As environmental risks crystallize with increasing frequency and severity, the impact on global value chains is likely to intensify, weakening overall resilience. Disruptions to the production and delivery of goods and services due to environmental disasters are up by 29% since 2012.²⁸ North America was the region worst affected by environment-related supply-chain disruptions in 2017; these disruptions were due notably to hurricanes and wildfires.²⁹ For example, in the US automotive industry, only factory fires and company mergers caused more supply-chain disruptions than hurricanes.³⁰ When the disruptions are measured by the number of suppliers affected rather than the number of individual events, the four most significant triggers in 2017 were hurricanes, extreme weather, earthquakes and floods.³¹

Upheavals in the global waste disposal and recycling supply chain during 2018 may be a foretaste. China banned the import of foreign waste, including almost 9 million tons of plastic scrap, to reduce pollution and strain on its national environmental systems.³² This ban exposed weaknesses in the domestic recycling capacity of many Western countries. Plastic waste built up in the United Kingdom, Canada and several European states. In the first half of 2018 the United States sent 30% of the plastic that would previously have gone to China to landfill,³³ and the rest to other countries

including Thailand, Malaysia and Vietnam. However, all three of those countries have since announced their own new restrictions or bans on plastic imports. In sum, as the impact of environmental risks increases, it will become increasingly difficult to treat those risks as externalities that can be ignored or shipped out. Domestic and coordinated international action will be needed to internalize and mitigate the impact of human activity on natural systems.

Technological instabilities

Technology continues to play a profound role in shaping the global risks landscape for individuals, governments and businesses. In the GRPS, “massive data fraud and theft” was ranked the number four global risk by likelihood over a 10-year horizon, with “cyber-attacks” at number five. This sustains a pattern recorded last year, with cyber-risks consolidating their position alongside environmental risks in the high-impact, high-likelihood quadrant of the Global Risks Landscape (Figure I). A large majority of respondents expected increased risks in 2019 of cyber-attacks leading to theft of money and data (82%) and disruption of operations (80%). The survey reflects how new instabilities are being caused by the deepening integration of digital technologies

into every aspect of life. Around two-thirds of respondents expect the risks associated with fake news and identity theft to increase in 2019, while three-fifths said the same about loss of privacy to companies and governments. The potential psychological effects of the increasing digital intermediation of people's lives is discussed in Chapter 3 (Heads and Hearts).

Malicious cyber-attacks and lax cybersecurity protocols again led to massive breaches of personal information in 2018. The largest was in India, where the government ID database, Aadhaar, reportedly suffered multiple breaches that potentially compromised the records of all 1.1 billion registered citizens. It was reported in January that criminals were selling access to the database at a rate of 500 rupees for 10 minutes, while in March a leak at a state-owned utility company allowed anyone to download names and ID numbers.³⁴ Elsewhere, personal data breaches affected around 150 million users of the MyFitnessPal application,³⁵ and around 50 million Facebook users.³⁶

Cyber vulnerabilities can come from unexpected directions, as shown in 2018 by the Meltdown and Spectre threats, which involved weaknesses in computer hardware rather than software. They potentially affected every Intel processor produced in the last 10 years.³⁷ Last year also saw continuing evidence that cyber-

The vulnerability of critical technological infrastructure is a growing national security concern

attacks pose risks to critical infrastructure. In July the US government stated that hackers had gained access to the control rooms of US utility companies.³⁸ The potential vulnerability of critical technological infrastructure has increasingly become a national security concern. The second most frequently cited risk interconnection in this year's GPRS was the pairing of cyber-attacks with critical information infrastructure breakdown.

Machine learning or artificial intelligence (AI) is becoming more sophisticated and prevalent, with growing potential to amplify existing risks or create new ones, particularly as the Internet of Things connects billions of devices. In a survey conducted last year by Brookings, 32% of respondents said they view AI as a threat to humanity, while only 24% do not.³⁹ IBM last year revealed targeted AI malware that can "hide" a well-known threat—WannaCry—in a video-conferencing application, activating only when it recognizes the face of the intended target.⁴⁰ Similar innovations are likely to occur in other fields. For example, Chapter 4 (Going Viral) highlights

the potential for malicious actors in synthetic biology to use AI to create new pathogens. One of this year's Future Shocks (Chapter 6) considers the potential consequences of "affective computing"—referring to AI that can recognize, respond to and manipulate human emotions.

Among the most widespread and disruptive impacts of AI in recent years has been its role in the rise of "media echo chambers and fake news", a risk that 69% of GRPS respondents expect to increase in 2019. Researchers last year studied the trajectories of 126,000 tweets and found that those containing fake news consistently outperformed those containing true information, on average reaching 1,500 people six times more quickly. One possible reason cited by researchers is that fake news tends to evoke potent emotions: "Fake tweets tended to elicit words associated with surprise and disgust, while accurate tweets summoned words associated with sadness and trust."⁴¹ The interplay between emotions and technology is likely to become an ever more disruptive force.

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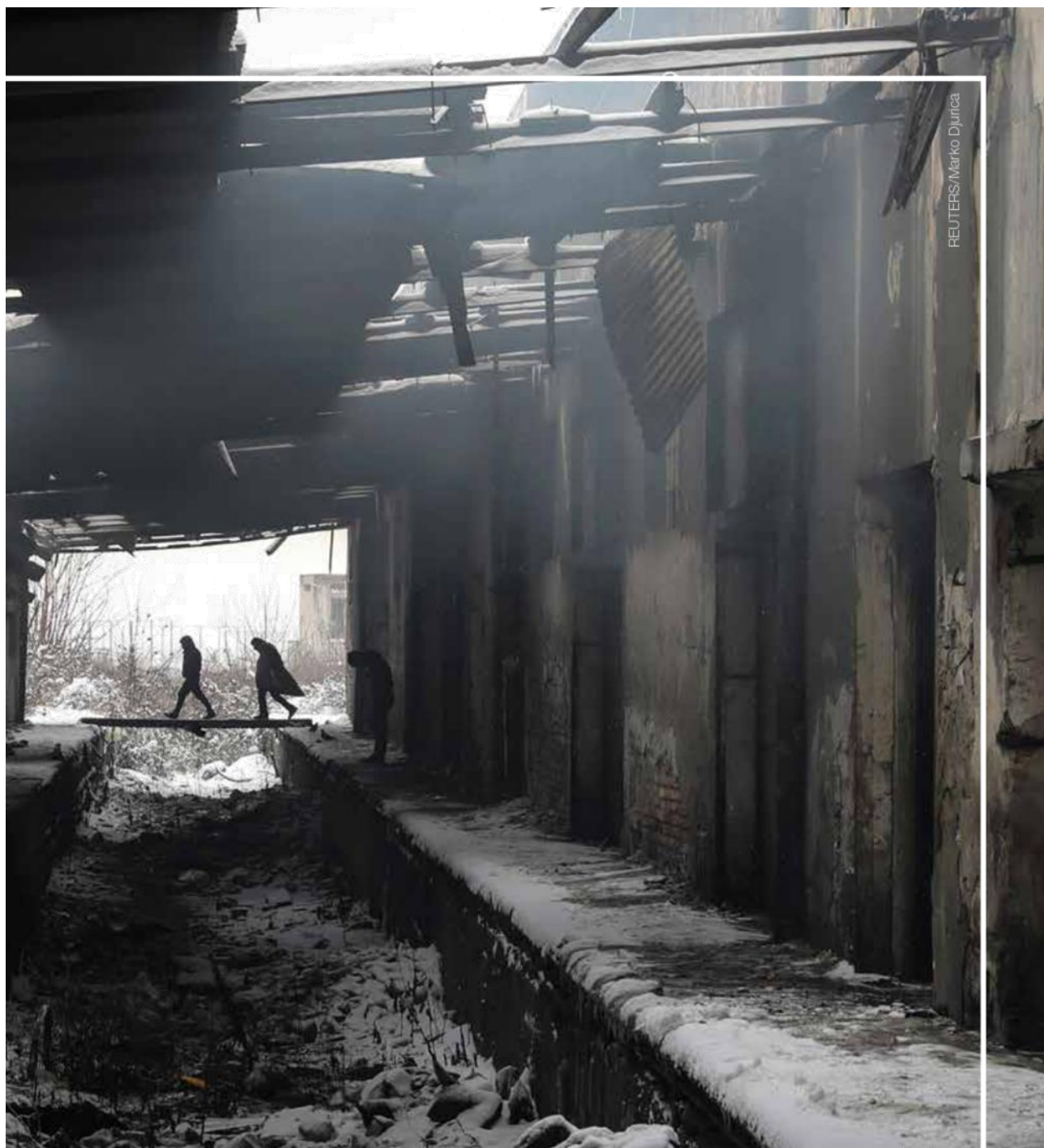
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Power and Values

Evolving Risks in a
Multiconceptual World



A period of change in the international system is destabilizing assumptions about global order. Last year's *Global Risks Report* argued that the world is becoming not just multipolar, but also "multiconceptual". This chapter further examines how changing power dynamics and diverging norms and values are affecting global politics and the global economy.

The chapter begins by outlining how normative differences increasingly shape domestic and international politics. It then highlights three trends with the potential to trigger disruptive change: (1) the difficulty of sustaining global consensus on ethically charged issues such as human rights; (2) intensifying pressure on multilateralism and dispute-settlement mechanisms; and (3) states' increasingly frequent use of geo-economic policy interventions.

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No room for nostalgia

It should be no surprise that a multipolar world is also more multiconceptual: as global power is diffused, there is more room for divergent values to shape geopolitics than there has been since the end of World War II. After the bipolar Cold War gave way to unipolar US power, some argued that the battle of ideas was over and Western liberal democratic norms would, in time, prevail globally. That was a bold claim then and it looks like hubris now. In today's world, narratives of gradual convergence on any set of overarching values look unconvincing. Values seem to be a source of division rather than unity, not just globally but also within regions and countries.

Nostalgia is an inadequate response, especially as previous decades were hardly risk-free. The imperative now is to understand the changes that are happening

and learn how to safely navigate the challenges they entail. After a period of globalization that has deeply integrated many countries, reconfiguring relationships is unlikely to be easy.

States, individuals and markets

Values-based tensions are manifesting in different ways in different places, creating new fault lines within and between countries and regions. But they have common features: control, and the role of the state. Many political leaders and communities feel they have lost control—whether to internal divisions, external rivals or multilateral organizations—and, in response, they look to strengthen the state. Because notions of power, security and self-determination are so politically fundamental, clashes may have less scope for compromise than when differences involve more technical issues.

Domestically, key tensions include the following:

- *States and individuals.* The balance has tilted from individuals towards states.¹ In this context, the idea of “illiberal democracy” has gained currency.²
- *States and minorities.* Politically, rising majoritarianism means voting is increasingly a winner-takes-all contest between polarized groupings. Culturally, identity politics have become increasingly contentious, with national majorities in many countries seeking greater assimilation (or exclusion) of minorities.
- *States and markets.* The scale and power of multinational businesses has fuelled growing opposition to globalization in many countries. Elsewhere, states are taking a stronger economic role: almost a quarter of the world's largest firms are now state-controlled, the highest level in decades.³



- *The role of technology.* New technological capabilities have amplified existing tensions over values—for example, by weakening individual privacy or deepening polarization—while differences in values are shaping the pace and direction of technological advances in different countries.⁴

Globally, key pressures relate to how states interact and tackle cross-border challenges:

- *Multilateral rules and institutions.* Strong-state politics makes it harder to sustain multilateralism. As further explored below, this has been most evident so far in the shift in trade policy from global frameworks overseen by the World Trade Organization to state-led regional initiatives and bilateral deals.⁵

- *Sovereignty and non-interference.* The protections for state sovereignty in the UN Charter appear more resilient than the interventionist norms of the 2005 Responsibility to Protect principle. In the digital era, efforts to promote (or disrupt) political values in other countries have become increasingly contentious.

- *Migration and asylum.* The international movement of people has emerged in recent years as a fault-line issue in many countries. Demographic trends—such as those

illustrated in Figure 2.1, which projects changes in the relative populations of Africa and Europe—will drive inter-regional migration in the decades ahead.

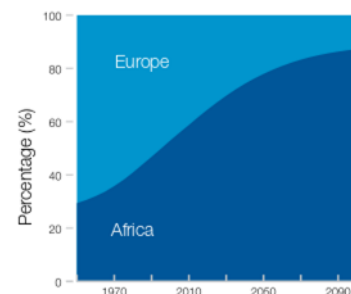
- *Protection of the global commons.* Climate change, outer space, cyber space and the polar regions are aspects of the global commons that are already or could increasingly become a source of international tensions.

In the context of rising geopolitical competition and weakening multilateral institutions, debates revolving around these pressures have the potential to be destabilizing and even to foment conflict. A more hopeful prospect is that the current flux in the international system instead will lead in pragmatic, open and pluralist directions, but even then a difficult and risky transition lies ahead.

Shared goals amid divergent values

In a world of disparate powers and divergent values, it is likely to be more difficult to make progress on shared global goals. Such progress requires two things: aligning on substantive priorities for action, and then sustaining coordination and collaboration. The example of climate change shows that, even when the first is possible, the

Figure 2.1: Wave of Change
Relative shares of combined Europe/Africa population



Source: World Population Prospects 2017.
<https://population.un.org/wpp/>

second can be challenging: broad consensus was built up over decades, culminating in the signing of the Paris Agreement in 2015—but evidence on implementation is mixed, and even full implementation will not be enough to prevent damaging levels of global warming.

Challenges related to the Fourth Industrial Revolution will evolve rapidly and coordinating a response may be complicated when they touch on fundamental values. Chapter 4 (Going Viral) discusses how emerging bio-technologies are blurring the lines between humanity and technology: for example, it was claimed in late 2018 that gene-editing tools had been used to create genetically modified babies. Whether countries each chart their own course on such research or instead align around shared ethical principles to craft international restrictions could have important implications for the future of humanity.



Migration and cross-border tax policy are among other global issues that are both ethically charged and subject to divergent state interests. However, the most acute challenge may be posed by human rights, which have become a litmus test for the changing role of values in the international system.

As geopolitical tensions and competition have intensified, human rights have been increasingly politicized.⁶ The complex global picture that is emerging in that area—nominal alignment on shared values, marked differences in interpretation and implementation, fragmented approaches to multilateral institutions—is a microcosm of the wider role of values in the international system. An optimistic scenario sees the kind of flux that is evident around human rights as an opening for states and other stakeholders to find better ways of doing things. However, values divergence means that it will be difficult even to align on what

“better” means in this context. As sketched out in one of our Future Shocks (see page 74), it is possible to imagine a tipping point is reached where states simply abandon ideas—and institutions—that limit their autonomy.

Multilateralism under threat

Political leaders have increasingly asserted the primacy of the nation-state in the international system and sought to weaken the constraints placed on national autonomy by international agreements and multilateral institutions. Defenders of multilateralism point out that this fragmentation risks creating blind spots, undermining global stability, and limiting the capacity to respond to cross-border challenges.

The current multilateral architecture has been criticized in rising and legacy powers alike. In some rising powers, critics argue that the

international architecture is too firmly shaped by the post-World War II balance of power and values, and has failed to evolve to reflect subsequent global transformations.⁷ In economic terms, for example, in 1950 the United States had 27.2% of global GDP and China 4.6% (on a purchasing power parity basis); in 2017 those figures were 15.3% and 18.2%, respectively.⁸ Such shifts in the economic centre of gravity create demands for institutional change. Meanwhile, in some legacy powers, critics argue that multilateralism is a costly drag on their freedom to manoeuvre.

Multilateralism can be weakened in numerous ways. States can withdraw from agreements and institutions; they can intervene to block consensus; and they can adopt a selective approach to upholding norms and rules. Multilateral institutions can also experience a gradual process of disuse or disregard. Arguably, the cohesiveness of the multilateral



Fragmentation risks creating blind spots, undermining global stability, and limiting the capacity to respond

system could be weakened by the creation of new parallel structures, but it is also possible that increased institutional density could bolster the resilience of the system.

International dispute resolution is an area of particular concern, so far manifesting especially in relation to trade. For example, if the appointment of new judges to the WTO's Appellate Body continues to be blocked, a key dispute-settlement panel could cease to function in December 2019, when there will no longer be enough judges on the panel to issue valid rulings.⁹

Dispute resolution is a crucial part of the architecture of international

commerce, and the system is already changing—its centre of gravity is shifting from the West to Asia. For example, in late 2017 the China International Economic and Trade Arbitration Commission (CIETAC) introduced its first international arbitration rules, and in mid-2018 China established two new international courts to handle commercial disputes related to the Belt and Road Initiative.¹⁰ Controversy has escalated in many countries over investor-state dispute settlement (ISDS) procedures, which allow foreign investors to rely on international arbitration processes rather than the local legal frameworks of countries in which they have invested.¹¹ If cross-border trust is eroded by geopolitical competition and diverging values, creating

mutually accepted dispute-settlement mechanisms may become increasingly complicated.

Worsening trade relations

Trade is the arena in which the broader implications of a more multipolar, multiconceptual world have so far played out most clearly. Trade relations between China and the United States rapidly worsened during 2018. There were positive signs in the final months of the year, raising hopes that a normalization of relations will follow, but the pace of the earlier deterioration highlights how quickly risks can crystallize and intensify in this area.

The US Department of Commerce's strategic plan states that "economic security is national security"

In early 2018, on the recommendation of the US International Trade Commission,¹² President Trump announced "global safeguard tariffs"—the first time this provision had been used since 2001—totalling US\$8.5 billion on solar panel imports and US\$1.8 billion on washing machine imports. The United States later cited national security when imposing tariffs on steel and aluminium imports, and on three occasions it increased China-specific tariffs related to intellectual property and technology disputes.¹³ These US steps drew counter-measures from China, and the stand-off soon threatened to cover all goods trade between the two countries.¹⁴

The potential costs of deepening trade tensions were highlighted in October 2018 when the International Monetary Fund (IMF) revised down its global growth projections for 2018 and 2019 by 0.2 percentage points. The IMF expects growth to slow in the United States from 2.9% last year to 2.4% in 2019, and in China from 6.6% to 6.2%. Any slowdown in global growth will add to the

headwinds for developing countries, which already face rising interest rates and, in some cases, domestic political stresses as well: in September, as US bond yields picked up, investor nervousness had pushed emerging market equities into bear-market territory.¹⁵

Economic policy—long seen as a means of mitigating geopolitical risk by embedding powers in mutually beneficial relationships—is now frequently seen as a tool of strategic competition. For example, the US Department of Commerce's strategic plan for 2018–22 states that "economic security is national security."¹⁶ Each side in the worsening stand-off between the United States and China last year blamed the other for eroding bilateral relations,^{17 18} and domestic political factors have not always been conducive to compromise between the two countries. Their current relationship is such that a rapid unwinding of protectionist measures cannot be ruled out, but some analysts have warned about more fundamental challenges.

It was not only among rivals that global trade conditions worsened in 2018. US trade relations with its allies also saw unexpected volatility. Ahead of the meeting of G7 leaders in June, the United States imposed tariffs on steel and aluminium imports from the European Union, Canada, Mexico and others.¹⁹ Threat and counter-threat followed, between the United States and the European Union in particular: President Trump talked of imposing a 20% tariff on vehicle imports from the European Union; the European Commission hinted at global countermeasures totalling US\$294 billion, around one-fifth of total goods exports.²⁰ The uncertainty put strain on European car makers, some of which were already under pressure from US-China trade tensions.²¹ In a rapprochement of sorts, President Trump and European Commission President Jean-Claude Juncker agreed in July to work towards reducing tariffs on both sides. And in October, a revised trade deal between the United States, Mexico and Canada was announced to replace NAFTA: the



USMCA (the United States-Mexico-Canada Agreement).²²

Almost all of the high-profile trade disruptions that were threatened or imposed in 2018 relate to exports and imports of physical goods. But a growing proportion of global trade consists of services—digital services in particular. As digital

flows have increased in economic importance, so too have data localization provisions that require businesses to store data in the country where they are collected rather than on company servers located elsewhere.²³ Localization rules have been justified on numerous grounds, from privacy and intellectual property to national

security, policing and tax. Critics argue, however, that governments' expressed reasons for restricting data flows are often a pretext for what amounts to protectionism designed to inhibit cross-border digital trade.²⁴

Investment tensions

The past year's developments in foreign direct investment (FDI) are arguably even more significant than trade tensions. As discussed in the 2018 *Global Risks Report*, outward investment has become more associated with geopolitical positioning. As a result, caution towards inward investment is growing. Because FDI creates economic facts on the ground in a way that trade flows do not, this is an area where increasing geo-economic competition could sow seeds of tensions that take years to grow and years more to resolve. Western countries in particular have been sharpening their power to block investments in strategic sectors, particularly emerging technologies—raising the prospect of a partial unwinding of globalization in investment, as in trade.

In August 2018 the German government announced a reduction in the threshold at which foreign investments can be blocked.²⁵ It had earlier instructed a state-owned bank to acquire a 20% stake in an energy infrastructure company to prevent its acquisition.²⁶ This is not the first time that a European government has sought to restrict inward investment. In 2005 France notoriously fended off PepsiCo's mooted acquisition of dairy producer Danone.²⁷ Then-Prime Minister Dominique de Villepin

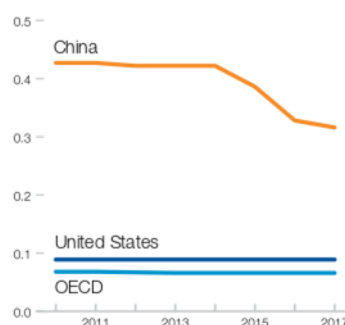
lauded “economic patriotism” as the foundation of global competitiveness.²⁸ That language prompted a backlash at the time, but it resonates today—though European wariness now focuses on Chinese rather than US takeovers.

This wariness has intensified since the cutting-edge German technology firm Kuka was acquired by a Chinese company in 2016. In 2018 the United Kingdom released a 120-page policy proposal that would increase government power to block foreign acquisitions,²⁹ while France published draft legislation increasing the number of sectors in which foreign acquisitions must receive prior ministerial approval.³⁰ Technology firms are a particular focus for investment screening because their significance goes beyond the economic: the dual-use nature of many new technologies means their acquisition could have national security implications.³¹

In December 2017 the European Commission proposed EU-wide measures to control non-EU investment into EU companies, as only 12 of the 28 member states have screening mechanisms. One reason for EU concern is that many decisions need member-state unanimity, creating vulnerability to foreign leverage in individual member states. In September 2018 European Commission President Jean-Claude Juncker called for more foreign-policy decisions in

the European Union to be made by qualified majority voting instead.³²

Figure 2.2: Opening Up?
OECD FDI Restrictiveness Index (0=open; 1=closed)



Source: Organisation for Economic Co-operation and Development (OECD). <https://data.oecd.org/fdi/fdi-restrictiveness.htm>

Note: The index covers four main types of FDI restriction: foreign equity restrictions, discriminatory screening or approval mechanisms, restrictions on key foreign personnel, and operational restrictions.

The United States also introduced legislation in 2018 to improve the screening of investment into 27 sectors, including semiconductors and telecommunications.³³ In 2017 India tightened the rules for foreign businesses operating in power transmission.³⁴ Australia has repeatedly tightened its inward investment rules in recent years, and in 2018 announced further restrictions on investment in electricity infrastructure and agricultural land.³⁵

China is travelling in the other direction, albeit from a very different starting point. According to Organisation for Economic Co-operation and Development (OECD) data, China has significantly

reduced its restrictiveness to FDI in recent years, but nevertheless it remains among the world's most restrictive countries (see Figure 2.2).³⁶ While in 2018 China announced further cuts to its "negative list"—of sectors into which foreign businesses are prohibited from investing, or in which they can operate only as part of a joint venture with Chinese entities³⁷—many sectors that would generate interest from foreign investors remain on the list.³⁸ As with trade, if the climate for cross-border investment flows

If this were to be sustained, it would leave many states—particularly smaller or weaker ones—having to make painful choices between securing investment for growth and maintaining fiscal control and strategic independence.

Figure 2.3: Going Down

Global FDI inward flows
(US\$ billions)



Source: Organisation for Economic Co-operation and Development (OECD), <http://www.oecd.org/investment/statistics.htm>

continues to worsen it will hamper global economic growth and risk creating a vicious circle in which economic and geopolitical tensions aggravate each other. The data already point to a sharp fall-off in FDI in 2017, despite other macroeconomic indicators being solid. This trend continued in the first half of 2018 (see Figure 2.3).³⁹

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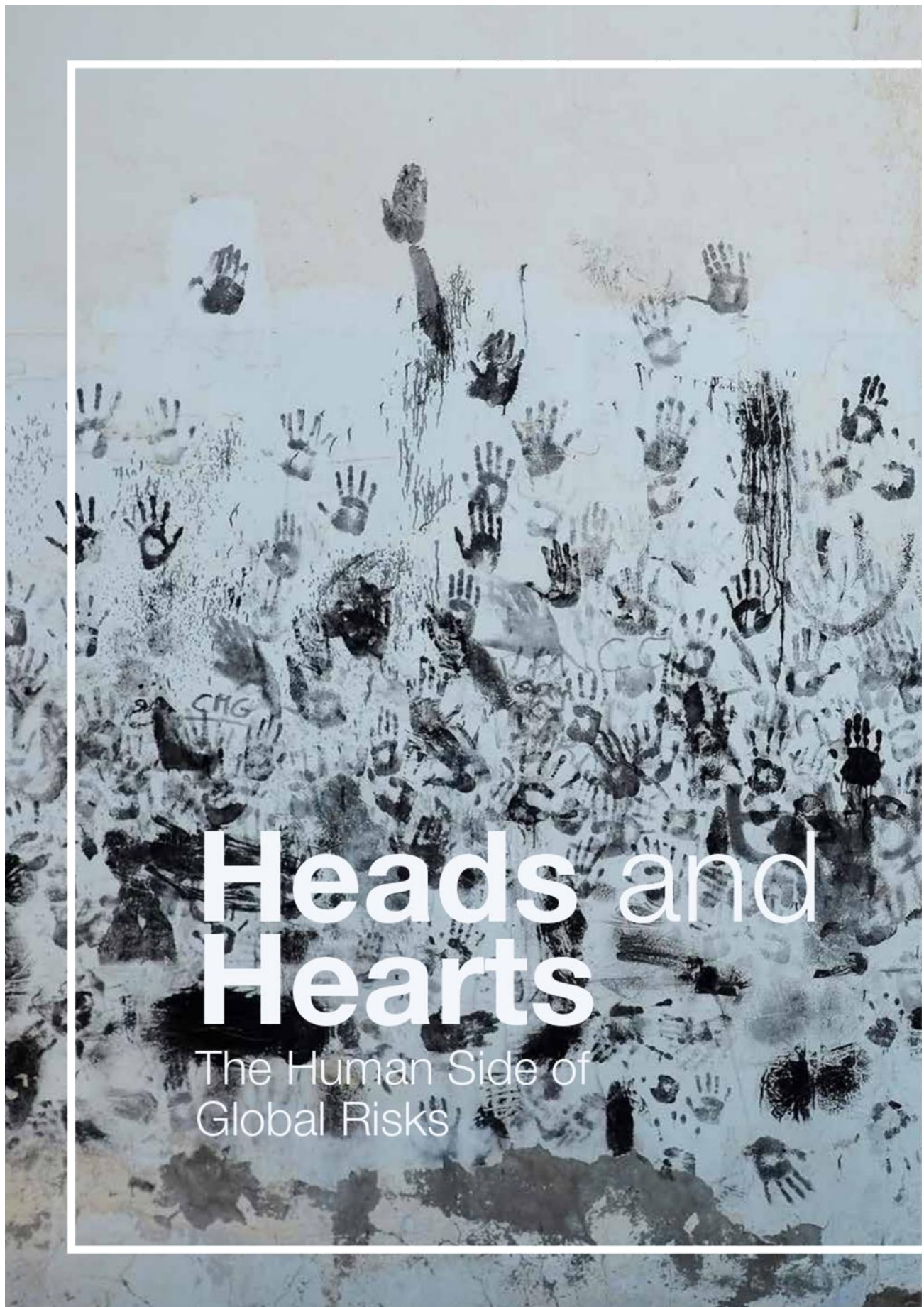
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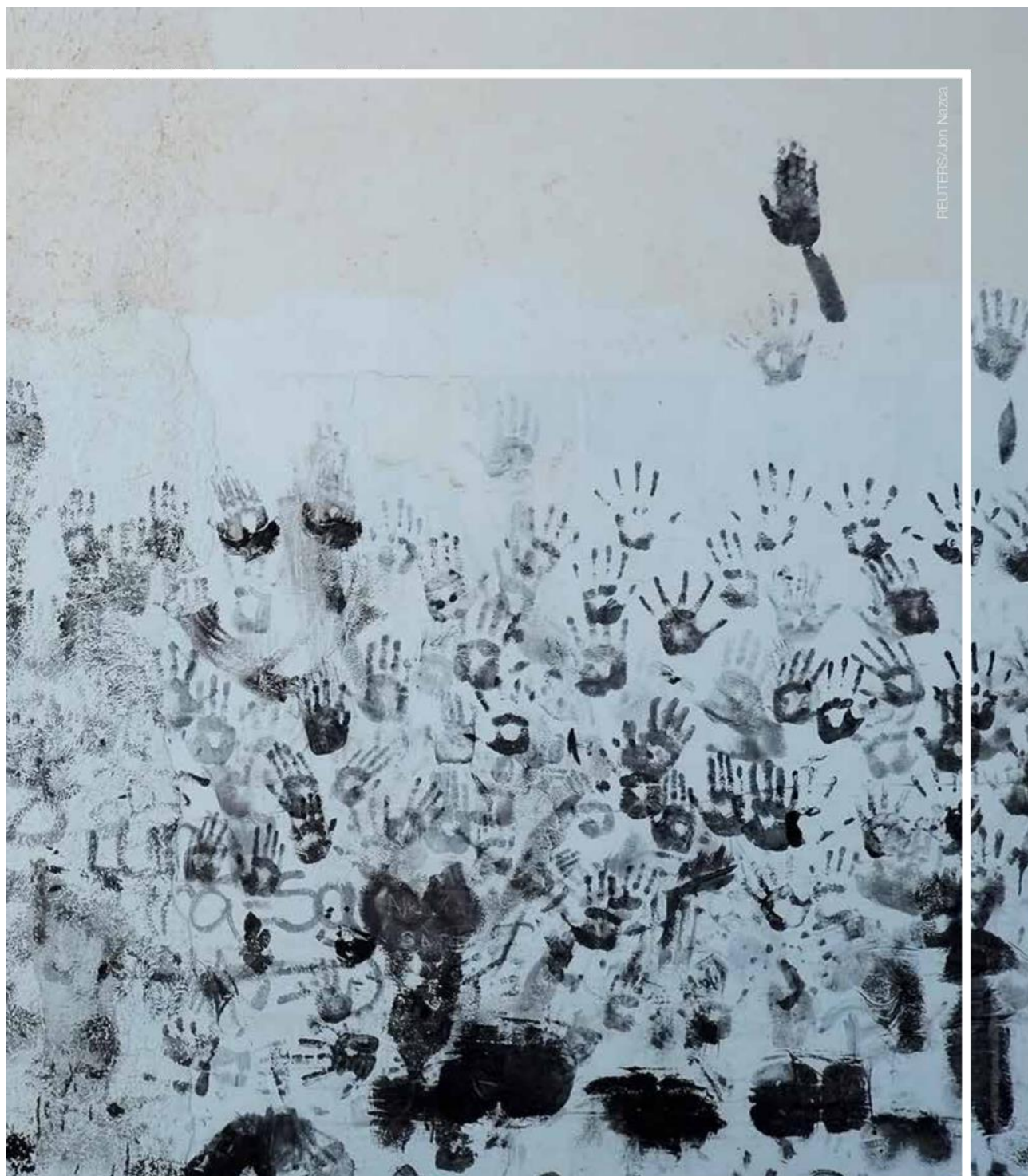
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The *Global Risks Report* tends to deal with structural issues: systems under stress, institutions that no longer match the challenges facing the world, adverse impacts of policies and practices. All these issues entail widespread human costs in terms of psychological and emotional strain.

This is usually left implicit but it deserves more attention—and not only because declining psychological and emotional well-being is a risk in itself. It also affects the wider global risks landscape, notably via impacts on social cohesion and politics.

This chapter focuses explicitly on this human side of global risks. For many people, as explored in the first two sections, this is an increasingly anxious, unhappy and lonely world. Anger is increasing and empathy appears to be in decline. The chapter examines the ramifications of complex transformations in three areas—societal, technological and work-related. A common theme is that psychological stress is related to a feeling of lack of control in the face of uncertainty.¹

The age of anger

Every year Gallup takes a large-scale snapshot of the world's emotional state. It asks respondents—154,000 across more than 145 countries in 2017—whether they had various positive and negative experiences on the preceding day. Overall, the positive experiences (such as smiling, respect and learning)

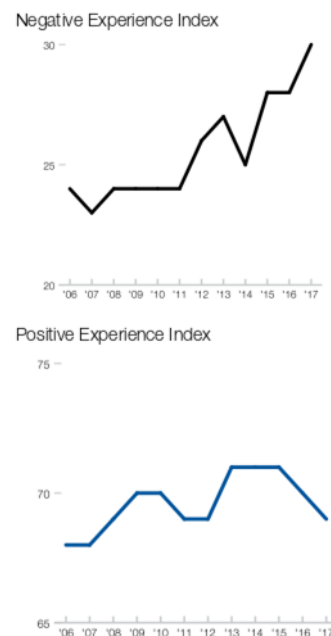
comfortably outstrip the negative (which include pain, worry and sadness)—but the trend lines are worrying.

As illustrated by the graphs in Figure 3.1, the positive experience index (a composite measure of five positive experiences) has been relatively steady since the survey began in 2006. Meanwhile, the negative experience index has broken upwards over the past five years. In 2017, almost four in ten people said they had experienced a lot of worry or stress the day before; three in ten experienced a lot of physical pain; and two in ten experienced a lot of anger.²

Although still the least prevalent of Gallup's negative experiences, anger is commonly referenced as the defining emotion of the zeitgeist. Some suggest this is an "age of anger", noting a "tremendous increase in mutual hatred."³ And while it is conceivable that public anger can be a unifying and catalysing force—a hope often expressed at the start of the decade in relation to the Arab Spring⁴—it has since come to be seen more as politically divisive and societally corrosive.

In the United States, public opinion researchers note that where opposing political groups previously expressed frustration with each other, they now express fear and anger.⁵ In one survey, almost a third of respondents reported having stopped talking to a family member

Figure 3.1: Emotional Downturn



Source: Gallup 2018 Global Emotions Report. <https://www.gallup.com/analytics/241961/gallup-global-emotions-report-2018.aspx>

Note: Scores on the two indices range from 1 to 100. Higher scores on the Positive Experience Index indicate more positive experiences; on the Negative Experience Index they indicate more negative experiences.

or friend over the 2016 presidential election.⁶ In another, 68% of Americans said they were angry at least once a day; women reported themselves more angry than men, as did the middle class relative to their richer and poorer peers.⁷

Anger has long been associated with loss of status.⁸ Recent research also suggests a strong link with group identity.⁹ The risk is that this combination generates angry polarization—an increasingly

700million people are estimated to have a mental disorder

prevalent feature of politics in many countries. And as further explored in the technology section below, in recent years group identities have been hardened by a process of “social sorting” that has eroded traditional, cross-cutting societal ties.¹⁰

Global trends in mental health

Gallup’s finding that negative experiences are on the rise chimes with World Health Organization data suggesting that depression and anxiety disorders increased by 54% and 42%, respectively, between 1990 and 2013.¹¹ They rank second and seventh, respectively, in the global burden of disease; five of the top 20 are mental illnesses.¹² Worldwide, 700 million people are estimated to have a mental disorder.¹³

Not all data confirm the finding that the prevalence of mental health problems is rising, but there are indications that the current generation of young people in particular are experiencing significant increases. In the United States, for example, the proportion of the total population with depression increased from 6.6% in 2005 to 7.3% in 2015, but the rise was much sharper for individuals aged between 12 and 17, where prevalence increased from 5.7% to 12.7%.¹⁴ One study found that between five and eight times as many US students in

2007 reported psychopathological symptoms on a standardized survey than their counterparts in 1938. These trends are particularly pronounced for American girls—in 2016 one in five had experienced a major depressive episode in the previous year.¹⁵ Concerns have been raised about a loosening of diagnostic criteria, but behavioural evidence points in the same direction. The rate of self-harm for girls aged between 10 and 14 nearly tripled between 2009 and 2015 and the suicide rate for 15- to 19-year-olds increased by 59% over the same period.¹⁶

Recorded rates of mental health disorders are higher in the West—the lifetime prevalence rate for anxiety ranges from 4.8% in China to 31% in the United States. Suggested explanations for this have included reporting bias, methodological factors and the possibility that in poorer circumstances mental suffering is more likely to be seen as an expected part of life than a diagnosable condition.¹⁷ Nonetheless, people with mental health conditions in lower-income countries can face profound difficulties: one study across 28 countries found treatment gaps of up to 85%.¹⁸

Within affluent countries, wealth affects well-being in complex ways. The prevalence of anxiety disorders is higher among lower-income groups. But attitudes towards money matter too—researchers

have linked reduced well-being to societal shifts away from intrinsic motivations (related to community feeling and affiliation) and towards extrinsic motivations (related to financial success and social status).¹⁹ This is generationally significant: in one US study, 81% of 18- to 25-year-olds said that getting rich was their generation’s top or second goal, compared to 62% of 26- to 39-year-olds.²⁰ Another important generational pattern relates to expectations of increasing quality of life. As illustrated by Figure 3.2, there is significant variation across countries in terms of young people’s

Where opposing political groups previously expressed frustration with each other, they now express fear and anger

perceptions of how their lives will compare to those of their parents. Only 5% of survey respondents in China expect to live a worse life than their parents, compared with 30% in the United States and the United Kingdom and almost 60% in France.²¹

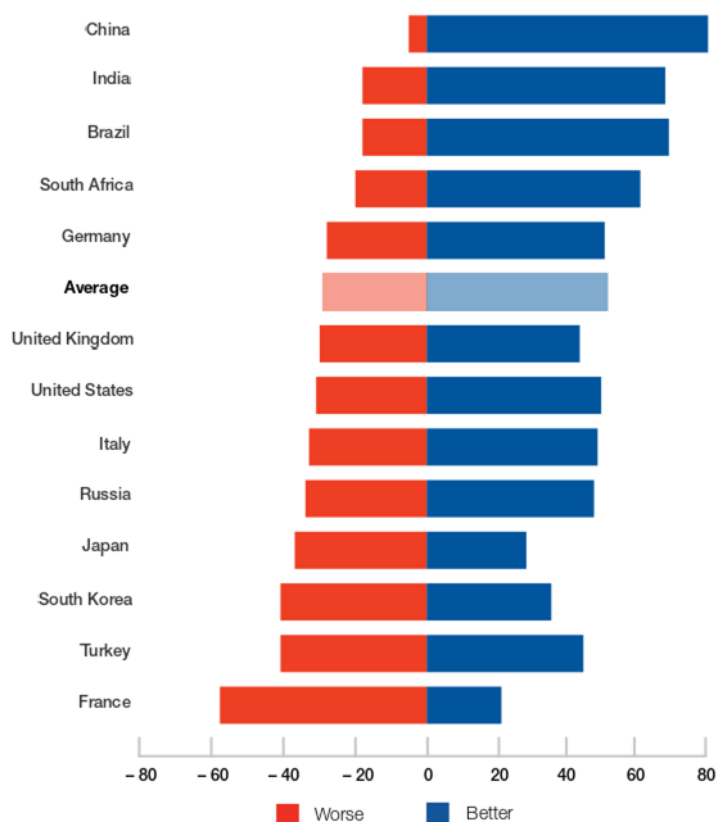
Violence, poverty and loneliness

What is contributing to these patterns of increased negative experience? Societal stressors are the first potential driver considered. Violent conflict remains one of the most potent causes of emotional and psychological distress. There is a danger of complacency here,

because conflict-related deaths have fallen sharply since the middle of the 20th century, as shown in Figure 3.3. However, as the figure illustrates, the overall number of conflicts is close to the highs of the early 1990s and has risen in recent years.²² While not mass death conflicts, these are clearly a source of emotional and psychological distress for huge numbers of people, particularly in Africa, the Middle East and South Asia.²³

Figure 3.2: Life Prospects

"Will you have had a better or worse life than your parents' generation?"
(% of respondents)



Source: Ipsos Global Trends, 2016. <https://www.ipsosglobaltrends.com/life-better-or-worse-than-parents/>

The same is true for violence of other sorts. The prevalence of homicide is particularly important, because it influences overall perceptions of security.²⁴ Although the global rate fell for a decade before a marginal uptick in 2016,²⁵ regions are affected very differently: Latin America accounts for 8% of the world's population but 33% of its murders.²⁶ Similar trendlines are not available for "intimate partner violence", but the World Health Organization estimates that around 30% of women globally experience it during their lives, and that it doubles the risk of depression.²⁷ In 2017, 137 women were killed every day by intimate partners or family members.²⁸

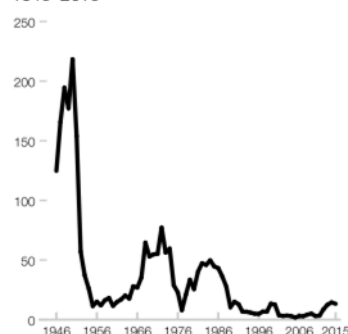
The proportion of the world's population living in poverty has dropped significantly in recent decades, alleviating one of the key threats to physical and mental well-being,²⁹ but increases in the global population mean the absolute numbers are still extremely high. In 2015 there were 736 million people

Figure 3.3:
Conflict and Death

Number of conflicts, 1946–2016



Battle deaths per 1,000,000 people, 1946–2016



Source: Uppsala Conflict Data Program. <http://ucdp.uu.se/>; Max Roser, "War and Peace", 2018. <https://ourworldindata.org/war-and-peace>.

living on less than US\$1.90 a day, and numbers were increasing in Sub-Saharan Africa, the Middle East and North Africa.³⁰ And even in high-income countries, income and wealth disparities—ranked fourth as a driver of the global risks landscape in our survey this year—have been linked to increasing mental health problems.³¹

A third societal stressor is loneliness. This is on the rise, in the West in particular, where household structures have been undergoing a profound shift.

Researchers call the current share of people living alone "wholly unprecedented historically".³² In the United Kingdom, the average proportion of single-person households has increased from around 5% in pre-industrial communities to 17% by the 1960s and 31% in 2011. Similar figures are recorded in Germany, Japan, the Netherlands and the United States.

Many capital cities have even higher proportions of so-called "solitaires"—for example, 50% in Paris and 60% in Stockholm. In midtown Manhattan 94% of households are single-person. Researchers argue that urbanization can weaken family and other bonds relative to smaller, rural communities;³³ this may help to explain high-income countries' apparently higher prevalence of mental health problems.³⁴ Evidence of psychological strains related to urbanization also comes from emerging economies: in China, where the rural population plunged from 80.6% to 45.2% between 1980 and 2014,³⁵ research finds increased levels of loneliness both among migrants moving to cities and in the rural communities they have left.³⁶

The latest official data in the United Kingdom point to an increase to 22% in 2017 in the proportion of people feeling lonely either sometimes, often or always, up from an average of 17% in 2014–16.³⁷ The proportion of people never feeling lonely decreased from 33% to 23% over the same period. A US

study looked at how many close friends people have: the average fell from 2.9 in 1985 to 2.1 in 2004, and the proportion of people responding that they had no close friends tripled over that period to become the modal response.³⁸

Research suggests that people who describe themselves as lonely have as much social capital as their non-lonely peers.³⁹ One of the behavioural patterns linked to loneliness is poorer sleep quality, which has knock-on effects on individuals' wider resilience.⁴⁰ There are early signs that the potential societal impacts of rising loneliness are beginning to be recognized as a problem requiring attention—in early 2018, the United Kingdom added loneliness to the remit of one of its government ministers.

30%
women who experience "intimate partner violence" during their lives

Technology, addiction and empathy

In one recent study, technology was cited as a major cause of loneliness and social isolation by 58% of survey respondents in the United States and 50% in the United Kingdom.⁴¹ However, the same survey found that social media was viewed as making it easier for people to “connect with others in a meaningful way”, and respondents who reported feeling lonely were no more likely than others to use social media. These findings exemplify the uncertainty around how technological changes impact individual well-being. Technological change is always a source of stress, but the current wave of change—the Fourth Industrial Revolution—is defined by the blurring of the line between the human and the technological.

Debate, for example, surrounds the claimed addictiveness of digital technologies.⁴² UK research in mid-2018 found that people spend an average of 24 hours per week online—more than twice as much as in 2011.⁴³ At least one prominent endocrinologist has likened digital technologies to addictive substances—in that they stimulate dopamine, which produces pleasure, but also require increasing use to get the



same effect.⁴⁴ Many business models rely on the efficiency with which new technologies can attract and retain users' attention; some companies have even marketed their ability to leverage the behavioural impact of dopamine.⁴⁵ However, others argue that claims of addictiveness are alarmist or overblown:⁴⁶ the UK research found people still spend less time online than they do watching television.

Researchers looking at early child development are worried less by addiction than risks of “functional impairment”—that digital technologies could crowd out interpersonal interactions that provide the building blocks for subsequent development, such as the ability to “concentrate, prioritize, and learn to control passing impulses”.⁴⁷ The American

Academy of Pediatrics now recommends that children up to 18 months old use screens only for video chats, and a limit for children up to 5 years old of one hour of “high quality” programming, watched with a parent.⁴⁸

Among adolescents, a study of more than 500,000 US school students found those who spent more time on digital media—relative to non-digital activities such as sports, in-person interactions, homework, printed media or religious services—were more likely to report mental health issues.⁴⁹ Critics contest these findings, particularly for moderate levels of screen time. They also note that even with high levels of screen time the effects remain small compared to, for example, missing breakfast or not getting enough sleep.⁵⁰



Automation, monitoring and workplace stress

Technological and societal change is linked to rapid transformations in the workplace—and what happens at work has the potential to affect emotional and psychological well-being.⁵⁷ According to a survey of full-time employees in 155 countries, just 15% feel “highly involved in and enthusiastic about their work”.⁵⁸ This “engagement” rate varies from 33% in the United States to just 6% across East Asia, a result the researchers attribute to overwork. Globally, a higher proportion of employees—18%—were found to be actively disengaged, defined as “resentful and acting out their unhappiness”.⁵⁹

For many workers, a pronounced recent change has been a blurring of the line dividing work from the rest of life.⁶⁰ Work-related emails often begin long before the start of nominal working hours and finish long afterwards. Many families juggle multiple jobs with childcare, stressful commuting logistics and caring for elderly parents. In growing numbers, employees cite the ability to manage work/life balance as the most important thing for thriving at work.⁶¹ According to one study, 50% of American workers say they are

Another potential concern is that technology is leading to a decline in empathy, the ability to put oneself in the shoes of another. One study of students in the United States found that levels of empathy had fallen by 48% between 1979 and 2009;⁵¹ however, possible explanations for this other than the greater use of personal technologies include increasing materialism and changes in parenting practices. Debate often centres on how digital echo-chambers can weaken cross-society empathy by anchoring individuals in tight-knit sub-groups.

Other technologies also play a role—such as online dating platforms leading to sorting and matching processes that researchers find are reducing cross-cutting societal bonds.⁵²

The relationship between technology and empathy seems to be nuanced: online connections can be empathetic, but research suggests the effect is six times weaker than for real-world interactions.⁵³ Some believe virtual reality (VR) technologies will become an “engine for empathy”.⁵⁴ Others note, for example, that current online gaming is negatively correlated with empathy,⁵⁵ which might suggest that more immersive VR versions of similar games would strengthen the negative effect. Some suggest that emotionally responsive robots could tackle loneliness, particularly in care-related settings. But this is not without potential risks—we consider potential dangers in Future Shocks, on page 73.⁵⁶

No amount of law or regulation will overcome a lack of empathy

“often or always exhausted due to work”, up by almost a third in 20 years.⁶² In another study, when UK workers were asked to identify the main workplace causes of stress, half cited unrealistic time pressure and demands. The same study noted employees’ concern about lack of consultation on workplace changes (31%) and lack of control over the work they do (27%).⁶³

Automation has long been a source of disruption in the workplace. It has allowed huge numbers of employees to move up the value chain and escape monotonous and dangerous tasks, but as far back as 1959 the World Health Organization was noting adverse psychological impacts not just of automation but even of the prospect of automation.⁶⁴ Research published in 2018 suggests that, in the United States, a 10% increase in the likelihood of being affected by automation is associated with decreases in physical and mental health of 0.8% and 0.6%, respectively.⁶⁵

Technology is also making it easier for employers to monitor workers; some suggest the level of “anticipatory conformity” this can encourage amounts to a surrogate form of automation.⁶⁶

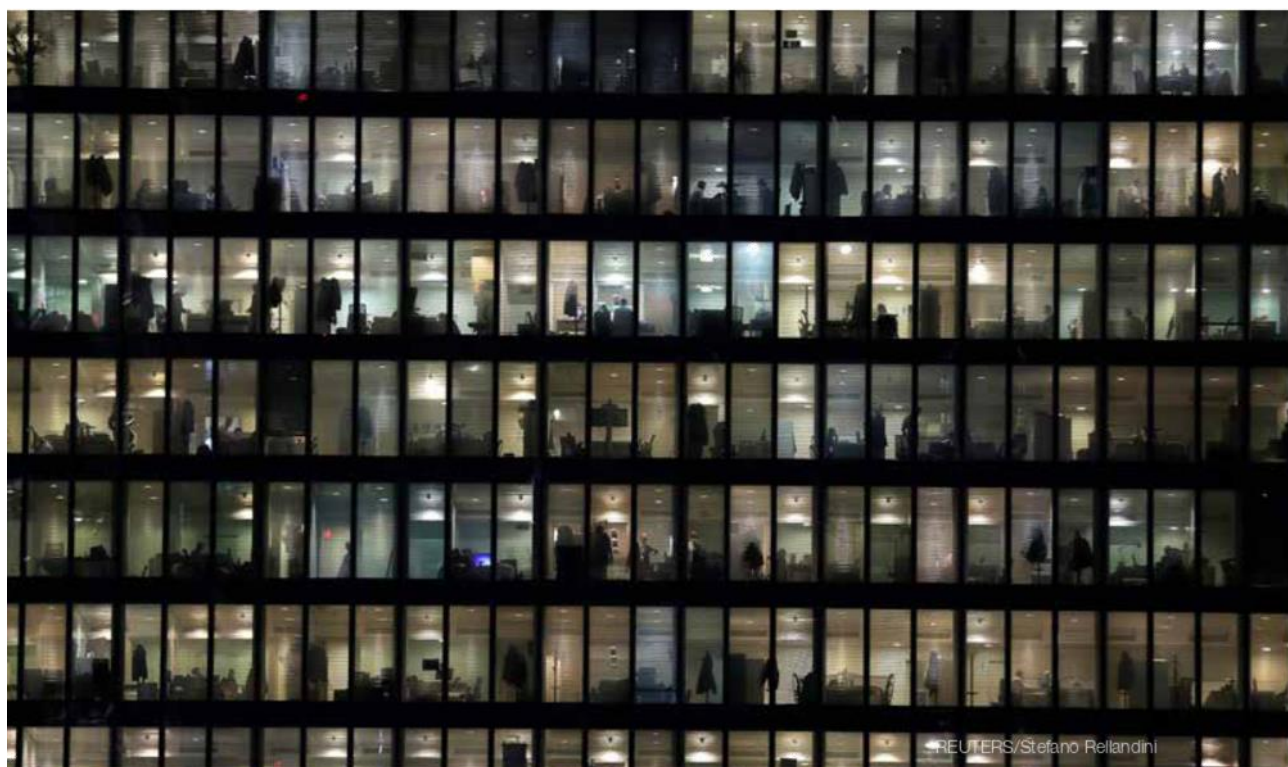
One of the sectors in which concerns about automation and monitoring have become most prominent is online retailing, where the level of efficiency with which warehouses in particular can now operate has led to numerous reports of productivity targets causing physical and psychological strain among workers. However, workplace monitoring can actually reduce output if workers perceive it as an indication of distrust.⁶⁷ Loss of privacy due to monitoring may have a similar effect: a study in a Chinese factory found that workers shielded from monitoring by a curtain were 10–15% more productive than their peers.⁶⁸ Conversely, in a study of US restaurants where monitoring was being used to deter employee theft, large increases in weekly revenues were recorded—the result of unexpected improvements in levels customer service.⁶⁹

Wider changes in the structure of work and in its place in society are a further source of potential stress. Job security and stability are in decline in many advanced economies, with real earnings growth sluggish or stagnating and less predictable “gig economy” work expanding. In many low-income countries, meanwhile, secure and stable employment

has always been the exception: for example, 70% of employment in Sub-Saharan Africa is classified as “vulnerable” by the International Labour Organization.⁷⁰

Evidence from the workplace reinforces concerns about growing problems with mental health. In the United Kingdom, an independent review found that while sickness-related absences overall fell by more than 15% between 2009 and 2017, absences related to mental health problems increased by 5%.⁷¹ Of course, not all mental health problems recorded in the workplace are caused in the workplace—but employers and regulators ought to ensure that workplace conditions are not triggering or exacerbating problems. The UK review recommended revising health and safety provisions to take greater account of mental as well as physical well-being.

In the 19th century, physical health and safety rules and practices reshaped work in many industrializing economies. In the 21st century, mental health and safety rules and practices could play an analogous role by ensuring that workplace conditions are appropriate for an increasingly knowledge-based economy.



Why well-being matters

This chapter has focused on some of the drivers leading to increased individual harm and distress. The chapter considered societal, technological and workplace trends, but could equally have examined how other transformations are linked to declining well-being, from political uncertainty to demographic change and environmental disruption.

Individual harms matter in themselves, but they can also feed into wider systemic risks and challenges. For example, there are

huge economic costs. Research by the World Economic Forum and the Harvard School of Public Health suggests that the global economic impact of mental disorders in 2010 was US\$2.5 trillion, with indirect costs (lost productivity, early retirement and so on) outstripping direct costs (diagnosis and treatment) by a ratio of around 2:1.⁷²

Beyond the economic risks, there are potential political and societal implications. For example, a world of increasingly angry people would be likely to generate volatile electoral results and to increase the risk of social unrest. If empathy were to continue to decline the

risks might be even starker, in some societies at any rate: “empathy underwrites all political systems that aspire to the liberal condition . . . and no amount of law or regulation will overcome a lack of empathy.”⁷³

Internationally, repeated accusations have been made in recent years of rival states using technology to foment angry fragmentation and polarization. It is not difficult to imagine such emotional and psychological disruptions having serious diplomatic—and perhaps even military—consequences.

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The cover features a light blue background with a white rectangular border. On the right side, there is a photograph of a person's hand holding a small, dark, elongated object, possibly a fruit or vegetable, against a bright blue sky. The title 'Going Viral' is prominently displayed in large, bold, white sans-serif font. Below it, the subtitle 'The Transformation of Biological Risks' is written in a smaller, white sans-serif font.

Going Viral

The Transformation of
Biological Risks



REUTERS/Wes Herman

The previous chapter looked at the emotional and psychological impact of the multiple transformations the world is undergoing. This chapter considers another set of threats being shaped by global transformations: biological pathogens. Changes in how we live have

increased the risk of a devastating outbreak occurring naturally, while emerging technologies make it increasingly easy for new biological threats to be manufactured and released—either deliberately or by accident.



REUTERS/Brian Snyder

The world is badly under-prepared for even modest biological threats. We are vulnerable to potentially huge impacts on individual lives, societal well-being, economic activity and national security. Revolutionary new biotechnologies promise miraculous advances, but they also create daunting challenges of oversight and control. Progress has made us complacent about conventional threats, but nature remains capable of “innovating” a pandemic that would cause untold damage.

The sections that follow examine the way biological risks are evolving both in nature and in laboratories. We are at a critical juncture. If there is one area in which a turn inward by societies could be needlessly destructive, it is global health security. Yet, as new risks emerge, there are early signs that important governance systems and protocols are eroding.

Outbreaks are increasing

In the past, naturally emerging infectious diseases have caused extraordinary health, economic and security impacts—often assisted by propitious conditions created by changing patterns of human behavior. Many years of global headlines have made various threats familiar: Ebola, MERS, SARS, Zika, yellow fever and each year’s strains of influenza.

The frequency of disease outbreaks has been rising steadily. Between 1980 and 2013 there were 12,012 recorded outbreaks, comprising 44 million individual cases and affecting every country in the world.¹ Each month the World Health Organization (WHO) tracks 7,000 new signals of potential outbreaks, generating 300 follow-ups, 30 investigations, and 10 full risk assessments. In June 2018 there were—for the first time

ever—outbreaks of six of the eight categories of disease in the WHO’s “priority diseases” list. If any had spread widely, it would have had the potential to kill thousands and create major global disruption.²

Five main trends have been driving this increase in the frequency of outbreaks. First, surging levels of travel, trade and connectivity mean an outbreak can move from a remote village to cities around the world in less than 36 hours. Second, high-density living, often in unhygienic conditions, makes it easier for infectious disease to spread in cities—and 55% of the world’s population today lives in urban areas, a proportion expected to reach 68% by 2050.³

Third, increasing deforestation is problematic: tree-cover loss has been rising steadily over the past two decades, and is linked to 31% of outbreaks such as Ebola, Zika and Nipah virus.⁴ Fourth, the WHO has pointed to the potential of

climate change to alter and accelerate the transmission patterns of infectious diseases such as Zika, malaria and dengue fever.⁵

Finally, human displacement is a critical factor in this regard. Whether due to poverty, conflict, persecution or emergencies, the movement of large groups to new locations—often under poor conditions—increases displaced populations' vulnerability to biological threats. Among refugees, measles, malaria, diarrheal diseases and acute respiratory infections together account for between 60 and 80% of deaths for which a cause is reported.⁶

Fewer deaths, higher costs

Globalization has made the world more vulnerable to societal and economic impacts from infectious-disease outbreaks, even though impacts of those outbreaks on human health are declining because medical breakthroughs and advances in public health systems have enabled us to contain the effects on morbidity and mortality.⁷ The 2003 SARS outbreak—which infected about 8,000 people and killed 774—cost the global economy an estimated US\$50 billion.⁸ The 2015 MERS outbreak in South Korea infected only 200 people and killed 38, but led to estimated costs of US\$8.5 billion.⁹

Revolutionary new biotechnologies promise miraculous advances, but also daunting challenges of oversight and control

One estimate of potential pandemics through the 21st century puts the annualized economic costs at US\$60 billion.¹⁰ Including the imputed value of life-years lost, another estimate puts the cost of pandemic influenza alone at US\$570 billion per year—the same order of magnitude as climate change.¹¹

Given that many outbreaks occur in comparatively poor countries, even economic costs that may appear low in absolute terms can have a severe impact on the countries concerned. The World Bank has estimated that the three countries most badly impacted by Ebola in 2014–15—Guinea, Liberia and Sierra Leone—suffered combined GDP losses of \$2.2 billion.¹² However, including the cost of associated social burdens—direct impacts on health as well as indirect effects on food security and employment—that figure jumps to US\$53 billion.¹³

The relatively low recent death toll of infectious outbreaks—for comparison, in 1918 Spanish Influenza killed more than 50 million people—can be seen as evidence

of the success of counter-measures: vaccines, antivirals and antibiotics greatly reduce the risk of massive loss of life. But another way of looking at the outbreaks since 2000 is as a “roll call of near-miss catastrophes”, which should be prompting increased vigilance but is instead lulling us into complacency.¹⁴

Preparedness gaps

The WHO has begun to caution against such complacency. In 2015 it introduced a “priority diseases” list, reviewed annually. The purpose of the list is not to forecast which pathogen is most likely to cause the next outbreak, but to highlight where increased research and development is most warranted. In 2018 the WHO included “Disease X” in its list to focus researchers' attention on pandemic risks posed by diseases that cannot currently be transmitted to humans, or transmitted only inefficiently.

The priority diseases exercise builds on work that saw the first

effective vaccine against Ebola developed in 12 months, rather than the normal development cycle of 5–10 years. The estimated costs of developing vaccines for other key diseases greatly exceeds the resources currently devoted to such work. One 2018 study assessed the minimum cost of developing a vaccine for each of 11 infectious diseases previously highlighted by the WHO at between US\$2.8 and 3.7 billion.¹⁵ By contrast, the Coalition for Epidemic Preparedness Innovations (CEPI), set up in 2017 to coordinate and finance vaccine development, has committed to invest just US\$1 billion by 2021.¹⁶

The weakness of basic preparedness in individual countries is an important obstacle to pandemic responses. Progress has been made, particularly since the 2014–16 Ebola epidemic, but most countries have not yet reached minimum international standards of capacity to detect, assess, report and respond to acute public health threats as set out in binding regulations that took effect in 2007.¹⁷ Thus when an outbreak hits, appropriate responses may be absent or delayed, and resources will be stretched to deal with other epidemic events that may emerge.

A pattern of panic and neglect tends to affect pandemic preparedness. During and after every major outbreak, leaders are quick to call for increased investment in preparedness. Real progress often follows these calls—but as the effects of the outbreak fade, neglect sets in again until a new outbreak erupts; this prompts a new burst of panic, in which time and energy may be wasted on unnecessary and potentially costly measures. For example, throughout the 2014–16 Ebola epidemic, the WHO advised that general travel restrictions were unnecessary but still registered 41 instances of restrictions being placed on international travel.¹⁸

Our ability to respond to biological risks is also being hampered by carelessness. Misuse and overuse of antibiotics continues to undermine the efficacy of one of the most important medical countermeasures ever discovered. Similarly, an erosion of vaccine norms is leading to a resurgence of older biological threats that were thought to have been defeated: for example, incidents of measles—which pose a serious threat for babies, toddlers and young people—are increasing across Europe because vaccination

coverage rates are falling as a result of unfounded safety concerns.¹⁹

Synthetic biology is amplifying risks

Synthetic biology technologies have the potential to transform the risk landscape. The possible gains are profound—they include new ways of producing chemicals, pharmaceuticals, fuels and electronics—but so is the risk of things going badly wrong. The skills and equipment required to replicate and alter the building blocks of life are proliferating rapidly. Driven by scientific advances and market forces, the cost of DNA synthesis has decreased at a rate faster than Moore's Law: more and more people around the world have access to powerful biotechnologies that were once accessible only to well-established and well-funded scientists.²⁰ A state-of-the-art DNA synthesis facility can already be built in a space the size of a shipping container, and miniaturization is advancing rapidly—enzymatic DNA synthesis can now be accomplished with a desktop device.²¹ Carrying out this kind of work does not create any external "signature" that would distinguish a facility synthesizing

Outbreaks since 2000 have been described as a “roll call of near-miss catastrophes”

DNA from one performing other biological work.

It is possible now for a small research team to conduct experiments with potentially profound global consequences. For example, in 2018 a group of researchers in Canada demonstrated that a budget of US\$100,000 is enough to synthesize horsepox virus. Horsepox is benign to humans, but a close relative is *Variola major*, which causes smallpox—a disease that was eradicated in 1980, having killed 300 million people since 1900. Live samples of smallpox virus now exist in just two highly secure facilities, one in the United States and one in Russia.

By publishing the synthesis process for horsepox virus, the Canadian research team sharply lowered the barriers to smallpox synthesis and increased the risk of smallpox being released into the world, either accidentally or intentionally. The researchers argue that these risks of their work are outweighed by the potential benefits of creating a new vaccine.²²

This is not an isolated dilemma. The H5N1 strain of influenza, for example, has a staggering case fatality rate of above 50%; by comparison, the fatality rate for Spanish Influenza in 1918 was under 2.5%, and for seasonal influenza it is less than 0.1%. Human cases of H5N1 are rare, in part because the virus is inefficient at transmitting

from person to person. If that were to change, a pandemic risk greater than any previously encountered could result. In 2011, researchers studied H5N1 transmissibility with the aim of enabling more rapid responses to new variants. The research was controversial—biosecurity experts worried that it could lead to a highly transmissible virus being released into human populations, by accident or as a deliberately deployed bio-weapon.²³

Deliberate attacks

Received wisdom is that biological agents are an unattractive weapon, in part because of the perceived risks involved in their production, and also because of the difficulty of targeting particular groups or populations. But this is not an area for complacency. A report commissioned last year by the US Department of Defense highlights the “almost limitless list of malicious activities that could potentially be pursued with biology” and draws parallels with the importance of advances in physics and chemistry during the Cold War.²⁴

State-sponsored development of biological weapons has broadly ceased since the Biological Weapons Convention (BWC) entered into force in 1975. However, the BWC has weaknesses. First, it is plagued by financial woes, struggling even to sustain a modest meeting programme.²⁵ Second, the only

mechanism for demonstrating compliance is a system of annual “confidence-building measures”—but no more than half the signatories submit such measures in any given year, and a third have never done so. Third, the BWC has limited application to cutting-edge research—a growing problem, given revolutionary biological advances.²⁶

Even if restraint on the part of state actors could be guaranteed, biological weapons still have attractions for malicious non-state actors. The current state of microbial forensics would make it difficult to reliably attribute a biological attack, and the impact could be incalculable: the direct effects—fatalities and injuries—would be compounded by potentially grave societal and political disruption.

In contrast to other types of terrorist attack, which require resources that are difficult to scale and replenish, the technical knowledge required to launch a catastrophic biological attack can be deployed repeatedly once it is mastered. This potential to “reload” creates the potential for successive high-impact attacks. According to one expert, this means that the national security vulnerabilities revealed by the 9/11 terrorist attacks in the United States were smaller than those revealed by the series of “anthrax letters” that killed five people in the weeks that followed.²⁷ In June 2018, German police intercepted a potential



REUTERS/Ueslei Marcelino

biological attack when an arrest led to the discovery of 84 milligrams of the poison ricin.²⁸

Responses that would work against a natural pandemic might not be as effective against a deliberate attack, given such an attack's military and political dimensions and the lack of reliable governing frameworks.²⁹ For example, states might be reticent about sending resources and personnel to assist other countries if they perceive a risk of being affected themselves by any subsequent attacks.

The potential impact of a deliberate attack was highlighted last year by a pandemic preparedness exercise in the United States. This involved a war-gaming scenario in which a terrorist group released a virus that had been modified to combine a high case fatality rate with ease of transmission.³⁰ The results? A failed vaccine, tens of millions of deaths, incapacitated governments, overwhelmed healthcare systems and stock markets down by 90%.³¹ This may have been a hypothetical scenario, but it is not in the realm of science fiction.

Governance challenges

Current governance systems risk creating the conditions for bioterrorism. Scientists often take the lead, developing self-governance frameworks to define acceptable limits for synthetic biology research. For example, DNA synthesis companies have developed new systems to screen orders for synthesized DNA to look for potential indications of malicious intent. However, screening is voluntary; it does

not apply in many countries; and screening standards, technologies and incentives have not kept pace with the rapid evolution of DNA synthesis technologies and business models. More rigorous transparency and oversight requirements are needed, as well as stronger norms applying to work that might increase pandemic risks.

In another example of self-governance, in 2015 the National Academy of Sciences of the United States, the Institute of Medicine, the Chinese Academy of Sciences and the Royal Society of London convened scientists to consider the future of germline editing, which changes the DNA that is passed on from generation to generation. The group issued a recommendation against performing germline editing on human embryos.³² However, this kind of recommendation is difficult to enforce and researchers in China subsequently used CRISPR to correct a mutation in nonviable human embryos.³³ Some top-tier journals refused to publish this research, in part on ethical grounds, but that has not prevented further work in this area. In November last year the dividing line between technology and humanity was further blurred when a researcher in China claimed to have created the first gene-modified babies, twin girls whose genomes had been altered to make them resistant to HIV.³⁴

The challenges of regulating synthetic biology will intensify as mutually reinforcing advances are made across the various technologies that make up the Fourth Industrial Revolution. For example, machine learning can identify which influenza mutations would prove most deadly.³⁵ The rationale for this research was to enable more efficient outbreak responses, but machine learning could equally be deployed to help a hostile actor build a better biological weapon. Work is also being done at the intersection of artificial intelligence and gene editing, with consequences that are uncertain—not only practically but ethically too.³⁶ While continued innovation must be encouraged, too little attention has so far been paid to emerging risks of high-impact events.

The challenge of establishing norms that can be enforced globally is exacerbated by geo-economic competition across advanced technologies, as discussed in Chapter 2 (Power and Values). But the field of synthetic biology is still young enough for norms and practices to be put in place that will steer its development in the years and decades ahead. There is an analogy with the internet: with hindsight, a much stronger security focus could have been incorporated in its building blocks at an early stage. Cybersecurity experts see a similar opportunity in synthetic biology today.

Governance challenges also exist in relation to “conventional” pandemic preparedness, despite advances such as the establishment of a Global Preparedness Monitoring Board and a Pandemic Emergency Financing Facility.³⁷ The WHO’s Contingency Fund for Emergencies, established in 2015 to enable rapid responses to disease outbreaks and health crises, is funded at only one-third of its annual US\$100 million target. The international system for sharing biological samples, vital for disease surveillance and response, appears to have been weakened since the introduction of the Nagoya Protocol. This is an agreement on “access and benefit sharing” that has been interpreted to give states greater rights over virus samples collected on their territory.³⁸ It has revived concerns in some countries about samples being used to create vaccines generating benefits that are not fairly shared.³⁹

Negotiations around access and benefits have already delayed responses to novel outbreaks and even started to complicate the exchange of seasonal influenza samples. It would be dangerous if differences between countries were not swiftly and equitably resolved: in few areas is apolitical commitment to open and collaborative exchange as crucial as in global health security.

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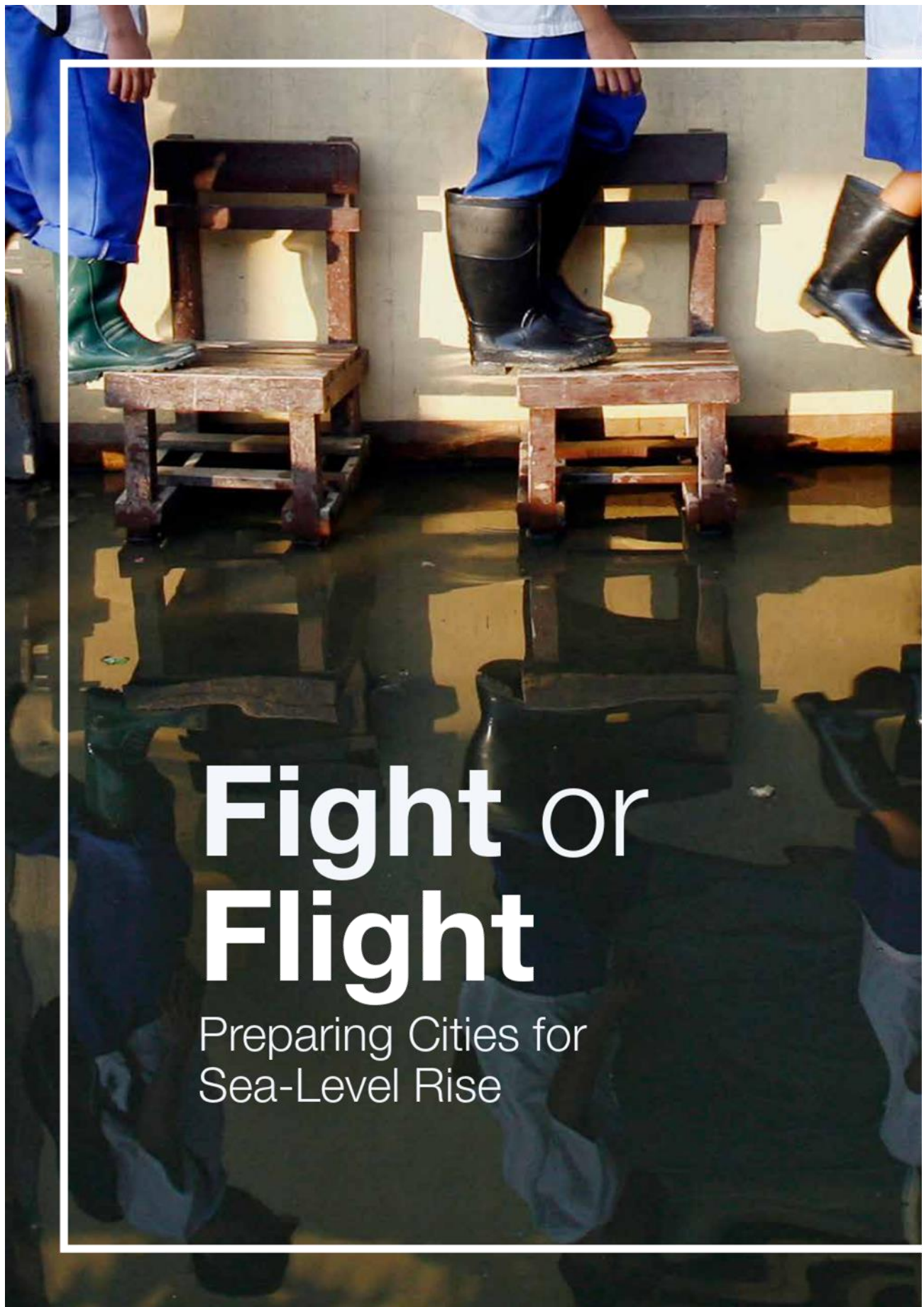
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Rapidly growing cities are making more people vulnerable to rising sea levels. Two-thirds of the global population is expected to live in cities by 2050. Already an estimated 800 million people in more than 570 coastal cities are vulnerable to a sea-level rise of 0.5 metres by 2050.¹

In a vicious circle, urbanization not only concentrates people and property in areas of potential damage and

disruption, but it also exacerbates those risks—for example, by destroying natural sources of resilience such as coastal mangroves and increasing the strain on groundwater reserves. The risks of rising sea levels are often compounded by storm surges and increased rainfall intensity.

Some cities and countries started decades ago to put strategies in place to deal with accelerating sea-level rise. In the last 20 years, approaches have shifted notably towards supplementing “hard” engineering strategies with greater promotion of more “soft” nature-based approaches. In many cities, however, preparations are lagging and the need to take action is increasingly urgent.

The following sections set out the latest projections for sea-level rise, assess which parts of the world are likely to be hardest hit, and look at the potential impacts on human populations and urban infrastructure. The chapter then considers the adaptation strategies being pursued in a number of cities, highlighting the growing prevalence of holistic approaches to flood resilience.

Rising sea levels

If global warming continues at its current rate, the Intergovernmental Panel on Climate Change (IPCC) considers it likely that the rise in atmospheric temperature will reach 1.5°C degrees within the next 35 years.² Forestalling this will require unprecedented action to drive decarbonization of agriculture, energy, industry and transport.³ It appears increasingly unlikely that the world will meet even the 2°C upper limit identified by the Paris Climate Agreement.⁴ The current trajectory is towards a rise of around 3.2°C.⁵

As global temperatures have increased, so sea levels have risen at an accelerating rate. According to the IPCC, the mean sea-level rise between 1901 and 2010 was 1.7 millimetres per year (mm/y). Between 1993 and 2010 it was 3.2 mm/y. Global sea levels will continue to rise through the 21st century and beyond, owing to increased oceanic warming and loss of glaciers and ice sheets. According to the IPCC, a 2°C increase will cause sea levels to rise between 0.30 metres and 0.93 metres by 2100.⁶ Other research suggests this rise could be as much as 2 metres even with warming below 2°C.⁷ Beyond 2100, it could eventually reach 6 metres.⁸ The uncertainty is due to the complex nature of the interaction of atmospheric warming, oceanic warming and ice-sheet responses: for example, the collapse of the West Antarctic Ice Sheet could push up sea levels by 3.3 metres.⁹

Global averages tell only part of the story. Sea-level rise will also vary regionally and locally: ice loss in the Antarctic, for example, is expected to have a disproportionate impact in the northern hemisphere, where most of the world’s coastal cities are located.¹⁰ Estimates suggest that 90% of coastal areas will experience above-average rise,¹¹ with differentials of up to 30% relative to the mean.¹²

Relative sea-level rise will be even higher in the many cities that are sinking because of factors that

include groundwater extraction and the growing weight of urban sprawl. Some cities are sinking faster than sea levels are rising: in parts of Jakarta, for example, ground level has sunk by 2.5 metres in the past decade.¹³ In addition, sea-level rise amplifies the impact of storm surges, as it takes a smaller surge to produce the same extreme water level.

Estimates suggest that 90% of coastal areas will experience above-average rise

Uncertainties surround the precise interactions of regional sea-level rise and patterns of urban demography and development. However, it is clear that Asia will be the worst-affected region as a result of a combination of hydrology, population density and asset concentration.¹⁴ Asia is home to four-fifths of the people who are expected to be flooded if there is a 3°C rise in global temperatures.¹⁵ China alone has more than 78 million people in low-elevation

cities, a number increasing by 3% each year.¹⁶

The World Bank notes that 70% of the largest cities in Europe have areas vulnerable to rising sea levels.¹⁷ Africa has at least 19 vulnerable coastal cities with a population of more than 1 million, including Abidjan, Accra, Alexandria, Algiers, Casablanca, Dakar, Dar es Salaam, Douala, Durban, Lagos, Luanda, Maputo, Port Elizabeth and Tunis.¹⁸ In the United States, East Coast cities including Norfolk, Baltimore, Charleston, and Miami have already experienced “sunny day” flooding due to the rising sea levels.¹⁹ One study suggests that a sea-level rise of 0.9 metres by 2100 would expose 4.2 million people to flooding, while a rise of 1.8 metres over the same period would affect 13.1 million people—equivalent to 4% of the current population.²⁰

Deltas are home to more than two-thirds of the world’s largest cities and 340 million people.²¹ These delta cities are particularly vulnerable to land subsidence. Relative sea-level rise poses the highest risks for the Krishna (India), Ganges-Brahmaputra (Bangladesh) and Brahmani (India) deltas.²² In Bangladesh, a rise of 0.5 metres would result in a loss of about 11% of the country’s land, displacing approximately 15 million people.²³

Potential damage

Sea-level rise threatens significant damage to property—not only homes and businesses but also public assets and critical infrastructure, which adds significant contingent liabilities to the taxpayer. Research suggests that economic impacts are highly concentrated geographically, where sea-level vulnerabilities interact with high-value property and infrastructure. Just four cities account for 43% of average annual losses: Guangzhou, Miami, New Orleans and New York.²⁴ The researchers note that because “coastal flood risks are highly concentrated, flood reduction actions in a few locations could be very cost-effective.”²⁵

Existing protection already reduces these losses significantly. The same research compares cities’ recorded average annual losses with their expected exposure to a 100-year flood event—that is, a flood with a severity that would be statistically expected once every century. The results vary hugely. For example, Amsterdam’s exposure to a 100-year flood event is more than double that of Guangzhou—an estimated US\$83 billion versus US\$38.5 billion. But the strength of Amsterdam’s protection means its average annual losses to date are just US\$3 million, compared with US\$687 million for Guangzhou.²⁶

In the United States, a study found that between 2005 and 2017 sea-level rise wiped US\$14.1 billion off home values in Connecticut, Florida, Georgia, New Jersey, New York, North Carolina, South Carolina and Virginia.²⁷ In developing countries, the threat to property is often exacerbated by coastal erosion as rising sea levels, sand-mining and built infrastructure disrupt the flow of coastal sediment. Some coastal communities in Sub-Saharan Africa are already being washed away, losing up to 30–35 metres of land each year, with thousands more at risk.²⁸

A study by the UK National Oceanographic Centre projects the global cost of rising sea levels at US\$14 trillion per year in 2100.²⁹ It found that China would face the biggest costs in absolute terms, while as a percentage of GDP the impacts will be highest for Kuwait (24%), Bahrain (11%), the United Arab Emirates (9%) and Viet Nam (7%).³⁰

More people will be crammed into shrinking tracts of habitable urban space

Various forms of infrastructure and economic activity are at risk from rising sea levels:

- *Roads:* A study of coastal roads on the US East Coast estimates that high tide flooding already causes 100 million vehicle-hours of delay every year, which could rise to 3.4 billion hours by 2100.³¹
- *Railways:* Researchers predict that a 4.5 kilometre stretch of coastal railway in the United Kingdom would be disrupted on 84 days each year with a 0.55 metre sea-level rise, and the line would cost hundreds of millions of pounds to divert.³²
- *Ports:* The World Bank has identified 24 port cities in the Middle East and 19 in North Africa at particular risk of sea-level rise.³³ Rising sea levels will lead to a greater frequency of disruptive events such as Hurricane Florence, which closed North Carolina's port to trucks for 10 days in September 2018.³⁴
- *Internet:* In the United States, more than 4,000 miles of underground fibre optic cable and 1,100 nodes are projected to be underwater within 15 years, with New York, Miami and Seattle at greatest risk.³⁵ Unlike submarine internet cables, these are not designed to be waterproof.
- *Sanitation:* A 2018 study found that in the United States, a sea-level rise of just 30 centimetres

will expose 60 wastewater treatment plants, which serve more than 4.1 million people.³⁶

Water treatment facilities in Benin and other countries in West Africa are already threatened by the sea.³⁷

- *Drinking water:* Pollution of aquifers will be exacerbated by declines in streamflow: by the 2050s, more than 650 million people in 500 cities are projected to face declines in freshwater availability of at least 10%.³⁸ As rivers and streams contain some groundwater, salination could also affect surface-level fresh water.
- *Energy:* The C40 Cities initiative has identified 270 power plants that are vulnerable to a sea-level rise of 0.5 metres; these plants provide power to 450 million people mostly in Asia, Europe, and the east coast of North America.³⁹
- *Tourism:* In many cities, coastal areas are a source of revenue from tourism and business. In Egypt, for example, the IPCC has estimated that a 0.5 metre rise in sea levels would destroy Alexandria's beaches, leading to losses of US\$32.5 billion.⁴⁰
- *Agriculture:* Sea-level rise can lead to increased salination of soil and of water sources used for irrigation, particularly in delta regions. In Bangladesh, the World Bank estimates salination

could cause a 15.6% decline in rice yield.⁴¹

In 2017, 18.8 million people were newly displaced by weather-related causes, including floods and coastal storms.⁴² The intensifying impact of sea-level rise on coastal cities and plains will render an increasing amount of land uninhabitable or economically unviable.

This is likely to lead to population movement within and from large cities. More people will be crammed into shrinking tracts of habitable urban space, and more are likely to move to other cities, either domestically or in other countries. These movements have the potential to cause spillover risks—for example, they could result in heightened strain on food and water supplies and in increased societal, economic and even security pressures. According to the World Bank, climate change could force 86 million people in Sub-Saharan Africa, 40 million in South Asia and 17 million in Latin America to permanently relocate internally by 2050.⁴³

Coastal adaptation

Cities faced with the risk of damage from rising sea levels can adapt either by trying to keep water out or learning to live with water at higher levels. Some strategies and technologies are new, but the



basic idea is not: "[C]oastal societies have a long history of adapting to environmental change and local sea-level rise because coasts are amongst the most dynamic environments on Earth. For example, a number of coastal megacities in river deltas have experienced, and adapted to, relative sea-level rise of several metres caused by land subsidence during the twentieth century."⁴⁴

There are three main strategies. The first involves "hard" engineering projects to keep water out of cities, such as sea walls, storm-surge barriers, water pumps and overflow chambers. The second involves nature-based defences—for example, conserving or restoring mangroves and salt marshes—or seeking to shape how floods will affect cities, rather than always trying to prevent them. The third strategy involves people—for

example, moving households and businesses to safer ground, or investing in social capital to make flood-risk communities more resilient. An appropriate mix of coastal adaptation measures can potentially "reduce some coastal impacts by several orders of magnitude."⁴⁵

The Netherlands is at the forefront of coastal adaptation because of its existential exposure to rising sea levels—two-thirds of the country is vulnerable to flooding. The importance of water management is recognized in the country's administrative structures—regional water boards levy their own taxes for flood protection rather than depending on government.⁴⁶ The Netherlands pursues a mix of the three strategies. Its highly developed hard infrastructure includes an extensive system of dikes and the world's largest

Spending on disaster recovery is almost nine times higher than on prevention

storm-surge barrier. However, inland floods in the early 1990s, in which 200,000 people were evacuated, led to a shift of approach. Instead of continuing to build ever-higher dikes—which means greater damage is done if they are breached—the "room for the river" programme lowered some dikes to allow farmland to be inundated in flood events to protect towns. Farmhouses in affected areas were demolished

and families moved to new homes built on artificially created mounds, 8 metres high.⁴⁷

In Rotterdam—where 90% of land is beneath sea level—a programme called “the Sand Engine” involved dredging sediment from the North Sea and depositing it off the city’s shore to prevent waves from eroding the coastline.⁴⁸ Rotterdam is also home to numerous urban water innovations, such as floating houses and city squares designed to collect millions of litres of water in flood conditions.

Managed retreat

Like the Netherlands, China’s approach to flood management changed in the 1990s in response to major flooding. The 1998 Yangtze River Basin floods killed

4,000 people and prompted a shift away from reliance on hard infrastructure projects. Nature-based measures were prioritized and more than 2 million people were relocated to higher ground.⁴⁹ However, the rapid pace of urbanization has continued to increase flooding risks in many coastal areas by destroying natural flood defences: in Shenzhen, for example, around 70% of mangrove coverage has been destroyed.⁵⁰ In 2015 a new “sponge city” initiative was launched to offset this process by introducing urban features such as permeable pavements, new wetland areas and green roofs; the 30 cities in the programme include Shanghai, which is particularly vulnerable to sea-level rise. The target is for 80% of urban land to be able to absorb or re-use 70% of stormwater by 2030.⁵¹

Many cities and countries have struggled to cope with the mounting challenges posed by rising sea levels. In Indonesia, Jakarta is building a massive sea wall—with Dutch help—and has also launched a five-year project to relocate around 400,000 people away from riverbanks and reservoirs under threat from rising sea levels.⁵² However, some critics argue that the authorities should also be doing more to prevent the city from sinking.⁵³ This debate over the right course of action highlights the institutional complexity of getting flood management right: often success depends on legacy infrastructure issues that are hugely expensive to resolve. Jakarta’s system of water pipes reaches only one-third of residents, leaving two-thirds reliant on the groundwater extraction that is weakening the city’s foundations.⁵⁴



In Thailand, Bangkok is low lying and sinking, its natural coastal defences have been eroded, and the nearby Gulf of Thailand is rising faster than the global average.⁵⁵ Bangkok's surface area is also one of the world's most impervious—it averages just 3.3 square metres of green space per resident, compared with 66 square metres in Singapore.⁵⁶ Extreme weather patterns are intensifying, leaving the city vulnerable to rising sea levels from the south and increasingly severe monsoon rains from the north.⁵⁷ The government's response includes constructing a 2,600 kilometre canal network, as well as a central park that can drain 4 million litres into underground containers.⁵⁸

In 2011, severe flooding in Bangkok prompted some authorities to suggest moving the capital city.⁵⁹ The idea of “managed retreat” is likely to become an increasingly

familiar feature of adaptation plans as sea levels rise and extreme weather intensifies. One study identifies 27 cases across 22 countries that have already occurred.⁶⁰ Elsewhere, plans are in preparation. The Maldives intends to build artificial islands, fortified with 3 metre high sea walls and financed by renting out islands and boosting tourism.⁶¹ In the Pacific Ocean, Kiribati has purchased land in Fiji as a potential new home for its citizens. And in the United States, US\$48 million has been allocated to relocate the entire community of the Isle de Jean Charles in Louisiana, which has lost 98% of its land since 1955.⁶² The complex task of resettling these residents while keeping their sense of community will serve as a test case for the future.

No time to waste

As sea levels rise and urban vulnerabilities increase, the urgency of the need to respond to these changes is going to intensify. Beyond adaptation measures, addressing urban vulnerability to sea-level rise will require households, businesses and governments to avoid exacerbating dangers. There is little point putting new flood defences in place, for example, if existing defences are undermined through continued development of homes and businesses in coastal areas and on floodplains.

The affordability of flood resilience is set to become an increasingly important issue. Robust risk financing strategies will be required, both to fund investment



REUTERS/Lucas Jackson

in adaptation and to pay for recovery when floods occur. At present, spending on recovery is almost nine times higher than on prevention.⁶³ Turning that around will not be easy: building support for pre-emptive spending and action—particularly if it involves major disruptions such as relocation—can take many years of dialogue and planning. There is no time to waste.

As adaptation becomes more costly, questions of burden-sharing will arise—for example, between the public and private sectors, and between municipal and national authorities. Burden-sharing may also be needed between countries. Failure to prepare for sea-level rise will create cross-border spillovers, and some of the cities most at risk are in countries that may struggle to find the resources to adapt. Innovative and collaborative approaches may be needed to ensure that action is taken globally before it is too late.

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W E A T H E R W A R S

USE OF WEATHER MANIPULATION TOOLS STOKES GEOPOLITICAL TENSIONS



Weather manipulation tools — such as cloud seeding to induce or suppress rain — are not new, but deploying them at scale is becoming easier and more affordable. As the impacts of climate-related changes in weather patterns intensify, the incentives to turn to technological fixes will increase in affected areas. Think of governments trying to manage simultaneous declines in rainfall and increases in water demand.

Aside from the potential environmental consequences, at a time of increasing geopolitical tensions even well-intentioned weather manipulation might be viewed as hostile. Perceptions would be paramount: a neighbouring state might see large-scale cloud-seeding as theft of rain or the reason for a drought. Cloud-seeding planes might be viewed as dual-use tools for espionage. Hostile uses are prohibited, but cannot be ruled out—for example, weather manipulation tools could be used to disrupt a neighbour's agriculture or military planning. And if states decided unilaterally to use more radical geo-engineering technologies it could trigger dramatic climatic disruptions.

As technologies evolve and deployment increases, increased transparency—about who is using what, and why—would help limit destabilizing ambiguity. So too would active discussion and collaboration on environmental vulnerabilities, both bilaterally between bordering states and on wider regional and global multilateral platforms.

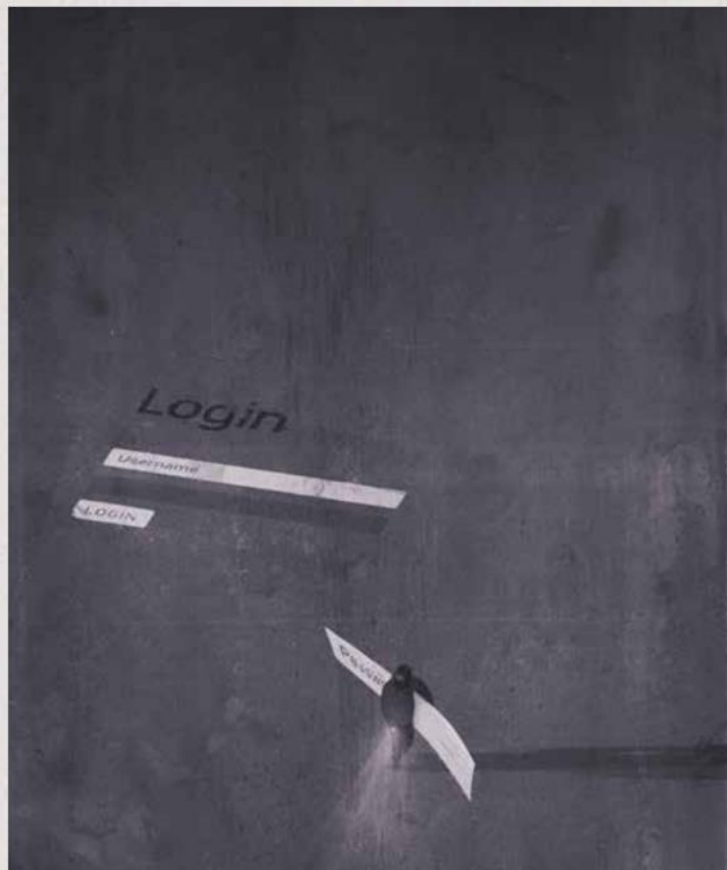
OPEN SECRETS

When the huge resources being devoted to quantum research lead to large-scale quantum computing, many of the tools that form the basis of current digital cryptography will be rendered obsolete. Public key algorithms, in particular, will be effortlessly crackable. Quantum also promises new modes of encryption, but by the time new protections have been put in place many secrets may already have been lost to prying criminals, states and competitors.

A collapse of cryptography would take with it much of the scaffolding of digital life. These technologies are at the root of online authentication, trust and even personal identity. They keep secrets—from sensitive personal information to confidential corporate and state data—safe. And they keep fundamental services running, from email communication to banking and commerce. If all this breaks down, the disruption and the cost could be massive.

As the prospect of quantum code-breaking looms closer, a transition to new alternatives—such as lattice-based and hash-based cryptography—will gather pace. Some may even revert to low-tech solutions, taking sensitive information offline and relying on in-person exchanges. But historical data will be vulnerable too. If I steal your conventionally encrypted data now, I can bide my time until quantum advances help me to access it, regardless of any stronger precautions you subsequently put in place.

QUANTUM COMPUTING RENDERS CURRENT CRYPTOGRAPHY OBSOLETE



CITY LIMITS

WIDENING GULF BETWEEN URBAN AND RURAL AREAS REACHES A TIPPING POINT



The world's political geography is being transformed by surging migration from rural to urban areas, straining the web of connections between the two. Divergences are widening on numerous dimensions, such as values, age, education, power and prosperity. What if a tipping point is reached at which the urban-rural divide becomes so sharp that the unity of states begins to erode?

Domestically, divergent values between urban and rural areas are already fuelling polarization and electoral volatility in many countries. Greater bitterness and rivalry could lead to localized nativism and even violent clashes. Separatist movements might break through in wealthy city-regions that resent diverting revenues to poorer rural areas with which they feel diminishing affinity. Leading cities might look to bypass national structures and play an international role directly. Economically, accelerating urban migration could lead to rural depopulation and the decline of local economies, with potential food security implications in some countries.

Better long-term planning—for both expanding cities and rural areas at risk of decline—might help to mitigate these dangers. Stronger transport and communications links could help to soften the urban-rural divide. Resources will be needed, which might require more fiscal creativity, such as finding ways to decentralize revenue-raising powers or more widely redistribute the productivity gains that urbanization generates.

A G A I N S T T H E G R A I N

With climate change placing growing strain on the global food system, and with international tensions already heightened, the risk of geopolitically motivated food-supply disruptions increases. Worsening trade wars might spill over into high-stakes threats to disrupt food or agricultural supplies. Conflict affecting supply-chain chokepoints could lead to disruption of domestic and cross-border flows of food. At the extreme, state or non-state actors could target the crops of an adversary state, for example with a clandestine biological attack.

In these circumstances, retaliatory dynamics could swiftly take hold. Domestically, rationing might be needed. Hoarding and theft could undermine the social order. Widespread famine risk in recent years suggests that greater hunger and more deaths—in least-developed countries, at any rate—might not trigger a major international reaction. If similar suffering were inflicted on more powerful countries, the responses would be swift and severe.

More resilient trade and humanitarian networks would help to limit the impact of food supply disruption. But if trade wars were a contributing factor, then countries might seek greater self-sufficiency in food production and agriculture. In some advanced economies, this might require rebuilding skills that have been allowed to fade in recent decades. Agricultural diversification and the development of more-resilient crop variants could bolster national security by reducing countries' vulnerability.

FOOD SUPPLY DISRUPTION
EMERGES AS A TOOL AS GEO-
ECONOMIC TENSIONS INTENSIFY



D I G I T A L P A N O P T I C O N

ADVANCED AND PERVERSIVE BIOMETRIC SURVEILLANCE ALLOWS NEW FORMS OF SOCIAL CONTROL

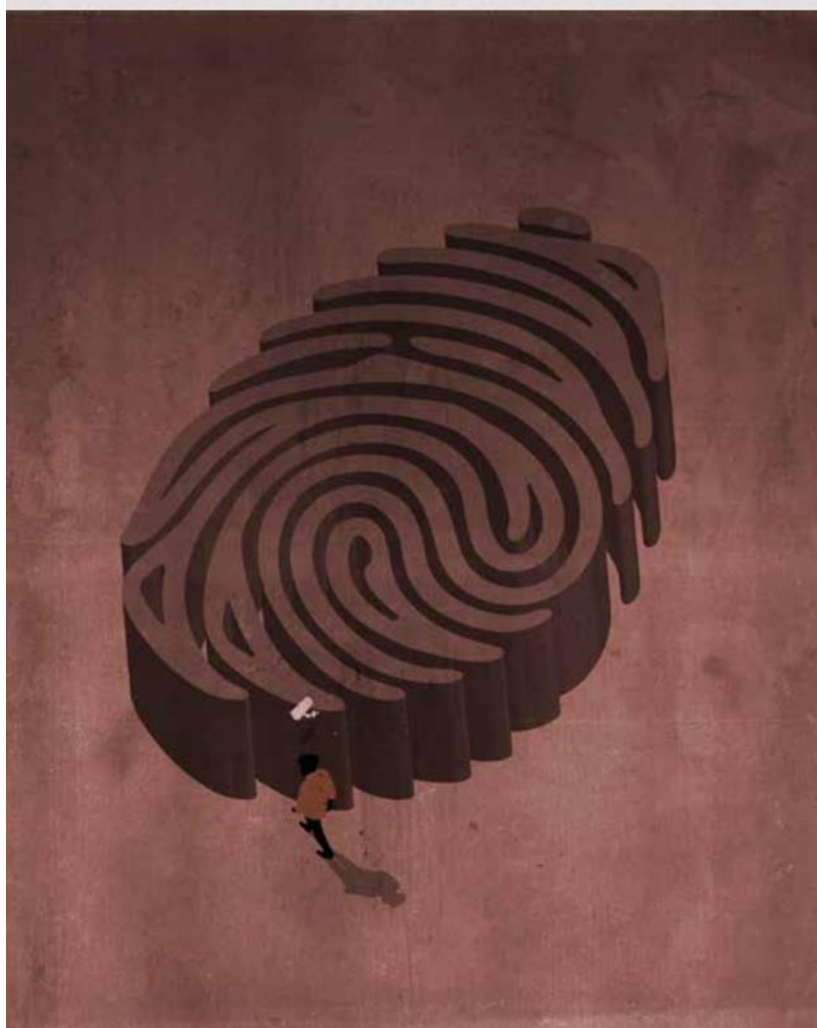
Biometrics are already making exponential advances—technologies that were recently in the realm of science fiction now shape the reality of billions of people's lives. Facial recognition,

gait analysis, digital assistants, affective computing, microchipping, digital lip reading, fingerprint sensors—as these and other technologies proliferate, we move into a world in which everything

about us is captured, stored and subjected to artificial intelligence (AI) algorithms.

This makes possible increasingly individualized public and private services, but also new forms of conformity and micro-targeted persuasion. If humans are increasingly replaced by machines in crucial decision loops, the result may lead not only to greater efficiency but also to greater societal rigidity. Global politics will be affected: authoritarianism is easier in a world of total visibility and traceability, while democracy may turn out to be more difficult—many societies are already struggling to balance threats to privacy, trust and autonomy against promises of increased security, efficiency and novelty. Geopolitically, the future may hinge in part on how societies with different values treat new reservoirs of data.

Strong systems of accountability for governments and companies using these technologies could help to mitigate the risks to individuals from biometric surveillance. This will be possible in some domestic contexts, but developing wider global norms with any traction will be a struggle.



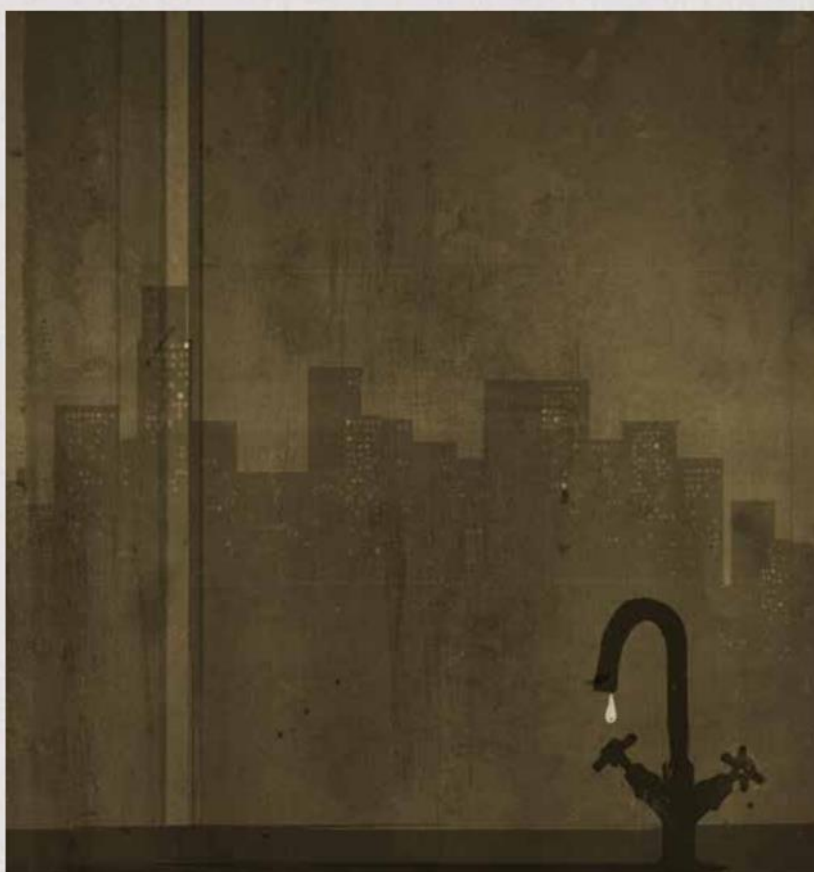
TAPPED OUT

MAJOR CITIES STRUGGLE TO COPE IN THE FACE OF THE EVER-PRESENT RISK OF WATER RUNNING OUT

A range of compounding factors risk pushing more megacities towards a "water day zero" that sees the taps run dry. These include population growth, migration, industrialization, climate change, drought, groundwater depletion, weak infrastructure and poor urban planning. Short-termist and polarized politics at both municipal and national levels in many countries further heighten these dangers.

The societal shock of running out of water could lead in sharply differing directions depending on the context. It could exacerbate divisions. Conflict might erupt over access to whatever water was still available, or wealthier residents might start to import private supplies. But a water shock could also galvanize communities in the face of a shared existential challenge. Either way, damage would be done. Hygiene would suffer, increasing strains on healthcare systems. And governments blamed for the failure might be tempted to scapegoat weaker communities, such as those in informal dwellings with unofficial connections to the water system.

Getting governance and planning right during times of plentiful water would reduce the risk of day zero arising, including public information campaigns and basic maintenance of existing infrastructure, as well as



regulations limiting the amount of water that households, businesses and government can use. New water sources could be identified, subject to careful risk assessment. And smart technologies could be deployed to reduce water use and improve water reclamation.

C O N T E S T E D S P A C E

LOW EARTH ORBIT BECOMES A VENUE FOR GEOPOLITICAL CONFLICT



With satellites now central to the smooth functioning of civil and military technologies, the amount of commercial and government activity in space has been increasing. This is a legally ambiguous realm, creating the potential for confusion, accident and even wilful disruption. Space debris is proliferating too—half a million pieces are now moving at the speed of a bullet in low orbit.

Even accidental debris collisions could cause significant disruption to internet connectivity and all that relies on it. But at a time of intensifying geopolitical competition, space could also become an arena for active conflict. Even defensive moves to protect critical space assets might trigger a destabilizing arms race. Precision weapons and military early-warning systems rely on high-orbit satellites—militarizing space might be seen as necessary to deter a crippling attack on them. In the future, as space becomes more affordably accessible, new threats of space-based terrorism could emerge.

New rules or updated protocols would provide greater clarity—particularly on the rapid expansion of commercial activity, but also on military activity. Even simple measures could help—such as ensuring transparency on debris-removal activities to prevent the misinterpretation of intentions. At a time of fraying global cooperation, space might be an area where multilateral advances could be signed up to by all.

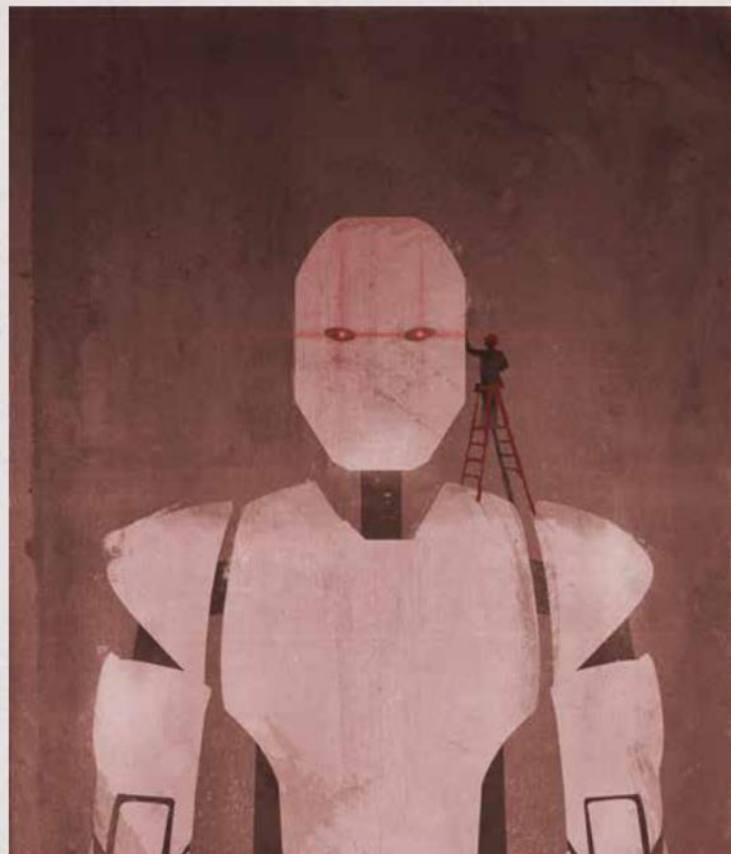
EMOTIONAL DISRUPTION

AI THAT CAN RECOGNIZE AND RESPOND TO EMOTIONS CREATES NEW POSSIBILITIES FOR HARM

As the intertwining of technology with human life deepens, “affective computing”—the use of algorithms that can read human emotions or predict our emotional responses—is likely to become increasingly prevalent. In time, the advent of artificial intelligence (AI) “woebots” and similar tools could transform the delivery of emotional and psychological care—analogue to heart monitors and step counters. But the adverse consequences, either accidental or intentional, of emotionally “intelligent” code could be profound.

Consider the various disruptions the digital revolution has already triggered—what would be the affective-computing equivalent of echo chambers or fake news? Of electoral interference or the micro-targeting of advertisements? New possibilities for radicalization would also open up, with machine learning used to identify emotionally receptive individuals and the specific triggers that might push them toward violence. Oppressive governments could deploy affective computing to exert control or whip up angry divisions.

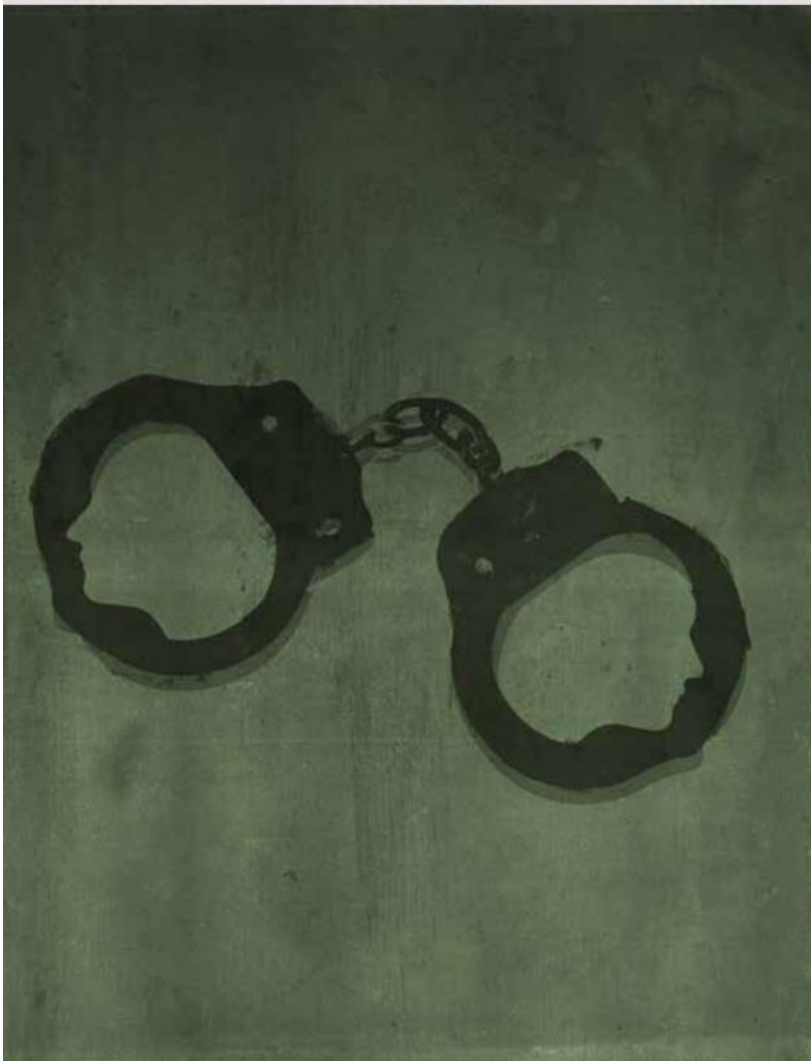
To help mitigate these risks, research into potential direct and indirect impacts of these technologies could be encouraged. Mandatory standards could be introduced, placing ethical limits on research and development. Developers could be required to provide individuals with “opt-out”



rights. And greater education about potential risks—both for people working in this field and for the general population—would also help.

N O R I G H T S L E F T

IN A WORLD OF DIVERGING VALUES,
HUMAN RIGHTS ARE OPENLY
BREACHED WITHOUT CONSEQUENCE



Amid a new phase of strong-state politics and deepening domestic polarization, it becomes easier for governments to sacrifice individual protections to collective stability. This already happens widely: lip service is paid to human rights that are breached at home or abroad when it suits states' interests. What if even lip service goes by the wayside, and human rights are dismissed as anachronisms that weaken the state at a time of growing threats?

In authoritarian countries with weak human rights records, the impact of such a tipping point might be one of degree—more rights breached. In some democratic countries, qualitative change would be more likely—a jolt towards an illiberalism in which power-holders determine whose rights get protected, and in which individuals on the losing side of elections risk censorship, detention or violence as “enemies of the people”.

Battles are already under way among major powers at the UN over the future of the human rights system. In a multipolar world of divergent fundamental values, building far-reaching consensus in this area may be close to impossible. “Universal” rights are likely to be interpreted locally, and those interpretations then fought over globally. Even superficial changes might be of modest help, such as new language that is less politicized than “human rights”.

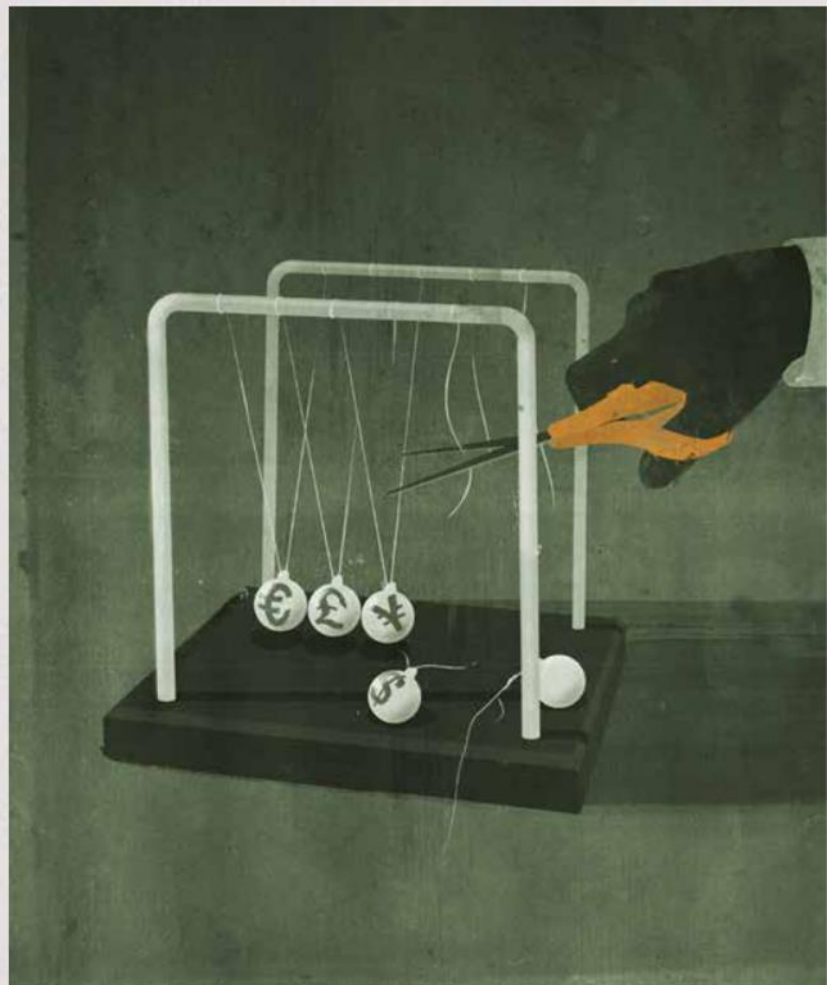
MONETARY POPULISM

What if the protectionist wave expanded to engulf the central banks at the heart of the global financial system? Against a backdrop of geo-economic escalation, calls could rise to "take back control" of independent monetary policy and to use it as a weapon in tit-for-tat confrontations between the world's economies. Prudent and coordinated central bank policies might be attacked by populist politicians as a globalist affront to national democracy.

A direct political challenge to the independence of major central banks would unsettle financial markets. Investors might question the solidity of the global financial system's institutional foundations. As unease deepened, markets might start to tremble, currencies to swing. Uncertainty would spread to the real economy. Polarization would hamper domestic political response, with mounting problems blamed on enemies within and without. Internationally, there might be no actors with the legitimacy to force a coordinated de-escalation. The risk of a populist attack on the world's financial architecture could be mitigated by deepened efforts to maximize the popular legitimacy of central bank independence.

This could be done by bringing the public in—perhaps through formal consultative assemblies—to decisions on independence, accountability and stability. The greater the public understanding of and support for monetary policy mandates and tools, the less vulnerable they will be in times of crisis.

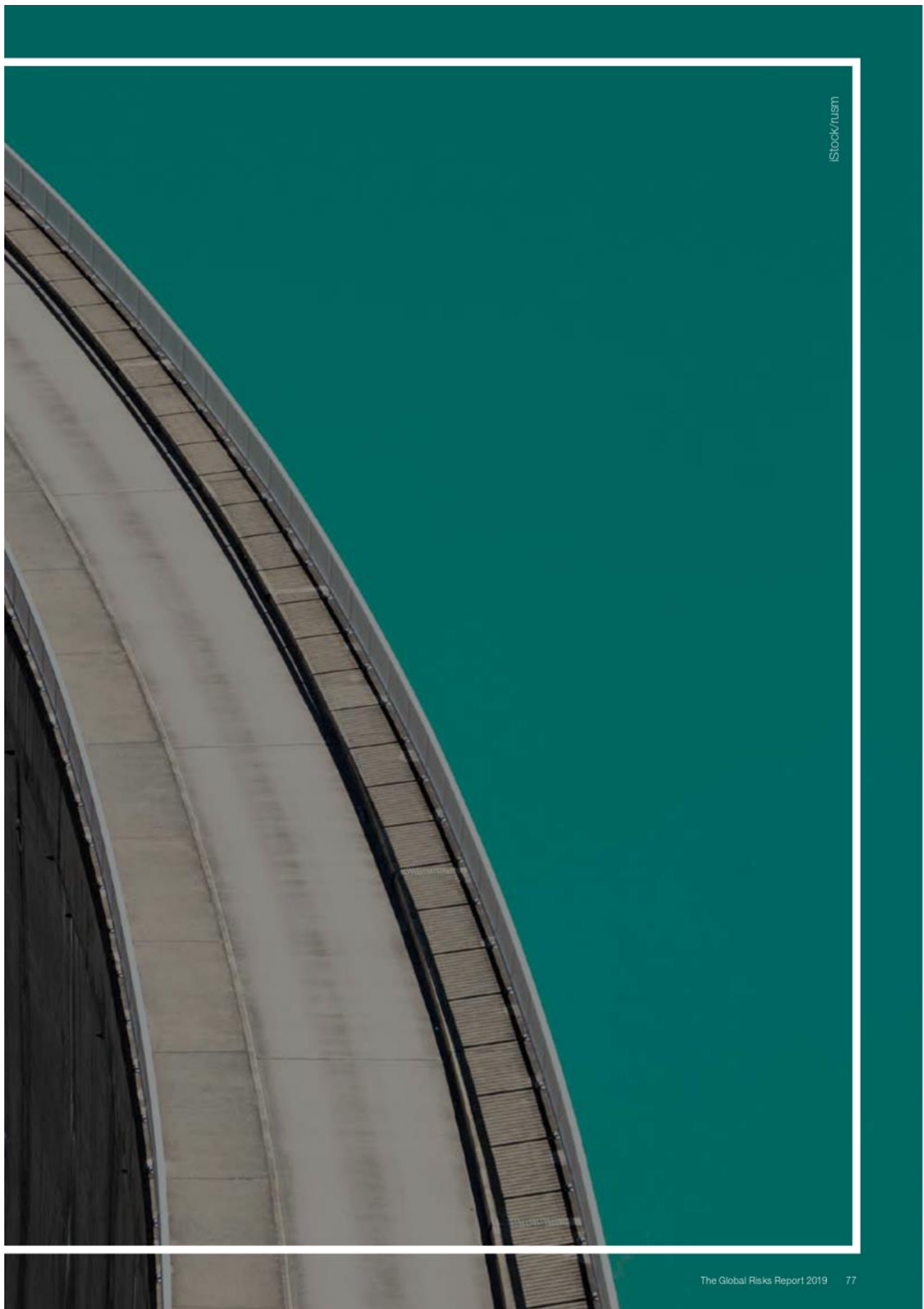
ESCALATING PROTECTIONIST IMPULSES CALL INTO QUESTION INDEPENDENCE OF CENTRAL BANKS





Hindsight

Each year the Hindsight section revisits previous editions of the *Global Risks Report* to look again at risks that we have previously covered. The aim is to trace the progress that has been made in the intervening years—how have the risks and the global responses to them evolved? This year the three risks we return to are food security, civil society and investment in infrastructure.



Security of Food Systems

One of the earliest *Global Risks Reports*, in 2008, included a chapter on food security. It asked whether the food-price spikes recorded in 2007 represented familiar short-term volatility or more structural disruptions to the food system, and highlighted drivers of food insecurity including climate change, population growth and changing consumption patterns. In 2016, we looked more closely at the first of these in a chapter entitled “Climate Change and Risks to Food Security”, which noted that crop yields were growing more slowly than demand. It highlighted two main ways that climate change is affecting food security: (1) direct impact on agricultural output, through changing temperature and rainfall patterns; and (2) wider systemic disruptions such as market volatility, interruptions to transport networks, and humanitarian emergencies.

Food distress on the rise

The threats to food security have intensified in recent years. In 2017, a state of famine was declared in South Sudan; although it was lifted within months, this was only the second such declaration since the turn of the century. Conditions in South Sudan are still designated as “emergency”—one step below famine on the five-point scale used by the Famine Early Warning Systems Network (FEWS)¹—as are conditions in Ethiopia, Nigeria and Yemen. More countries are in the next most severe “crisis” category: Afghanistan, Democratic Republic of Congo, Somalia and parts of Southern Africa. According to FEWS, the number of people currently requiring emergency food assistance is “unprecedented in recent decades”. In Yemen alone, 15 million people require emergency food assistance each month.²

Figure 7.1:
Undernourishment Rises
Prevalence of global undernourishment



Source: United Nations, Department of Economic and Social Affairs, 2018. <https://unstats.un.org/sdgs/indicators/database/?indicator=2.1.1>

Undernourishment has increased in both absolute and relative terms since 2015, as shown by Figure 7.1. The proportion of the world's population suffering from undernourishment declined from around 15% in the early 2000s to 10.6% in 2015, but edged back up to 10.9% over the next two years. In absolute terms, that represents an increase of around 40 million people: in 2017 a total of 821 million people were undernourished, the most since

2009. More than 2 billion people lack the micronutrients needed for growth, development and disease prevention.³

The role of conflict

Conflict is one important driver of these recent increases in food insecurity. Most of the world's hungry people live in countries affected by conflict,⁴ and—as discussed in Chapter 3 (Heads and Hearts)—the number of conflicts around the world has increased in recent years. All 19 of the countries classified in 2017 as experiencing protracted food crises were also affected by violent conflict.⁵

Conflict can trigger the kind of systemic disruptions of food systems discussed in the 2016 *Global Risks Report*, and as noted in the 2017 State of Food Security and Nutrition report: “. . . conflict can lead to economic and price impacts that reduce household food access and may also constrain people's mobility, thereby limiting household

access to food, health services and safe water.”⁶ In Yemen, the rial depreciated sharply in the second half of 2018, pushing up the price of food and essential commodities; in the capital city Sana’a, food prices increased by 35% between July and October. Conflict also triggers displacement, which creates food security issues. Currently 68.5 million people are displaced worldwide. Providing adequate food for refugees is an ongoing struggle. In 2016, the UN’s World Food Programme had to halve rations in Kenyan refugee camps.⁷ In 2017, rations were cut three times in Ethiopia’s refugee camps because of insufficient funding.⁸

Population growth and waste

Global population growth exacerbates the impact on food systems of conflict and other drivers of food insecurity. To sustain current levels of food availability between now and 2050 will require an estimated 70% increase in food production.⁹ The efficiency of efforts to intensify food production will be compromised unless wastage is also addressed: currently, around a third of the world’s food is wasted.¹⁰ Levels of food waste vary widely, from 95 kilograms per person each year in the United States to 1 kilogram in Rwanda.¹¹ Research suggests that food waste could rise

by almost 2% per year to 2030.¹² The impacts go beyond food security: according to the Food and Agricultural Organization of the UN (FAO), food waste causes an estimated 8% of annual greenhouse gas emissions.¹³

Climate change and chokepoints

Climate change continues to increase strain on the global food system through “changes in temperature, precipitation and extreme weather events, as well as increasing CO₂ concentrations.”¹⁴ The last four years have been the hottest on record.¹⁵ The Intergovernmental Panel on Climate Change (IPCC) has warned about the impacts on food security if global warming exceeds the 1.5°C targeted in the Paris Agreement. For example, while an estimated 35 million people would be exposed to crop yield changes at 1.5°C, this would increase to 1.8 billion at 3°C. Already around one-third of changes in yields are due to climate factors.¹⁶ Drought conditions in Europe during 2018 led to the region’s lowest grain production since 2012,¹⁷ contributing to an expected sharp decrease in global grain stocks.¹⁸ The food system also has to compete for water with other users, including urban groundwater extraction, as discussed in Chapter 5 (Fight or Flight).

Researchers also identify climate change as a risk factor affecting

food system “chokepoints”—maritime corridors, coastal infrastructure and inland transport networks¹⁹—which handle a disproportionate volume of global food trade: “Half of all internationally traded grain must pass through at least one of 14 major chokepoints and over 10% depends on a maritime chokepoint to which there is no viable alternative route.”²⁰ The risk posed by these chokepoint vulnerabilities has increased in tandem with the growing role of global food supply chains—between 2000 and 2015, the volume of agricultural commodities traded internationally increased by 127%.²¹ The researchers note that climate change increases the risk of multiple chokepoint failures occurring simultaneously: “A worst-case scenario—one in which the Gulf Coast ports in the US were shut down due to a hurricane at the same time as key roads in Brazil were swamped owing to heavy rains—would cut off up to half of global soybean supply in one fell swoop.”²²

The Space for Civil Society

The 2017 *Global Risks Report* included a chapter that discussed the “[c]losing space for civil society”. That chapter warned of growing constraints on the operation of civil society organizations around the world, with adverse consequences including declining societal trust and increasing corruption, polarization and unrest. The chapter cited research pointing to serious threats to civic freedoms in 109 countries, notably press freedom. It highlighted the frequent use of security considerations to justify restrictions on civil society groups, and the growing importance of new technologies as a means of limiting freedom of expression and assembly.

Normally we would wait longer than two years to feature a topic in the Hindsight series, but even in this short time these trends have increasingly defined the societal and political risks landscape in many countries. This reflects a general intensification of strong-state politics and a shift to more authoritarian modes of governance in both democratic and non-democratic states.

In its latest annual report, Freedom House stated that global freedom declined in 2017 for the 12th consecutive year, with 113 countries recording a net decrease in freedom over that period compared to 62 recording an improvement. According to the civil society monitoring group CIVICUS, conditions continued to tighten during 2018—between March and November there was a rise in the number of countries categorized as “obstructed” or “repressed” and a decline in those categorized as “open” or “narrowed”.

Press under pressure

Globally, the most frequent violations of civic freedoms recorded by CIVICUS relate to freedom of the press. Developments over the past two years have borne out the concerns raised in our 2017 report. There has been a broad-based decline in press freedom around the world. The Economist Intelligence Unit ranks 2017 as the worst year since it began its index of media freedom in 2006.²³

Conditions have deteriorated significantly even in a number of countries in Europe, the region where protections for journalists are typically strongest, according to

Reporters Without Borders. Malta and Slovakia have seen high-profile murders of journalists in the past 18 months.²⁴

Conservative groups gain strength

We omitted in 2017 to discuss one development that has since become more important. While most well-established non-governmental organizations (NGOs) are liberal, it is important to note that conservative civil society groups play a prominent role in some countries.

A recent study points to the influence of conservative civil society movements in other countries, including Brazil, India, Thailand, Turkey, Uganda, Ukraine and the United States.²⁵ These groups pursue a range of causes—rooted in different religious beliefs, community norms and political views—but one commonality is “the search for protection—protection from change, from outside economic pressures, from new kinds of identities and moral codes.”²⁶

Security concerns continue

Governments restricting civic freedoms continue to cite security as a justification. A 2018 report by the UN Special Rapporteur on the Rights to Freedom of Peaceful Assembly and of Association identifies concerns including “declarations of a state of emergency, sometimes without adequate justification, the use of vague wording to define acts of terrorism and threats to public security, and broad legal provisions that allow for the abusive interpretation of limitations on the rights to freedom of peaceful assembly and of association.”²⁷ The report cites provisions of varying severity in almost 20 countries.

The Special Rapporteur also notes the growing use of restrictive rules and regulations that make it difficult for civil society groups to operate. These can range from onerous administrative requirements to more substantive provisions: “some restrictions require non-governmental organizations (NGOs) to align their activities with government policies, with heavy sanctions for NGOs that fail to do so.”²⁸ Organizations in receipt of foreign funding are at particular risk—a trend we highlighted in 2017, and one that is likely to intensify. Against the backdrop of values-based geopolitical tensions discussed in Chapter 2 (Power and

Values), many countries already worry about rivals using “information operations” to sow political instability.²⁹

The use of new technologies to monitor or control civil society is also likely to have deepening geopolitical ramifications. Globally, online freedom has declined for eight consecutive years.³⁰ The Special Rapporteur notes the “utmost importance” of new technologies for freedom of assembly and highlights how some governments have prohibited access to social networking platforms.³¹ Some see digital freedom as a key fault line in the evolving multipolar and multi-conceptual world order.³²

Investment in Infrastructure

Nine years ago, the fifth edition of the *Global Risks Report* drew attention to the need for greater investment in infrastructure. The report was published in 2010, a year after the global economy had contracted at the height of the financial crisis. Against this backdrop of slumping demand and heightened uncertainty, the report cited global infrastructure needs equivalent to an estimated US\$35 trillion over 20 years. It pointed to two key trends that would shape the challenge—population growth and climate change—and the need for associated development in the agriculture and energy sectors. It also warned that vulnerabilities in critical infrastructure were a source of wider systemic risk that needed to be assessed and managed.

Since then, estimates of future needs have increased. According to projections from the Global Infrastructure Hub (GIH), a body created by the G20, infrastructure investment totalling US\$97 trillion is required by 2040 across 57 countries and seven sectors. That compares with current investment trends of US\$79 trillion, leaving a global infrastructure gap of US\$18 trillion.³³ Many countries, both emerging and advanced, “have paid insufficient attention to maintaining and expanding their infrastructure assets, creating economic inefficiencies and allowing critical systems to erode.”³⁴

Spending gaps vary by region

Infrastructure spending has differed sharply by region in recent years, with one estimate ranging from 1.9% of GDP in Sub-Saharan Africa to 6.9% in the Middle East and North Africa.³⁵ In absolute terms, levels of spending have been particularly high in Asia, specifically China. Asia Pacific accounted for more than half of global infrastructure spending in 2015.³⁶

According to GIH projections, China is the country with the most significant infrastructure needs between now and 2040. On current trends, China will fall US\$1.9 trillion short of its total spending requirement of US\$28 trillion. In the United States, overall investment needs are much

lower (US\$12 trillion), but the shortfall relative to current trends is twice as large (US\$3.8 trillion). In our 2010 report we noted that the American Society of Civil Engineers (ASCE) rated the infrastructure stock of the United States at “D” (where “A” is the best, and anything below “D” is unfit for purpose). The latest ASCE report card is from 2017, when the United States had improved only marginally to a rating of “D+.”³⁷

Relative to GDP, Africa has the largest infrastructure gap between now and 2040.³⁸ One reason is that Africa’s population is set to double over that period. Meeting the region’s infrastructure needs is likely to require significant change: concerns that we cited in 2010 about weak political and governance systems continue to hold back flows of investment finance. The African Development Bank notes that in 2016 commitments of public

and private infrastructure funding fell to their lowest level in five years, largely as a consequence of a reported reduction in inflows from China.³⁹

Growing risks: FDI and cyber

In recent decades, the profile of development finance in general—and for infrastructure projects in particular—has swung from traditional aid flows to foreign direct investment (FDI).⁴⁰ China has been instrumental: its share of global investment flows increased from 4% in 2006 to 17% by 2017.⁴¹ Flows of FDI into developing countries have become increasingly geopolitically charged, as discussed in Chapter 2 (Power and Values). The interdependencies created by a deepening web of international infrastructure projects were not a

pressing concern at the time of our 2010 report, but they are now a growing source of risk in the international system.

Technology has also radically altered risks related to infrastructure development over the past decade. The critical infrastructure risks we noted in 2010 have risen as digitalization and the Internet of Things have deepened connectivity across the world, increasing the potential for malicious actors to mount online attacks and amplifying their potential damage. A successful cyber-attack on a country's electricity system, for example—a current area of focus for the World Economic Forum⁴²—could trigger devastating spill-over effects. One estimate suggests that energy utilities spent US\$1.7 billion in 2017 on protecting their systems from cyber-attacks.⁴³

Low-carbon infrastructure

Climate change has driven significant change in the world's infrastructure needs since our 2010 report. There is now more awareness of the risks it poses and greater consensus on the need for collective policy responses. The low-carbon transition will shape the profile of infrastructure investment in multiple ways. For example, in the energy sector, investment in renewables is likely to accelerate, despite a pause in the shift

towards cleaner energy in 2017.⁴⁴ Transport infrastructure will need to be adapted to manage increasing shares of electric vehicles, as well as huge projected increases in road, air and sea traffic.⁴⁵ And sensor-based technologies are likely to be widely deployed across all kinds of networks and grids, increasing demand for the digital infrastructure on which they rely.⁴⁶

The climate-change imperative will also drive increased investment in “green infrastructure” solutions of the kind discussed in Chapter 5 (Fight or Flight). These work with natural materials and can, for example, lower energy demand, reduce urban temperatures and improve water management.⁴⁷

The rapid roll-out of sustainable infrastructure is likely to lead to continuing financial innovation as more investors move into this market. Already there has been a significant increase in the number of funds investing in infrastructure assets generally, pushing returns down from 14% in 2004 to 10.6% in 2016.⁴⁸ According to UN Environment, issuance of “green bonds” jumped from US\$11 billion in 2013 to US\$155 billion in 2017.⁴⁹ There are potential risks associated with the rapid expansion of green finance—including asset bubbles and the temptation to lower capital requirements to encourage sustainable investment⁵⁰—but the costs of managing these risks are likely to be small compared with the benefits of making increased

funding available to help meet the world's infrastructure needs sustainably.

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²⁴ Reporters without Borders (RSF). 2018. "RSF Index 2018: Hatred of Journalism Threatens Democracies". Analysis. <https://rsf.org/en/rsf-index-2018-hatred-journalism-threatens-democracies>

²⁵ Youngs, R. (ed.). 2018. *The Mobilization of Conservative Civil Society*. Washington, DC: Carnegie Endowment for International Peace. https://carnegieendowment.org/files/Youngs_Conervative_Civil_Society_FINAL.pdf

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²⁷ United Nations General Assembly. 2018. *Report of the Special Rapporteur on the Rights to Freedom of Peaceful Assembly and Association*. A/HRC/38/34, p. 5. 26

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³² Wright, N. 2018. "How Artificial Intelligence Will Reshape the Global Order: The Coming Competition between Digital Authoritarianism and Liberal Democracy". *Foreign Affairs*. 10 July 2018. <https://www.foreignaffairs.com/articles/world/2018-07-10/how-artificial-intelligence-will-reshape-global-order>

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³⁶ Chua, M., E. Lee, and B. Chalmers. 2017. *Closing the Financing Gap: Infrastructure Project Bankability in Asia*. Marsh & McLennan Companies. https://www.marsh.com/content/dam/mmc-web/Files/APRC/aprc_closing-the-financing-gap.pdf, p. 5

³⁷ American Society of Civil Engineers (ASCE). 2017. *2017 Infrastructure Report Card: A Comprehensive Assessment of America's Infrastructure*. Reston, Virginia and Washington, DC: American Society of Civil Engineers. <https://www.infrastructurereportcard.org/wp-content/uploads/2017/04/2017-IRC-Executive-Summary-FINAL-FINAL.pdf>; and Deloitte. 2017. *Investing in Infrastructure – Leading Practices in Planning, Funding, and Financing*. Deloitte. <https://www2.deloitte.com/us/en/pages/risk/articles/infrastructure-investment-funding.html>

³⁸ African Development Bank Group. 2018. *African Economic Outlook 2018*. African Development Bank. https://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/African_Economic_Outlook_2018_-

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⁴⁰ Goodson, J. 2018. "How Development Finance Is Changing Geopolitics". *Stratfor*. 11 July 2018. <https://worldview.stratfor.com/article/how-development-finance-changing-geopolitics>

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⁴² World Economic Forum. 2019 (forthcoming). *Cyber Resilience in the Electricity Ecosystem: Principles and Guidance for Boards*.

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Risk Reassessment

In the Risk Reassessment section of the *Global Risks Report*, we invite selected risk experts to share their insights about risk and risk management. The aim is to encourage fresh thinking about how to navigate a rapidly evolving risks landscape. In this year's report, John D. Graham discusses the importance of considering trade-offs between risks—because efforts to mitigate one risk can often exacerbate others. And András Tilcsik and Chris Clearfield highlight a number of the steps that can be taken to protect organizations from systemic risks.



Weighing Risks

By John D. Graham

Corporate executives, regulators, physicians and security officials often face a shared dilemma in decision-making: deciding which risks to accept, at least for now. The stark reality is that few decision options in these fields are without any risk. The executive may decide in favour of a promising acquisition, despite knowing that merging with an unfamiliar company is fraught with downside risks. Heart patients often trust cardiologists to help them decide whether the longevity gains from coronary artery bypass surgery are worth its additional surgical dangers compared with the simpler angioplasty procedure. The bold German phase-out of nuclear power is indirectly forcing Germany to incur greater risks from coal-fired electricity, at least until the ambitious path to renewables is accomplished. And measures to counteract terrorism at airports may not reduce overall societal risk if terrorists simply respond by shifting to new vulnerable targets such as sporting events, concerts and subways.

Trade-offs between risks

What might be called the “target risk” is the one of primary concern to decision-makers. The Trump administration sees imports from China as an immediate threat to American businesses because there are plenty of US businesses that have been damaged by government-subsidized Chinese products. The “countervailing risk” is the unintended risk triggered by interventions to reduce the target risk. Slapping tariffs on Chinese imports may bring the Chinese to the negotiating table but, in the interim, the tariffs make some US goods more expensive in global markets, especially those that rely on Chinese inputs. US tariffs also invite a trade war with the Chinese that will create some countervailing risks for US exporters that do business in China.

The challenge of resolving trade-offs between target and countervailing risks is particularly perplexing in the short run. Technological options are fairly fixed, research and development (R&D) solutions are beyond the relevant time horizon, and current legal and organizational arrangements in both government and business are difficult to reform quickly. In the long run, there are more “risk-superior” solutions because the extra time for risk management allows R&D, innovation and

organizational change to work against both the target and countervailing risks.

The most promising short-run solution to risk trade-offs is as simple in theory as it is devilishly difficult in practice: identify and carefully weigh the competing risks of decision alternatives. For example, with the global economy in an encouraging recovery, it is tempting for policy-makers to enforce monetary discipline—but that discipline might cause interest rates to rise above the surprisingly low levels that have become familiar throughout much of the world. If interest rates rise too much or too fast, the adverse effects on business activity are predictable. Weighing the risks and benefits of monetary discipline is a crucial responsibility of monetary policy-makers.

Geography and culture

Risk trade-offs are particularly sensitive for decision-makers when the parties suffering from the target risk are different from the parties likely to experience the countervailing risk. In China, electric cars look promising to families in polluted Eastern cities who breathe motor vehicle exhaust on a daily basis, especially those families living close to congested roads and highways. But, when electric cars are recharged by drawing electricity

from the Chinese electrical grid, more pollution is generated at the electric power plants. Those facilities may be located on the perimeter of Chinese cities or in the less prosperous, inner regions of China where electricity plants are easier to site. It requires careful air quality modelling, informed by state-of-the-art atmospheric chemistry and high-resolution geographic information systems, to know precisely who will incur the indirect public health risks of plug-in electric cars. If the countervailing risks are not given the same analytic attention as the target risks, it is impossible for a thoughtful regulator to weigh the ethical aspects of shifting pollution from one population to another. In this setting, making the countervailing risks as transparent as the target risks is easier said than done.

When decisions about risk trade-offs are made in different cultures, it should be expected that some stark differences will result. In the United States, the national energy policies of both George W. Bush and Barack Obama facilitated a surge of unconventional oil and gas development through innovations such as multi-stage hydraulic fracturing and horizontal drilling. The diffusion of innovation occurred so rapidly in the states of Pennsylvania, North Dakota, Oklahoma and Texas that state regulators are only beginning to fully understand and regulate the resulting risks of earthquakes and

water pollution. The same unconventional technologies used in the United States are seen as unacceptable in Germany, where bans on “fracking” were imposed before the new industry could get off the ground. Businesses and households in Germany are incurring high natural gas prices as well as greater dependence on Russian gas as a result of the ban on fracking, but German policy-makers are entitled to make those trade-offs.

Stark international differences in regulatory risk management are less acceptable when the alleged risks relate not to production activity, which is confined to a particular country, but to consumption of goods that are traded across borders in a global economy. The World Trade Organization (WTO) has already exposed several instances where countries have tried to use health-risk concerns to conceal protectionist motivations for product bans and restrictions. The Chinese are concerned that the United States and the European Union behave in this fashion; the United States has already won cases against the European Union at the WTO related to hormone-treated beef and genetically modified seeds.

One of the advantages of evidence-based approaches to resolving trade disputes is that all countries, regardless of cultural norms, have access to scientific

evidence. Understanding cultural norms is a more subjective exercise. Scientific knowledge about risk and safety does not stop at an international border, though genuine uncertainty about the severity of established risks might justify differences in the precautionary regulations of different countries. The WTO is far from a perfect organization, but it has potential to promote an evidence-based approach to risk management and foster more international learning about risk trade-offs.

Investing to ease risk trade-offs

Fortunately, the long run opens up more promising opportunities for superior management of risk. New surgical techniques have made coronary artery bypass surgery much safer and more effective today than it was 20 years ago. The fracking techniques used today in the United States and Canada are much more sustainable and cost-effective than the techniques used only five years ago. And progress in battery technology is making electrification of the transport sector a more plausible, sustainable and affordable option than most experts believed possible a decade ago.

The hard question is how to foster productive R&D investments to ease difficult risk trade-offs. When will innovation occur productively

through market competition, and when does an industry require incentives, nudging or even compulsion in order to innovate? Should governmental subsidies focus on basic research, or is there also a need for government to pick some promising technologies and subsidize real-world demonstrations? There are plenty of cases where government R&D policy has produced “duds” in the commercial marketplace, but there are also cases, such as fracking and plug-in electric vehicles, where government R&D policy has played a constructive role in fostering exciting and transformative innovations.

John D. Graham is Dean of Indiana University School of Public and Environmental Affairs.

Managing in the Age of Meltdowns

By András Tilcsik and Chris Clearfield

While we are right to worry about major events—such as natural disasters, extreme weather and coordinated cyber-attacks—it is often the cascading impact of small failures that brings down our systems. The sociologist Charles Perrow identified two aspects of systems that make them vulnerable to these kinds of unexpected failures: complexity and tight coupling.¹ A complex system is like an elaborate web with many intricately connected parts, and much of what goes on in it is invisible to the naked eye. A tightly coupled system is unforgiving: there is little slack in it, and the margin for error is slim.

When something goes wrong in a complex system, problems start popping up everywhere, and it is hard to figure out what's happening. And tight coupling means that the emerging problems quickly spiral out of control and even small errors can cascade into massive meltdowns.

When Perrow developed his framework in the early 1980s, few systems were both highly complex and tightly coupled; the ones that were tended to be in exotic, high-tech domains such as nuclear power plants, missile warning systems and space-exploration

missions. Since then, however, we have added an enormous amount of complexity to our world. From connected devices and global supply chains to the financial system and new intricate organizational structures, the potential for small problems to trigger unexpected cascading failures is now all around us.

The good news is that there are solutions. Though we often cannot simplify our systems, we can change how we manage them. Research shows that small changes in how we organize our teams and approach problems can make a big difference.

Think small

In complex and tightly coupled systems—from massive information technology (IT) projects to business expansion initiatives—it is not possible to identify in advance all the ways that small failures might lead to catastrophic meltdowns.

We have to gather information about close calls and little things that are not working to understand how our systems might fail. Small errors give us great data about system vulnerabilities and can help us discover where more serious

threats are brewing. But many organizations fail to learn from such near misses. It is an all-too-human tendency familiar from everyday life: we treat a toilet that occasionally clogs as a minor inconvenience rather than a warning sign—until it overflows. Or we ignore subtle warning signs about our car rather than taking it into the repair shop. In a complex system, minor glitches and other anomalies serve as powerful warning signs—but only if we treat them as such.

Leaders can build organizational capabilities that attend to weak signals of failure. The pharmaceutical giant Novo Nordisk started developing such capabilities after senior executives were shocked by a manufacturing quality breakdown that cost more than US\$100 million. In the wake of the failure, Novo Nordisk did not blame individuals or encourage managers to be more vigilant. Instead, it created a new group of facilitators tasked with interviewing people in every unit and at all levels to make sure important issues don't get lost at the bottom of the hierarchy. The group follows up on small issues before they become big problems.

Encourage scepticism

When success depends on avoiding small failures, we need to build scepticism into our

¹ Perrow, C. 1999. *Normal Accidents*. Princeton, NJ: Princeton University Press.

organizations so that we consider our decisions from multiple angles and avoid groupthink. One approach, pioneered by NASA's Jet Propulsion Laboratory (JPL), is to embed a sceptic in every project team—specifically, an engineer from JPL's Engineering Technical Authority (ETA).

ETA engineers are ideal sceptics. They are skilled enough to understand the technology and the mission but detached enough to bring a distinct perspective. And the fact that they are embedded in the organization, but with their own reporting lines, means that project managers cannot just dismiss their concerns. If an ETA engineer and a project manager cannot agree about a particular risk, they take their issue to the ETA manager, who tries to broker a technical solution, gets additional resources for the mission, or escalates the issue to JPL's Chief Engineer.

Another effective way to cultivate scepticism is through diversity. Surface-level diversity (differences of race and gender, for example) fosters healthy dissent in organizations. Research shows that diverse groups ask tougher questions, share more information and discuss a broader range of relevant factors before making a decision. Diversity in professional backgrounds matters, too. In one study that tracked over a thousand small banks for nearly two decades, researchers found that banks with fewer bankers on

their boards were less likely to fail.² The explanation: non-bankers were more likely to disrupt groupthink by challenging seemingly obvious assumptions. As one bank CEO with a professionally diverse board put it: "When we see something we don't like, no one is afraid to bring it up."

Learn to stop

When faced with a problem or surprising event, our instinct is often to push forward. But sticking to a plan in the face of an emerging problem can easily lead to a disaster. Stopping gives us a chance to assess unexpected threats and figure out what to do before things get out of hand. It sounds simple, but in practice it can be nerve-racking for team members to trigger delays and disruption for something that might turn out to be a false alarm. This is something leaders need to actively encourage.

In some cases, stopping may not be an option. In those situations, effective crisis management requires rapidly cycling between doing, monitoring, and diagnosing. We *do* something to try and fix the system. We *monitor* what happens in response, checking to see if our actions had the intended effect. If they didn't, we use the information from our monitoring to make a new *diagnosis* and move to the next phase of *doing*. Research shows that teams that cycle rapidly in this

way are more likely to solve complex, evolving problems.

Imagine failure

Cognitive biases are often the source of the small errors that trigger major failures in complex, tightly coupled systems. Fortunately, there are some simple techniques we can use to make better decisions. One is the "premortem".³ Imagine that it's six months from now and that the ambitious project you're about to undertake has failed. The premortem involves working backward to come up with reasons for the failure and ideas for what could have been done to prevent it. The process is distinct from brainstorming about risks that *might* emerge: by asserting that failure *has already* happened, we tap into what psychologists call "prospective hindsight", letting us anticipate a broader and more vivid set of problems.

Similarly, the use of predetermined criteria to make decisions can prevent us from relying on our (often incorrect) gut reactions. Too often, we base decisions on predictions that are overly simplistic, missing important possible outcomes. For example, we might anticipate that a project will take between one and three months to complete. One way of being more structured about this kind of forecast is to use

² Alamandoz, J. and A. Tilcsik. 2016. "When Experts Become Liabilities: Domain Experts on Boards and Organizational Failure". *Academy of Management Journal* 59, 4 (2016): 1124–49.

³ Klein, G. 2007. "Performing a Project Premortem". *Harvard Business Review*. September 2007.

Subjective Probability Interval Estimates (SPIES), which entails dividing the *entire* possible range of outcomes into intervals and then estimating the probability of each. In our example, we might consider six intervals for the project's duration: zero to one month, one to two months, two to three months, three to four months, four to five months, and more than five months.⁴

Chris Clearfield and András Tilcsik are the co-authors of Meltdown: Why Our Systems Fail and What We Can Do About It (Penguin Press, 2018).

Conclusion

Even with all these techniques, things will go wrong. When they do, we need to do a better job of learning lessons. Too often there is practically a script: a superficial post-mortem is conducted, an individual or a specific technical problem is found to be at fault, and a narrow fix is implemented. Then it's back to business as usual. That is not good enough anymore. We need to face reality with a blameless process that not only identifies specific issues but also looks at broader organizational and systemic causes. Only by doing this—and by recognizing early warning signs, building scepticism into organizations, using structured decision tools and managing our crises better—will we be able to prevent the “unprecedented errors” that seem to be a defining feature of the modern world.

⁴ Haran, U. and A. Moore. 2014. “A Better Way to Forecast”. *California Management Review* 57 (1): 5–15.

Appendices



Appendix A | Descriptions of Global Risks and Trends 2019

Global Risks

A “global risk” is defined as an uncertain event or condition that, if it occurs, can cause significant negative impact for several countries or industries within the next 10 years.

To ensure legibility, the names of the global risks have been abbreviated in the figures. The portion of the full name used in the abbreviation is in bold.

	Global Risk	Description
Economic	Asset bubbles in a major economy	Unsustainably overpriced assets such as commodities, housing, shares, etc. in a major economy or region
	Deflation in a major economy	Prolonged near-zero inflation or deflation in a major economy or region
	Failure of a major financial mechanism or institution	Collapse of a financial institution and/or malfunctioning of a financial system that impacts the global economy
	Failure/shortfall of critical infrastructure	Failure to adequately invest in, upgrade and/or secure infrastructure networks (e.g. energy, transportation and communications), leading to pressure or a breakdown with system-wide implications
	Fiscal crises in key economies	Excessive debt burdens that generate sovereign debt crises and/or liquidity crises
	High structural unemployment or underemployment	A sustained high level of unemployment or underutilization of the productive capacity of the employed population
	Illicit trade (e.g. illicit financial flows, tax evasion, human trafficking, organized crime, etc.)	Large-scale activities outside the legal framework such as illicit financial flows, tax evasion, human trafficking, counterfeiting and/or organized crime that undermine social interactions, regional or international collaboration, and global growth
	Severe energy price shock (increase or decrease)	Significant energy price increases or decreases that place further economic pressures on highly energy-dependent industries and consumers
	Unmanageable inflation	Unmanageable increases in the general price levels of goods and services in key economies

Environmental	Extreme weather events (e.g. floods, storms, etc.)	Major property, infrastructure, and/or environmental damage as well as loss of human life caused by extreme weather events
	Failure of climate-change mitigation and adaptation	The failure of governments and businesses to enforce or enact effective measures to mitigate climate change, protect populations and help businesses impacted by climate change to adapt
	Major biodiversity loss and ecosystem collapse (terrestrial or marine)	Irreversible consequences for the environment, resulting in severely depleted resources for humankind as well as industries
	Major natural disasters (e.g. earthquakes, tsunamis, volcanic eruptions, geomagnetic storms)	Major property, infrastructure, and/or environmental damage as well as loss of human life caused by geophysical disasters such as earthquakes, volcanic activity, landslides, tsunamis, or geomagnetic storms
	Man-made environmental damage and disasters (e.g. oil spills, radioactive contamination, etc.)	Failure to prevent major man-made damage and disasters, including environmental crime, causing harm to human lives and health, infrastructure, property, economic activity and the environment
Geopolitical	Failure of national governance (e.g. failure of rule of law, corruption, political deadlock, etc.)	Inability to govern a nation of geopolitical importance as a result of weak rule of law, corruption or political deadlock
	Failure of regional or global governance	Inability of regional or global institutions to resolve issues of economic, geopolitical, or environmental importance
	Interstate conflict with regional consequences	A bilateral or multilateral dispute between states that escalates into economic (e.g. trade/currency wars, resource nationalization), military, cyber, societal, or other conflict
	Large-scale terrorist attacks	Individuals or non-state groups with political or religious goals that successfully inflict large-scale human or material damage
	State collapse or crisis (e.g. civil conflict, military coup, failed states, etc.)	State collapse of geopolitical importance due to internal violence, regional or global instability, military coup, civil conflict, failed states, etc.
	Weapons of mass destruction	The deployment of nuclear, chemical, biological, and radiological technologies and materials, creating international crises and potential for significant destruction

Societal	Failure of urban planning	Poorly planned cities, urban sprawl and associated infrastructure that create social, environmental and health challenges
	Food crises	Inadequate, unaffordable, or unreliable access to appropriate quantities and quality of food and nutrition on a major scale
	Large-scale involuntary migration	Large-scale involuntary migration induced by conflict, disasters, environmental or economic reasons
	Profound social instability	Major social movements or protests (e.g. street riots, social unrest, etc.) that disrupt political or social stability, negatively impacting populations, and economic activity
	Rapid and massive spread of infectious diseases	Bacteria, viruses, parasites, or fungi that cause uncontrolled spread of infectious diseases (for instance as a result of resistance to antibiotics, antivirals and other treatments) leading to widespread fatalities and economic disruption
	Water crises	A significant decline in the available quality and quantity of fresh water, resulting in harmful effects on human health and/or economic activity
Technological	Adverse consequences of technological advances	Intended or unintended adverse consequences of technological advances such as artificial intelligence, geo-engineering and synthetic biology causing human, environmental, and economic damage
	Breakdown of critical information infrastructure and networks (Critical information infrastructure breakdown)	Cyber dependency that increases vulnerability to outage of critical information infrastructure (e.g. internet, satellites, etc.) and networks, causing widespread disruption
	Large-scale cyber-attacks	Large-scale cyber-attacks or malware causing large economic damages, geopolitical tensions, or widespread loss of trust in the internet
	Massive incident of data fraud/theft	Wrongful exploitation of private or official data that takes place on an unprecedented scale

Trends

A “trend” is defined as a long-term pattern that is currently evolving and that could contribute to amplifying global risks and/or altering the relationship between them.

Trend	Description
Ageing population	Ageing populations in developed and developing countries driven by declining fertility and decrease of middle- and old-age mortality
Changing landscape of international governance	Changing landscape of global or regional institutions (e.g. UN, IMF, NATO, etc.), agreements or networks
Changing climate	Change of climate, which is attributed directly or indirectly to human activity, that alters the composition of the global atmosphere, in addition to natural climate variability
Degrading environment	Deterioration in the quality of air, soil and water from ambient concentrations of pollutants and other activities and processes
Growing middle class in emerging economies	Growing share of population reaching middle-class income levels in emerging economies
Increasing national sentiment	Increasing national sentiment among populations and political leaders affecting countries' national and international political and economic positions
Increasing polarization of societies	Inability to reach agreement on key issues within countries because of diverging or extreme values, political or religious views
Rising chronic diseases	Increasing rates of non-communicable diseases, also known as “chronic diseases”, leading to rising costs of long-term treatment and threatening recent societal gains in life expectancy and quality
Rising cyber dependency	Rise of cyber dependency due to increasing digital interconnection of people, things and organizations
Rising geographic mobility	Increasing mobility of people and things due to quicker and better-performing means of transport and lowered regulatory barriers
Rising income and wealth disparity	Increasing socioeconomic gap between rich and poor in major countries or regions
Shifting power	Shifting power from state to non-state actors and individuals, from global to regional levels, and from developed to emerging markets and developing economies
Rising urbanization	Rising number of people living in urban areas resulting in physical growth of cities

Appendix B | Global Risks Perception Survey and Methodology

The Global Risks Perception Survey (GRPS) is the World Economic Forum's source of original risks data, harnessing the expertise of the Forum's extensive network of business, government, civil society and thought leaders. The survey was conducted from 6 September to 22 October 2018 among the World Economic Forum's multistakeholder communities, the professional networks of its Advisory Board, and members of the Institute of Risk Management. The results of the GRPS are used to create the Global Risks Landscape, Interconnections Map, and Trends Map presented at the beginning of the report, and to offer insights used throughout.

Both the GRPS and the *Global Risks Report* adopt the following definitions of global risk and trend:

Global risk: A "global risk" is an uncertain event or condition that, if it occurs, can cause significant negative impact for several countries or industries within the next 10 years.

Trend: A "trend" is defined as a long-term pattern that is currently evolving and that could contribute to amplifying global risks and/or altering the relationship between them.

Methodology

The world in 2019

In the first section of the GRPS, respondents were asked to assess whether the risks associated with 42 current issues would increase or decrease in 2019 compared to 2018. For a list of these issues, see Figure 1.2 (page 12), which summarizes the results.

The possible answers ranged from "significantly decrease" to "significantly increase" along a 1–5 scale. For each issue, the share for each answer ("significantly increase", "somewhat increase", "no change", "somewhat decrease" or "significantly decrease") was

obtained by dividing the number of respondents who selected that answer by the total number of answers.

In most cases, respondents were asked to base their answers on developments in their region. They were asked the following question: "In your region specifically, do you think that in 2019 the risks presented by the following issues will increase or decrease compared to 2018?" For the following seven issues, the question was framed globally: "On a global level, do you think that in 2019 the risks presented by the following issues will increase or decrease compared to 2018?"

- Economic confrontations/frictions between major powers¹
- Political confrontations/frictions between major powers
- Erosion of global policy coordination on climate change
- Erosion of multilateral trading rules and agreements
- Loss of confidence in collective security alliances
- Regional conflicts drawing in major power(s)
- State-on-state military conflict or incursion

¹ In last year's Global Risks Perception Survey 2017–2018, respondents were asked to assess "Political or economic confrontations/frictions between major powers". In this year's survey, we separated this into two separate issues, one economic and one political.

The global risks landscape

For each of the 30 global risks listed in Appendix A, respondents were asked to assess (1) the likelihood of the risk occurring globally within the next 10 years, and (2) its negative impact for several countries or industries over the same timeframe.

For the first of these questions, the possible answers ranged from “very unlikely” to “very likely” along a 1–5 scale (1 = very unlikely, 5 = very likely). For the second question, respondents could select one of five choices: “minimal”, “minor”, “moderate”, “severe”, or “catastrophic”, again using a 1–5 scale (1 = minimal, 5 = catastrophic). Respondents

could choose “no opinion” if they felt unable to provide an informed answer, and they could also leave the question completely blank.

Partial responses for any risk—those assessing only the likelihood of occurrence or only the negative impact—were dropped.

A simple average for both likelihood and impact for each of the 30 global risks was calculated on this basis. The results are illustrated in the Global Risks Landscape 2019 (Figure I).

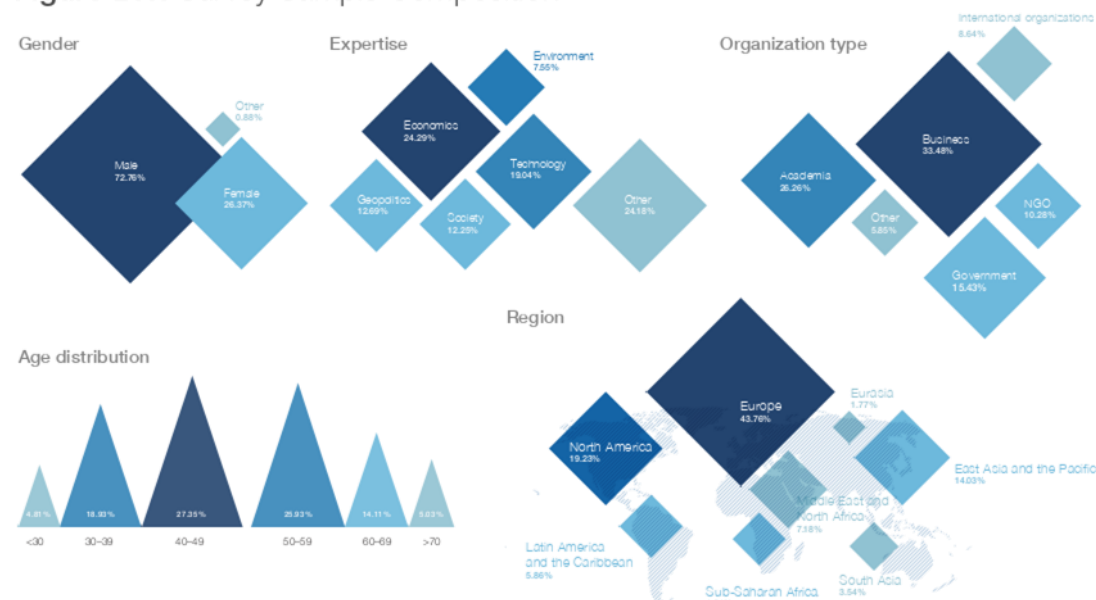
Formally, for any given risk i , its likelihood and impact—denoted respectively likelihood_i and impact_i —are:

$$\text{likelihood}_i = \frac{1}{N_i} \sum_{n=1}^{N_i} \text{likelihood}_{i,n}$$

$$\text{impact}_i = \frac{1}{N_i} \sum_{n=1}^{N_i} \text{impact}_{i,n}$$

where N_i is the number of respondents for risk i , and $\text{likelihood}_{i,n}$ and $\text{impact}_{i,n}$ are, respectively, the likelihood and impact assigned by respondent n to risk i . The likelihood is measured on a scale of 1–5 and the impact on a scale of 1–5. N_i is the number of respondents for risk i who assessed both the likelihood and impact of that specific risk.

Figure B.1: Survey Sample Composition



Source: World Economic Forum Global Risks Perception Survey 2018–2019.

Note: Reported shares are based on the number of participants (916) who responded to biographical questions.

Global risks interconnections

Part 3 of the GRPS assesses interconnections between pairs of global risks. Part 4 assesses interconnections between global risks and a set of underlying trends or drivers.

For the interconnections between pairs of risks, survey respondents were asked the following question: "Global risks are not isolated, and it is important to assess their interconnections. In your view, which are the most **strongly connected** global risks? Please select three to six pairs of global risks." The results are illustrated in the Global Risks Interconnections Map 2019 (Figure II).

For the interconnections between trends and risks, respondents were first asked to identify up to three trends (for the full list, see Appendix A) that they considered most important in shaping the global agenda in the next 10 years. They were then asked to identify the three global risks that are most strongly driven by each of the three chosen trends. The two questions read: "What are the **three most important trends** (in no particular order) that will shape global development in the **next 10 years?**" followed by "For each of the three trends identified [in the previous question,] select up to three global



risks . . . that are most **strongly driven** by these trends." The results are illustrated in the Risks-Trends Interconnections Map 2019 (Figure II).

In both cases, a tally was made of the number of times each pair was cited. This value was then divided by the count of the most frequently cited pair. As a final step, the square root of this ratio was taken to dampen the long-tail effect (i.e. a few very strong links and many weak ones) and to make the differences more apparent across the weakest connections. Formally, the intensity of the interconnection between risks i and j , or between trend i and risk j , denoted interconnection $_{ij}$, corresponds to:

$$\text{interconnection}_{ij} = \sqrt{\frac{\sum_{n=1}^N \text{pair}_{i,n}}{\text{pair}_{\max}}}$$

with

$$\text{pair}_{\max} = \max_j \left(\sum_{n=1}^N \text{pair}_{j,n} \right)$$

where N is the number of respondents.

Variable $\text{pair}_{i,n}$ is 1 when respondent n selected the pair of risks i and j as part of his/her selection. Otherwise, it is 0. The value of the interconnection determines the thickness of each connecting line in Figures II and III, with the most frequently cited pair having the thickest line.

In the Global Risks Landscape and the Risks-Trends Interconnections Map, the size of each risk is scaled according to the degree of weight of that node in the system. Moreover, in the Risks-Trends Interconnections Map, the size of the trend represents the perception of its importance in shaping global development (answer to the first part of the question on trend, as explained above); the most-frequently cited trend is the one considered to be the most important in shaping global development.



The placement of the nodes in the Risks-Trends Interconnections Map was computed using ForceAtlas2, a force-directed network layout algorithm implemented in Gephi software, which minimizes edge lengths and edge crossings by running a physical particle simulation.²

Completion thresholds

We did not apply an overall threshold for the GRPS completion rate. Instead, we set specific validity criteria for each section of the survey:

Part 1 "The World in 2019": Only respondents who assessed at least three of the risks listed in this question were considered (916 respondents met the criterion).

Part 2 "Assessment of Global Risks": The answers from the 885 respondents who assessed the impact and likelihood of at least one risk were used to compute the results (the answer "no opinion" is considered a valid answer, but leaving the question entirely blank is not).

Part 3 "Global Risk Interconnections": The answers from the 635 respondents who selected at least one valid pair of risks were used in the computation.

Part 4 "Assessments of Trends": The answers from the 749 respondents who selected at least one combination of an important trend and at least one associated risk were used in the computation.

Figure B.1 presents some key descriptive statistics and information about the profiles of the respondents.

² Jacomy, M., T. Venturini, S. Heymann, and M. Bastian. 2014. "ForceAtlas2: A Continuous Graph Layout Algorithm for Handy Network Visualization Designed for the Gephi Software". *PLoS ONE* 9 (6): e98679. doi:10.1371/journal.pone.0098679

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RESPONSE TO THE DISCUSSION PAPER

A New Risk Mangement and Internal Audit Framework

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A NEW RISK MANAGEMENT AND INTERNAL AUDIT FRAMEWORK
for local councils in NSW
Response to the Discussion Paper
Riverina Joint Organisation

Introduction

This response to the Discussion Paper on A New Risk Management and Internal Audit Framework has been prepared after consultation with the Riverina Joint Organisation's Member Councils. The Riverina Joint Organisation's Member Councils are: Bland, Coolamon, Cootamundra- Gundagai, Greater Hume, Junee, Lockhart and Temora councils as well as Riverina Water and Goldenfields Water County Councils.

Our Members agree with the Minister's assertion that risk is inevitable in any organisation including local councils. Councils across NSW have recognised this, with over 70% already having in place internal audit and risk regimes. Our Members are disappointed that the Discussion Paper has not reviewed the regimes that are already in place, in order to identify the shortcomings that justify the introduction of the very expensive and complex approach proposed in the Discussion Paper.

Further, the Discussion Paper, which details the regulatory requirements and operational Framework, has been prepared with virtually no consultation with the sector. The Minister states that the Framework reflects the "unique needs, structure and resources of NSW Local Government". However, our Members question how the proposed approach will "ensure that councils achieve their strategic objectives in the most efficient, effective and economical manner" given the cumbersome, expensive and resource intensive approach that is being proposed.

Our preliminary costings for the implementation of the proposed Framework, which are attached in **Appendix A** show that the estimated total cost for Medium and Small sized councils will be over \$450,000 per annum. The cost falls significantly in a shared arrangement but is still over \$170,000 per annum. However, this is based on the assumption that it is feasible for the Chief Audit Executive (CAE) to work for all nine Riverina JO Member Councils and the JO. It is also based on the assumption that the Audit, Risk and Improvement Committee (ARIC) will be able to cover all its work for the Member Councils over 2 days of meetings in a single location and that there are only five ARIC meetings per year. If meetings need to be held in individual LGAs then the travel, accommodation and meeting payments will be considerably higher.

The above costings do not factor in the additional time burdens on council staff to meet the demands of the CAE and the ARIC for the provision of information and attendance at meetings.

In relation to the application of the regime to the operation of Joint Organisations, our Members agree that the complexity of the regime is disproportionate to the operations of not only the Riverina JO but we would suggest most of the JO operations across NSW. Our Members agree that this regime should not apply to Joint Organisations.

Response to the Key Questions

We note that respondents have been asked to address key questions in relation to the proposal. Our responses to the key questions are below:

Will the proposed internal audit Framework achieve the outcomes sought?

This is a complex, process-driven and expensive approach and given its substantial cost it should achieve the outcomes sought. However, the achievement of the outcomes will undoubtedly divert much needed resources from front-line services and facilities. There is no hard evidence that the process will result in increased efficiencies and savings, consequently our Members believe the cost/benefit does not justify its implementation.

We believe more cost-effective approaches would achieve the same outcomes. If the Office of Local Government had undertaken a review of the existing arrangements in the 70% of councils that already have an audit function in place we are sure that a more affordable approach would have been identified.

What challenges do you see for your council when implementing the proposed Framework?

The cost of the delivery will be a significant challenge for small and medium sized councils.

The significant requirements for appointment to an ARIC will be a major barrier to the effective implementation of the regime and is likely to result in significant cost impositions. Committee members must be prequalified via the NSW Government's Prequalification Scheme. The process requires applicants to meet evaluation criteria including, among other things:

- Extensive senior level experience in governance and management of complex organisations
- Functional knowledge in areas such as risk management, performance management, human resources management, internal and external auditing, financial reporting, accounting, management control Frameworks, financial internal controls, governance or business operations.
- Possession of a relevant professional qualification or membership such as Certified Internal Auditor, Certified Practising Accountant, Certified Practising Risk Manager, Member of the Australian Institute of Company Directors.
- Must also be able to demonstrate leadership qualities, an ability to communicate complex and sensitive assessments tactfully and sound understanding of governance, accountability, financial reporting, internal audit operations and risk management principles.

Exclusions include current employees of all NSW public sector agencies, in addition the independent committee member cannot:

- be a councillor of any council in Australia, a candidate at the last election of a council or a person who has held office in a council during its previous two terms or be employed (currently or during the last three years) by any council in Australia or have a close personal or business relationship with a councillor or a person who has a senior role in the council;
- be a current service provider to the NSW Audit Office, or have been a service provider during the last three years;
- currently, or within the last three years, provided any material goods or services (including consultancy, legal, internal audit and advisory services) to the council which directly affect subjects or issues considered by the Audit, Risk and Improvement Committee;
- be a substantial shareholder, owner, officer or employee of a company that has a material business, contractual relationship, direct financial interest or material indirect financial interest with the council or a related entity, or have an immediate or close family member who is, which could be perceived to interfere with the individual's ability to act in the best interests of the council; or

- currently or previously have acted as an advocate of a material interest on behalf of the council or a related entity.

The pre-qualification criteria is restrictive and precludes many who would add value to Local Government audit processes by the mere fact that they have contextual knowledge about council policies and practices. For example, a retired local government auditor would be perfectly placed to ask relevant questions about council finances and question the conduct of audits. However, under the pre-qualification guidelines, he or she would be prohibited from consideration by the fact that they had been engaged in the local government sector.

Similarly, persons who are currently serving on Audit Committees for councils would be precluded from serving on an ARIC because of the prohibition on those who had provided goods or services to council in the last 3 years.

While excluding people who had previously served as elected representatives on a council that the ARIC is auditing, is understandable, the total exclusion of any person that has ever served on a council anywhere in Australia makes little practical sense. The Local Government knowledge these people hold would be a valuable asset in assessing and reviewing council operations. The current criteria prohibit current and former councillors from all jurisdictions from seeking pre-qualification, which is "overkill". This means that a person who served on a council in Western Australia is prohibited from being part of an ARIC.

Rural and regional councils are going to struggle to find suitable people to serve on their ARIC and the long list of prohibitions is going to make it almost impossible. This may force councils to choose from a limited pool of metropolitan-based people that have little practical experience or knowledge of the operation of a council in a rural, remote or regional context. In addition, it is likely to increase the costs associated with the operation of the ARIC because of transport and accommodation costs.

Finally, we believe that even in a shared arrangement, councils in rural areas are likely to struggle to find suitably qualified people to fill the CAE position. This position requires a very specific set of skills, and generally those with those skills in regional areas are in high demand. The Framework does facilitate the use of an existing senior staff member in the role however because councils cannot put someone in the position that has previously had carriage of an area that is being audited. The position cannot be out-sourced unless through a shared arrangement. Our Members are very concerned that they will not be able to easily recruit for this specialist position.

Does the proposed Framework include all important elements of effective internal audit and risk Framework?

Given the significant costs and resourcing to be allocated to the Framework our Members believe that the important elements are included.

However, it is not clear how the development of the proposed Risk Management Framework will contribute to the Minister's stated goal of achieving a council's "strategic objectives in the most efficient, effective or economical manner". At a time when there is a lot of focus on stripping away "red tape" to improve efficiency; the complexity, reporting, paperwork, staffing and administration required to deliver the proposed Framework cannot possibly result in the more efficient, effective or economic delivery of a council's strategic objectives.

Taking into account the costs associated with engaging the ARIC, the CAE, the Risk Management Officer and additional administrative staff, the logical outcome, particularly for rural councils will be a reduction in resourcing of front-line services. There is a danger that focusing inward on the

examination of council processes will be at the cost of the on-ground services that residents genuinely value.

We believe that the Framework does not recognise the distinct differences and resource capabilities of rural councils compared to metropolitan councils and State agencies. While there is an opportunity to embark on joint arrangements, this still results in expensive outcomes. It would have been far better if frameworks had been developed that reflected the operational realities of councils across NSW, instead a regime that applies to the City of Sydney applies equally to Coolamon Shire Council.

In relation to the fees proposed for the Chairperson, it appears that the Chair will be paid a flat rate only. If multiple meetings are required, then Chairs who took on the position believing the obligation was for 4 meetings a year, may feel they are not being adequately compensated for the additional work. It may be better to set the fixed fee at a lower level and include a meeting fee on top. If meetings for Joint Arrangements cannot be held in a central location and the ARIC members are required to travel this is likely to increase questions relating to the Chair's remuneration.

Is there anything you don't like about the proposed Framework?

Our Members do not believe that the cost warrants the benefits that will accrue from the adoption of the Framework, particularly for small rural and remote councils. The Framework is too complex and too expensive, the cost of delivery will detract from the delivery of on-ground services and support to the community.

The Minister states in the Foreword that the Framework is "based on international standards and the experience of Australian and NSW government public sector agencies". It is a Framework suited to large complex organisations where the most senior staff have little contact with day-to-day operational staff and where ministerial interactions and reporting do not occur with the same frequency and depth as occurs at monthly council meetings where staff report to councillors on every area of council operations.

The Framework ignores the flatter staffing structures of rural councils where the General Manager interacts with every senior staff member every day and most operational staff on at least a weekly basis. There are already checks and balances in place in these councils because of their proximity to staff, councillors and the community. The councillors are charged with ensuring the council's strategic objectives are delivered efficiently, effectively and economically and they do this at every council meeting that is held.

Our Members are concerned that the Framework fails to recognise the role that councillors play in monitoring the operation of a council. The ARIC's powers are significant and we question how they will complement the role of councillors. Residents elect councillors to, among other things, provide oversight of a council's operations and budgets and they hold them accountable for this at every election. Consequently our members are concerned that there appears to be no effective role for councillors in the operation of the ARIC.

We are concerned that there is no limit on the number of meetings that can be called by the ARIC Chair and that this could result in significant cost imposts on councils who do not appear to be in a position to question the calling of additional meetings. There is nothing in place to control the ARIC once it is established.

The ARIC appears to have complete *carte blanche* to speak to whomever it wants, meet whenever it wants and use whatever council resources it deems necessary, as well as controlling the work of a senior council staff member, the CAE, and by extension whoever is providing support to the CAE. If the council and the ARIC end-up at loggerheads where is the resolution process? Who has precedence, the elected council or the ARIC?

In addition, the role of the CAE could be seen to take precedence over the General Manager. If the CAE demands information or work from a staff member who does the staff member answer to? If there are competing demands on the staff member's time, which there inevitably will be, where is the direction that states that the General Manager is the sole arbiter of what takes priority. The Framework appears to be silent on this issue.

An example of the ARIC taking precedence over the council arises if the council decides to combine the CAE roles with Risk Management Co-ordinator's role. The Framework requires that the ARIC endorse the proposal before the combined role can commence, this requirement undermines the authority of the council as the governing body. It is not an appropriate arrangement, this is a decision that should rest solely with the council, after consultation with the ARIC.

Our Members do not support the proposal that once every four years the ARIC is audited by an external auditor to determine its effectiveness. This is a task that should be undertaken by councillors, or a committee of council. In the proposed Framework councillors have no role; therefore they are independent of the ARIC. Consequently they should be in a position to review the operations of the ARIC in order to determine whether the investment they have made in its operation and all its supporting administrative arrangements have effectively and efficiently delivered outcomes for council.

We are also concerned that ARIC's work appears to be duplicating some of the work already undertaken by the NSW Audit Office. There needs to be a clear delineation of boundaries between ARIC and the Audit Office.

Can you suggest any improvements to the proposed Framework?

The Department should develop a framework that reflects the flatter operational structure of rural councils. The proposed Framework would work for large State agencies where staff are operating in multiple locations and there is minimal day-to-day interaction between the most senior staff and those charged with delivering the agency's core objectives. Having another senior staff member, the CAE, running around the council requesting information from stretched staff on activities that have already been reported to their senior managers (who have then included the information in reports to councillors) is a duplication of oversight that will bring very little in the way of a return to council.

The application of the proposed Framework to Joint Organisations is completely inappropriate. Even in a shared arrangement, the Framework cannot work for a Joint Organisation. As stated above this is a Framework appropriate for a highly complex organisation, which the JOs are not. The imposition of this level of red tape on already stretched JOs will push many to breaking point. An organisation with one full-time staff member and an annual budget of less than \$500,000, as is the case with most JOs in NSW, does not require the imposition of a complex internal audit function.

We strongly suggest removing the need for a CAE; this is an expensive new position that will be difficult to fill. The CAE cannot undertake Internal Audit activities on any council operations or services that he/she has held responsibility for in the last 5 years, which means that an existing

senior staff member cannot be moved over to the position on either a full-time or part-time basis. The position cannot be outsourced unless it is in a joint arrangement, and even then, it is likely that the best qualified person would still be drawn from the staff of one of the Member Councils. This would mean that the joint CAE could not have carriage over audits in the council from which he or she was original employed.

It has been suggested that the CAE position and the Risk Management Officer position could be combined, however our Members do not believe this is a feasible approach. The CAE position is clearly a senior management role, while the Risk Management Officer is not; in addition, we believe the skill sets required for each position are completely different.

The criteria that has been established for a position on the ARIC will almost certainly result in regional and rural councils having to recruit from a metropolitan area, this will significantly increase costs associated with travel and accommodation. The criteria for members of ARIC should be amended to allow councillors or staff from councils that have not served on the engaging council to serve on the ARIC. This would ensure that people who actually understood how Local Government works could be appointed to the ARIC. The current Australia-wide ban is completely unnecessary.

The criteria should also permit a person who has not, in the last 18 months, provided goods or services to the engaging council to serve on the ARIC. As it currently stands any accountant, lawyer or other consulting professional that has rendered services to the engaging council in the last 3 years cannot be considered. Given the limited pool of people available in rural areas this will restrict the ability of councils to recruit locally or even regionally.

There is a complete block on anyone that has previously acted as an advocate of a material interest on the behalf of the council or a related entity, again this seems extreme and should be restricted to a period of not more than 18 months. Our Members also believe that councillors from the engaging council should be permitted to serve as voting members on the ARIC. This would increase the transparency of the ARIC and providing independent members outnumber council appointed councillors should not cause any significant issues.

Finally our Members strongly advocate for the Government to consider alternative models of delivery of the audit function. A number of our Members already have audit regimes in place that are cost-effective and are delivering benefits to their councils. We believe that there is a lot that can be learned from these models that would reduce the complexity and cost of what is currently being proposed. We have included an outline of these models at **Appendix B**.

Summary

Our Members agree that it is not appropriate to apply the proposed Framework to the operation of Joint Organisations. The approach is far too complex and unwieldy for the JOs who commonly have only one or two staff members at most. The proposal if implemented will be unaffordable for most Joint Organisations.

In relation to the implementation of the Framework for the JO's Member Councils, our Members agree that it is far too complex and expensive. It fails to recognise the flatter administrative structure that is common to most rural councils, and also fails to recognise the existing level of reporting that occurs between staff and councillors, which minimises risk. The benefits that will be derived from

the new Framework will not justify the costs of delivery. Even if our Member Councils were to share the burden, the costs would still exceed the benefits that are likely to flow from implementation.

The ARIC membership qualifications are far too narrow. The criteria should be reviewed to allow people who have recent experience in Local Government to serve on the ARIC. If the current criteria are approved, then rural and remote councils will be forced to engage people from metropolitan areas to serve on the ARIC who are likely to have had minimal exposure to rural and regional communities and are consequently likely to be less effective in the role. There are unique challenges that councils operating in a rural or remote areas face every day and it is essential that councils have the capacity to appoint people that have an understanding of those challenges.

In addition, engaging metropolitan based members will generate additional costs associated with travel and accommodation, while we appreciate there is an option for teleconferencing for ARIC, we believe in reality this will not occur given the nature of the work the ARIC is undertaking.

Our Members are concerned that the ARIC has far too much power to direct council staff and resources. There are no provisions for the resolution of issues between the ARIC and a council and more concerning the Framework does not acknowledge council as the governing body, ensuring its decision-making takes precedence over the ARIC.

Our Members agree that the same outcomes could have been achieved through the adoption of one of the alternative models that we have outlined in Appendix B. We recognise that the models we have put forward are only a small sample of what 70% of the councils in NSW are already doing. Our Members believe that it was open to the Government to analyse these models of operation particularly in rural and remote councils to develop a framework that was actually affordable and feasible for councils that are not located in a metropolitan location.

Our Members request that the proposed Framework be reviewed with the goal of developing a regime that will deliver benefits that equate to the cost of implementation, particularly for rural and remote councils. Our Members would welcome the opportunity to work with the State Government on the development of a more cost-efficient regime for rural and regional councils.

APPENDIX A

1. Single Council Operation – Estimated Costs

EXPENSE ITEM	COST	Comments
Chief Audit Executive		
Salary	\$ 150,000.00	
On-costs	\$ 54,000.00	
	\$ 204,000.00	
Risk Management Officer		
Salary	\$ 90,000.00	
On-costs	\$ 32,400.00	
	\$ 122,400.00	
Admin Support (PT)		
Salary	\$ 40,000.00	
On-costs	\$ 14,400.00	
	\$ 54,400.00	
Other Costs		
Car	\$ 15,000.00	
Phone	\$ 2,000.00	
Office Miscellaneous	\$ 6,000.00	
Printing etc	\$ 5,000.00	
	\$ 28,000.00	
TOTAL STAFF COSTS	\$ 408,800.00	
ARIC Operation: Small Council (4 meetings per year + 1 Special Meeting for Financial Statements)		
Chairman	\$ 12,522.00	
Members x 2	\$ 12,550.00	
Superannuation	\$ 2,381.84	
Travel	\$ 6,750.00	5 meetings @\$450
Accommodation and Sustainance	\$ 3,750.00	5 Meetings x 1 night and 1 day @\$250
Meeting costs	\$ 1,250.00	5 meetings 2 \$250
TOTAL ARIC COSTS	\$ 39,203.84	
ARIC Operation: Medium Council (4 meetings per year + 1 Special Meeting for Financial Statements)		
Chairman	\$ 16,213.00	
Members x 2	\$ 16,210.00	
Superannuation	\$ 3,080.19	
Travel	\$ 6,750.00	5 meetings @\$450
Accommodation and Sustainance	\$ 3,750.00	5 Meetings x 1 night and 1 day @\$250
Meeting costs	\$ 1,250.00	5 meetings 2 \$250
TOTAL ARIC COSTS	\$ 47,253.19	
TOTAL COSTS OF PROPOSED FRAMEWORK: SMALL COUNCIL	\$ 448,003.84	
TOTAL COSTS OF PROPOSED FRAMEWORK: MEDIUM COUNCIL	\$ 456,053.19	

2. Joint Operation: Estimated Costs

EXPENSE ITEM	COST	Comments
Chief Audit Executive		
Salary	\$ 150,000.00	
On-costs	\$ 54,000.00	
	\$ 204,000.00	
Risk Management Officer internal position in each council		Councils employ their own RMO
Admin Support (F/T)		
Salary	\$ 75,000.00	
On-costs	\$ 27,000.00	
	\$ 102,000.00	
Other Costs		
Car	\$ 20,000.00	Additional Travel
Phone	\$ 2,000.00	
Office Miscellaneous	\$ 6,000.00	
Printing etc	\$ 5,000.00	
Total Other Costs	\$ 33,000.00	
TOTAL COSTS	\$ 339,000.00	
ARIC Operation: Joint Arrangement (4 meetings per year + 1 Special Meeting for Financial Statements)		Joint arrangement will require 2 sitting days
Chairman	\$ 20,920.00	
Members x 3	\$ 62,760.00	Additional Member added due to extra work
Superannuation	\$ 7,949.60	
Travel	\$ 6,750.00	
Accommodation and Sustainance	\$ 7,500.00	Councils meet cost otherwise JO membership fees will rise
		More support required internally so F/T position
Meeting costs	\$ 1,250.00	
TOTAL ARIC COSTS	\$ 107,129.60	
TOTAL COSTS OF PROPOSED FRAMEWORK: JOINT APPROACH	\$ 446,129.60	
Shared by 9 Members and JO (but only councils pay)	\$ 49,569.96	If JO contributes then Membership fees rise to cover it.
Plus Each Council engages a Risk Management Officer	\$ 122,400.00	
Cost per Council	\$ 171,969.96	

APPENDIX B**ALTERNATIVE MODELS FOR THE DELIVERY OF INTERNAL AUDITS****Model One: Internal Audit Alliance**

An alliance of six councils have joined together to audit each other, the councils jointly share an Internal Auditor who sits as an independent on each Internal Audit Committee.

The Model has been operating successfully for over 10 years.

Structure

Each council has its own Internal Audit committee and appoints its members according to the adopted Charter or Policy. The Committee is usually comprised of:

- General Manager and a Director level staff member from one of the alliance member councils (independent members)
- two councillors; and
- an external independent auditor (the cost of which is shared across the alliance members).

Each council has adopted its own policy/charter for the Internal Audit Committee. The work of the Internal Auditor is supported by each Alliance council's staff, for example the Manager of Business and Governance or the Manager of Corporate Services.

The Committee meets 4 times a year with each of the alliance members.

Risk Management Framework

Modules or areas of investigation identified by the Internal Audit Alliance are investigated by the Internal Auditor, who then provides a series of recommendations. To date the following areas have been investigated by the Internal Auditor:

- Legislative Compliance,
- Fraud,
- Delegations,
- Policy,
- Payroll and HR,
- Procurement
- Contract Management

The development of a Corporate Risk Register is currently underway and this will identify mitigation strategies and appropriate internal controls throughout the organisation. Risk mitigation controls will be considered during strategic planning and corporate plan development.

Reporting, Monitoring and Evaluation

The Internal Auditor reports to the General Manager in the first instance. Internal Audit reports are presented to the Internal Audit Committee. The Internal Auditor speaks to the reports and responds to queries from the Committee. Management provide feedback and management responses are maintained on the Committee's Status Report.

The Alliance has purchased the Pulse software program to manage the IA function and it has been installed. Monitoring and evaluation of the Internal Audit activities and those of the Committee are recorded in the Status Report

Cost of the Model to the Participating Councils

The model costs each of the participating councils approximately \$15,000-\$20,000 per annum excluding staff time.

Outcomes achieved through the Process

- Each module or area that has been investigated has resulted in improvements to processes, policy development and the creation of action plans to further manage existing risks.
- The ARIC has heightened the awareness of the importance of risk management throughout the Alliance councils, identified existing gaps and areas of high risk and provided needed incentive to devote resources to the development of a risk management Framework. In an environment where resources are spread thin, risk management is not generally a top priority. The Committee has contributed to incorporating risk management within the regular business of Council.

Best features of the Model

- The Internal Audit Alliance Model currently in place is suited for smaller rural Councils as costs are kept to a minimum and shared across the Alliance.
- The identification and approach to the development of a risk management Framework is structured to accommodate small Councils.
- While each Council within the Alliance is independently evaluated, the opportunity to actively network and share information with Councils of a similar size and risk profile is valuable and should not be underestimated.

Weaknesses of the Model

- This model is reliant on a skilled Internal Auditor with a deep understanding of Local Government as well as effective management by Internal Alliance participants.

Model Two: Internal Audit Committee servicing a Single Council

This model operates within a single council that has made the decision to form an Audit, Risk and Improvement Committee (ARIC) and engaged independent committee members who have senior management experience, preferably in local government, financial skills and experience with internal audit and risk management systems.

The actual audits are undertaken by external providers who audit areas determined by the Committee.

The model has been successfully operating for over 5 years.

Structure

The structure of the ARIC is as follows:

- Independent Chair
- Independent Member (1)

- Two councillors
- Mayor attends in an ex-officio capacity.
- Senior staff attached as observers/advisors

The Director of Corporate and Community Services is responsible for the ARIC and internal audit program in addition to all other aspects of the role. There is no other administrative support available. In addition Council has employed a full-time Risk Management Officer.

Council has adopted a Charter for the operation of the Committee.

Risk Management Framework

Council has adopted a Risk & WHS Management System which consists of a set of program elements which include policies, planning activities, responsibilities, procedures and practices, processes and resources. The System consists of 4 elements:

1. *Key policies and commitment* - clearly stating the direction, intentions and commitment to risk management and continuous improvement.
2. *Planning* – developing a Risk & WHS Plan consistent with Council’s objectives.
3. *Implementation* – Council develops the capabilities and support mechanisms necessary
4. *Evaluation and Management Review* – performance is regularly reviewed at both the workplace and corporate levels to continually improve its overall Management System.

Reporting, Monitoring and Evaluation

The external auditor conducts the audit in the areas selected by the ARIC. The completed audit reports are presented to the ARIC.

All recommendations from the internal audit reports are presented to the ARIC and maintained in an Audit Matrix. Progress on implementation of recommendations is updated in the Matrix and reported to ARIC quarterly.

Cost of the Model

The annual budget \$27,000 not including staff time, as follows:

ARIC operations including meeting fees:	\$ 7,000
Internal Audit Activities:	\$20,000

Outcomes achieved through the Process

- Improved efficiency and better governance through the implementation of recommendations emanating from Internal Audit projects.
- Direct cost savings in areas such as IT.
- Improved confidence in financial reporting resulting from an independent assessment being undertaken by ARIC and reported to council in the annual financial statements.

Best features of the Model

- Cost effective and achievable within current budget limitations and resource allocations.
- ARIC membership is providing valuable input into financial management and governance matters.

Weakness of the Model

- Implementation of recommendations from internal audit reviews is often outside current resourcing capabilities leading to increased pressure on staff. This is exacerbated when outstanding internal audit recommendations are highlighted through the external audit process and find their way into the final management letter issued by NSW Audit Office. When that happens, what was an internal matter becomes an external matter under the spotlight of NSW Audit Office resulting in even more pressure to implement something that is simply beyond the capability of the organisation.

Model Three: Internal Audit Committee servicing a County Council

This model operates within a single county council and is similar in operation to Model Two. The council has made the decision to form an Audit, Risk and Improvement Committee (ARIC). The model uses two independent members who have recent and relevant knowledge and experience in local government, accounting or finance, auditing, governance with internal audit and risk management systems.

The actual audits are undertaken by external providers who audit areas determined by the ARIC.

The model has been successfully operating since 2012

Structure

The structure of the ARIC is as follows:

- Two Independent Members
- One councillor

ARIC meetings are attended by:

- General Manager
- Secretariat Support
- Governance and Records' Officer
- Manager Corporate Services
- Manager Governance and Human Resources
- Other management as invited or required by ARIC

General Manager, Corporate Services, Governance and HR units provide support to ARIC and Internal Audit.

The ARIC has a charter which is adopted by Council.

Description of Risk Management Framework*Structure*

- Governance and HR unit
- Audit and Risk Committee meets 5 times per year
- Internal Audit (contractor)
- External Audit (State assigned)
- Minimal staff resources allocated to risk management function

Policy and procedures

- Risk Management policy
- Risk Management plan
- Risk Management Action plan (6 monthly review)
- Risk Register (6-month review with Executive Management team) – includes Councils risk criteria and treatment plans
- Minutes of ARIC meetings are tabled at Council meetings following ARIC meeting
- Internal audit work program developed every 5 years with 3 audits per year – contracted. Management response provided monitored and reported

Reporting, Monitoring and Evaluation

The external auditor conducts the audit in the areas selected by the ARIC. The completed audit report is provided to the General Manager for response, there are 3 reports per year.

The internal report is provided to the ARIC for review and to provide feedback to management. The Internal Auditor attends the ARIC meetings. The ARIC reports to Council on progress and the implementation of corrective actions.

The ARIC provides an annual report to the County Council's Board. The ARIC Charter makes provision for Internal Audit function to report annually against agreed KPIs.

An Audit Follow-up Plan is submitted to quarterly meetings. Data is recorded via Word documents and Excel spreadsheets retained on Council's information management system.

Cost of the Model

The annual budget \$82,190 as follows:

ARIC Members, 5 meetings per year:	\$ 4,015
Three Internal Audits per year:	\$23,925
ARIC meetings and internal Auditor	
Attendance at 5 meetings per year:	\$ 4,250
Management Support Costs approx.	\$50,000

Outcomes achieved through the Process

Currently practices appear to be effective. Most recommendations from audits have been positively accepted. This has resulted in improvements in practice, governance and compliance. Risks that have been identified by the internal audits have had controls applied to them resulting reduced risks.

External audits have resulted in the provision of an unqualified audit opinion on the annual financial statements

Best features of the Model

- Overall principles are sound
- Enterprise risk management provides more robust application
- Increased community confidence in local government

Weaknesses of the Model

- Excessive internal requirements regarding cost and control with significant human resourcing implications.
- Trying to apply one size fits all across local government
- Rate pegging will not allow for the implementation and operating costs for the IA function.
- Arguably too much power rest with the Chief Audit Officer role

A NEW RISK MANAGEMENT AND INTERNAL AUDIT FRAMEWORK

for local councils in NSW

Discussion paper

September 2019



A NEW RISK MANAGEMENT AND INTERNAL AUDIT FRAMEWORK FOR LOCAL COUNCILS IN NSW – DISCUSSION PAPER

2019

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MINISTER'S FOREWARD



Risk is inevitable in any organisation, including local councils. If a council can identify its risks and how they are caused, a council is more likely to succeed in managing these risks and achieving its community objectives.

Internal audit is a globally accepted mechanism for ensuring that an organisation has good governance and is managing its risks successfully. There has been a steady push over recent years for internal audit to be mandated in the NSW local government sector.

As a first step, in 2008, the government released guidelines to assist councils to establish an internal audit function. These guidelines were updated in 2010. The benefits realised by councils who had introduced internal audit into their business led to calls for internal audit to be made mandatory for every council in NSW.

In 2016, the NSW Government made it a requirement under the *Local Government Act 1993* ('Local Government Act') that each council have an Audit, Risk and Improvement Committee in place. This requirement is likely to take effect from March 2021. Councils are also required to proactively manage any risks they face under the new guiding principles of the Act.

The government has since been working to develop the regulatory framework that will support the operation of these committees, and the establishment of a risk management framework and internal audit function in each council. This discussion paper details the regulatory requirements and operational framework being proposed.

There will be nine core requirements that councils will be required to comply with when establishing their Audit, Risk and Improvement Committee, risk management framework and internal audit function. These requirements are based on international standards and the experience of Australian and NSW Government public sector agencies who have implemented risk management and internal audit. Most importantly, they reflect the unique needs, structure and resources of NSW local government.

Formal risk management and internal audit is a vital part of the NSW Government's plan to ensure that councils achieve their strategic objectives in the most efficient, effective and economical manner. A strong and effective risk management and internal audit framework will result in better services for the community, reduced opportunities for fraud and corruption, increased accountability of councils to their communities and a culture of continuous improvement in councils.

I encourage you to provide your feedback and ideas on the proposed model so we can ensure NSW has in place the most robust and effective risk management and internal audit framework for local government possible.

The Hon Shelley Hancock MP
Minister for Local Government

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BACKGROUND AND PURPOSE

1. Risk

All organisations and governments, including councils, operate in uncertain and changing economic, social, political, legal, business and local environments. Risk is defined as the effect of this uncertainty on an organisation's ability to achieve its goals and objectives, where the effect is the potential for a result that is different to what was expected or planned for¹. Risks that go so far as to threaten to harm or destroy an object, event or person are known as material risks.

Risk can be positive, negative or both, and can address, create or result in opportunities and threats. Risk is often expressed in terms of an event's consequences and the likelihood of its occurrence. Negative risks can include, for example, unexpected financial loss, project failure, extreme weather events, failure of council policy, and fraud or corruption. Positive risks can include, for example, unexpected favourable publicity, changes to legislation, improved technology, new commercial relationships and business contracts.

Internal controls

Internal controls are any action taken by an organisation to manage and minimise the impacts of negative risks or to promote and harness positive risks to increase the likelihood that the organisation's goals and objectives will be achieved. Internal controls can be:

- preventative – to deter undesirable events from occurring
- detective – to detect and correct undesirable events from happening, or
- directive – to cause or encourage a desirable event to occur.

Internal controls generally fall into two categories:

- hard/formal controls – for example, systems, processes, policies, procedures, management approvals, or
- soft controls – for example, employee capability, organisational culture, ethical behaviour of management and staff.

2. Good governance

Governance can be described as the combination and interconnection of decisions, policies, procedures, processes and structures implemented by an organisation's board/governing body to direct and control the organisation and ensure it functions effectively.

Good governance is a key component of successful organisations. It supports an organisation to ensure its goals and objectives are achieved, its operations are performed successfully, it complies with all necessary legal and other requirements, and it uses its resources responsibly with accountability. It also helps an organisation to promote confidence with stakeholders and adapt and function in changing and uncertain environments.

Good governance is directly linked to an organisation's risk management and compliance frameworks.

¹ Adapted from the definition of risk in AS ISO 31000:2018

The three lines of defence against risk

There are a number of different mechanisms organisations can use to ensure they have good governance and are managing their risks. These governance activities are often referred to as 'the three lines of defence' and are described below in the context of local government. A summary diagram is provided on page 8.

1st line of defence – operational functions implemented by a council to own and manage risk

A council's first line of defence against risk is for council staff to own and manage the risks that occur in their sphere of influence. This means they are given responsibility and held accountable for identifying risks and implementing internal controls (where appropriate).

In practice, this generally sees operational management responsible for identifying and assessing risks that occur in their work area and developing internal controls to manage these risks. This can include guiding the development of council policies and procedures and overseeing the implementation of internal controls by the council staff they supervise. Council staff are responsible for following policies and procedures, implementing other controls and notifying managers when issues arise.

Examples of first line of defence activities could include development assessment processes, operational procedures for technical equipment, maintenance of specific pieces of equipment, cash handling procedures, work health and safety requirements, following project plans etc.

2nd line of defence – management functions implemented by a council to ensure operational functions are managing risks

A council's second line of defence against risk is to ensure that the controls in the first line of defence are properly designed, implemented and operating as intended. Examples of the management frameworks that can be implemented in a council's second line of defence include:

- a risk management framework which identifies known and emerging risks the council faces and controls being implemented to manage these risks (further described in this discussion paper)
- a compliance framework which identifies and monitors council's risk of non-compliance with applicable laws, regulations, contracts and policies, and alerts council to changing compliance requirements
- a financial management framework which identifies and monitors council's financial risks, including financial reporting and external accountability²
- a fraud control framework which identifies and manages the risk of the incidence of fraud or corruption and includes prevention and monitoring strategies³
- business and performance improvement which identifies and manages any business/performance risks and helps council to improve the efficiency, effectiveness and economy of its operations, for example, information technology and work health and safety, and
- project management which is used to identify and manage project risks, for example, poor project governance, flawed scope definition and insufficient resourcing.

² Councils are required under the Local Government Act (s 413) to prepare financial reports each year to prescribed standards. These reports must be externally audited, be made available for public inspection (s 418), presented at a council meeting along with the auditor's reports (s 419) and included in council's annual report (s 428).

³ Councils are required to have a fraud and corruption control plan which includes risk management processes that examine the risk of fraud and corruption both internally and externally across the council. The plan should also include internal controls that seek to minimise fraud and corruption occurring.

Second line of defence activities are generally reported to senior and mid-level management, and can be of interest to the Audit, Risk and Improvement Committee.

3rd line of defence – functions that provide independent external assurance

Council's third line of defence against risk is to receive assurance from an independent body external to the council that its risks are being managed appropriately in the first and second lines of defence. External assurance is designed to provide a council with a level of confidence that its goals and objectives will be achieved within an acceptable level of risk.

Independent external assurance is provided by an Audit, Risk and Improvement Committee, supported by an internal audit function.

External assurance activities are reported to the governing body of the council and the general manager.

Other lines of defence

There are also other lines of defence that sit outside an organisation and provide independent assurance that an organisation has good governance and is managing its risk appropriately.

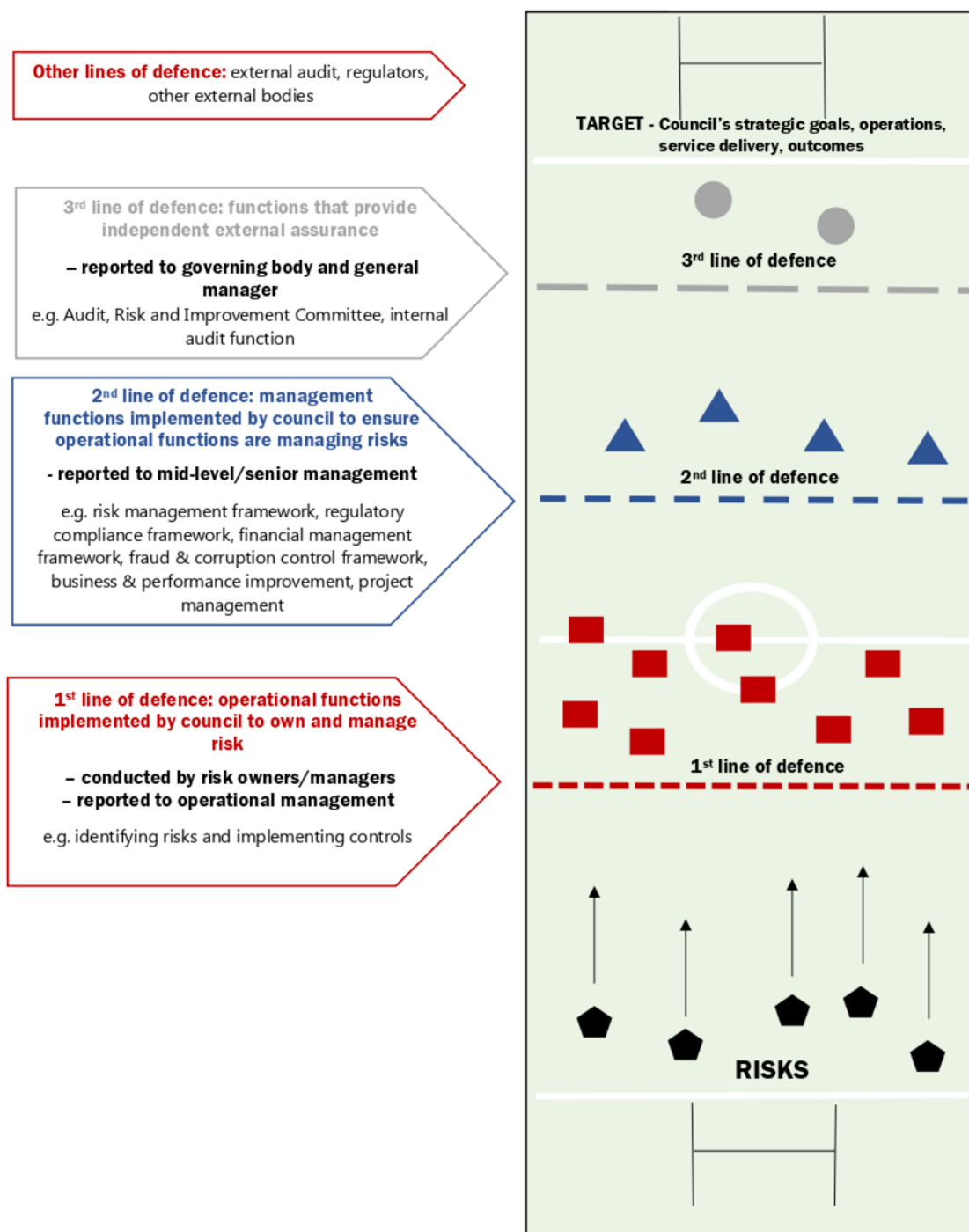
For councils, these include:

- external audit – an annual independent examination and opinion of council's financial statements which also assesses council's compliance with accounting standards, laws and regulations⁴
- performance audit – an audit of council activities to determine whether the council is carrying out these activities effectively, economically, efficiently and in compliance with all laws. A performance audit can include an individual program or service provided by a group of councils, all or part of an individual council, or issues affecting the sector as a whole⁵, and
- regulatory bodies – these set minimum requirements for council's lines of defence, and/or assess the effectiveness of council's governance (for example, the Office of Local Government, NSW Ombudsman, Independent Commission Against Corruption, NSW Parliament).

⁴ The Local Government Act (s 415) requires each council to have their annual financial reports externally audited by the NSW Auditor-General (s 422) so that the community and the governing body of the council have access to an independent opinion on their validity. The Auditor-General is to also provide a copy of the Independent Audit Report and the Conduct of the Audit to the Office of Local Government, and report to Parliament on local government sector-wide matters arising from the examination of the financial statements of councils and any other issues the Auditor-General has identified during its audit and the exercise of her other functions (s 421C).

⁵ The NSW Auditor-General conducts performance audits of councils under the Local Government Act and reports to the Office of Local Government, the council concerned and the Minister for Local Government any findings, recommendations or concerns that arise from a performance audit (s 421B)

Council's three lines of defence against risk



3. Purpose of this discussion paper

Amendments made to the Local Government Act in 2016 require each council to be financially sustainable, continuously review its performance, properly exercise its regulatory functions, operate honestly, efficiently and appropriately, and have sound decision-making and risk management practices (s 8A-8C and 223).

They also require each council to establish an Audit, Risk and Improvement Committee as a third line of defence to continuously review and provide independent advice and assurance on council's first and second lines of defence (s 428A). The Local Government Act also envisages the establishment of a risk management framework and internal audit function in each council to support the work of the Committee.

The purpose of this discussion paper is to propose how councils should establish and implement these functions.

It is envisaged that each council's Audit, Risk and Improvement Committee, once established by March 2021, will undertake assurance activities by overseeing each council's internal audit function and risk management framework.

Over time (post-2021), and as resources allow, each council's Audit, Risk and Improvement Committee will be expected to expand its reach to include the other management functions that councils should have in place as part of their second line of defence (for example, financial management, integrated planning and reporting, fraud control, performance etc.).

INTRODUCTION TO RISK MANAGEMENT AND INTERNAL AUDIT

1. Risk management

Risk management describes the coordinated activities an organisation takes to ensure it knows the risks it faces, makes informed decisions about how to respond to these risks, and identifies and harnesses potential opportunities⁶.

In practice, it is a deliberate, systematic, comprehensive and documented program that provides a structure to managing risk consistently across the entire organisation, regardless of where, and by who, decisions are made. It also provides a mechanism to shape organisational culture – ‘the way we do things around here’.

Risk management is not about being risk averse and it is not a guaranteed way to eliminate all the risks an organisation faces altogether. It is a framework that can help an organisation to reduce its risks to a level that is acceptable and take calculated and appropriate risks that will help it to achieve its strategic goals and deal positively with opportunities.

As required under Australian risk management standards, councils will be required to adopt an ‘enterprise risk management’ approach under the new regulatory framework.

This will require councils to identify, assess and manage all the risks that affect the ability of the council to meet its goals and objectives, and goes beyond traditional risk management that focuses on insurable risks. Further explanation is provided in the table below.

Traditional risk management	Enterprise risk management
Focuses on insurable risks	Considers all risks that could affect a council's ability to meet its goals, including risks that cannot be insured, for example, a council's reputation
Focused on threats and minimising losses	Considers risks that present both negative and positive consequences or impacts and focuses on adding value
Manages each risk individually and in isolation, often within the particular business unit	Considers risks holistically across the entire council taking into account any connections or interdependencies that could reduce losses or maximize growth opportunities. Risk management is integrated across the entire council
Responses to risk are largely reactive and sporadic	Responses to risk are proactive and continually applied and assessed. Risk management is embedded in organisational culture

⁶ Adapted from the definition of risk management in AS ISO 31000:2018

Governing standards

A number of worldwide standards have been developed to help organisations implement risk management. These standards are set by recognised international standards bodies or industry groups and provide an accepted benchmark for risk management practices.

In Australia, the International Organisation for Standardisation's risk management standard *ISO 31000:2009, Risk Management – Guidelines* (AS/NZS ISO 31000:2009) has been accepted as the Australian risk management standard and widely adopted in the private and public sectors. AS/NZS ISO 31000:2009 has just been replaced by AS ISO 31000:2018⁷.

AS ISO 31000:2018 states that an organisation's approach to risk management must be based on the following eight specific principles to ensure it is effective:

- risk management is **integrated** into all organisational activities and decision-making processes
- risk management is **structured and comprehensive** process that achieves consistent and comparable results
- the risk management framework and process is **customised** to the organisation
- risk management is **inclusive** of all stakeholders and enables their knowledge, views and perceptions to be considered
- risk management is **dynamic** and able to respond to changes and events in an appropriate and timely manner
- risk management decisions are based on the **best available information** and takes into account any limitations and uncertainties
- risk management takes into account **human and cultural factors**, and
- risk management is continuously and periodically **evaluated and improved** through learning and experience.

To achieve these principles, AS ISO 31000:2018 requires each organisation to ensure its risk management framework includes the following elements:

- **leadership and commitment** – the organisation's board/governing body must clearly communicate and demonstrate strong leadership and commitment to risk management.
This will be shown by the board/governing body:
 - adopting a risk management policy which communicates the organisation's commitment to risk management and how risk management will be undertaken
 - ensuring the necessary resources are allocated to risk management, and
 - assigning authority and accountability for risk management at appropriate levels in the organisation and aligning risk management to the organisation's objectives
- **integration** – integration of risk management into a council should be a dynamic and iterative process, customised to the organisation's unique needs and culture. Risk management must be made part of the organisation's purpose, governance, leadership, strategy, objectives and operations and everyone in the organisation must understand their responsibility for managing risk.

This can be achieved through the development and implementation of a risk management plan that provides structure for how the organisation will implement its risk management policy and conduct its risk management activities

⁷ More information about AS ISO 31000:2018 can be found at <https://www.iso.org/iso-31000-risk-management.html>.

- **design** – the organisation’s risk management framework must be based on the unique needs, characteristics and risks of the organisation, and its external and internal context.
This can be achieved by following a tailored risk management process that:
 - evaluates the organisation’s internal and external context, operations, stakeholders, complexity, culture, capabilities etc.
 - identifies, assesses and prioritises the risks these present
 - decides how they will be managed
 - allocates resources
 - assigns risk management roles, responsibilities and accountabilities
 - documents and communicates this across the organisation, and
 - demonstrates the organisation’s continual commitment to risk management.
- **evaluation and improvement** – the organisation must regularly evaluate the effectiveness of its risk management framework and continually adapt and improve how it is designed and integrated throughout the organisation and ensure it is fit for purpose.

2. Internal audit

Internal audit is a mechanism that an organisation can use to receive independent assurance that its first and second lines of defence are appropriate and working effectively. Internal audit can also help an organisation to improve its overall performance.

It does this by:

- providing management with information on the effectiveness of risk management, control and governance processes, and acting as a catalyst for improvement
- providing an independent and unbiased assessment of the organisation’s culture, decision-making, financial management, operations, fraud risk, safeguarding of assets, information, policies, processes and systems
- assessing the efficiency, effectiveness, economy and ethical conduct of business activities
- reviewing the achievement of organisational goals and objectives
- assessing compliance with laws, regulation, policies and contracts, and
- looking for better ways the organisation can be doing things.

In relation to risk management, internal audit provides assurance that an organisation’s:

- risk management framework is effective and regularly reviewed
- risks are correctly identified and assessed
- risks are being managed to an acceptable level in accordance with the organisation’s risk criteria⁸, goals and objectives
- internal controls are appropriately designed and effectively implemented, and
- risk information is captured and communicated in a timely manner across the organisation, enabling staff to carry out their risk management responsibilities.

Unlike organisational staff, an internal audit function has no direct involvement in day-to-day operations or financial management of an organisation. It sits within an organisation, but external to it, and investigates how an organisation conducts its day-to-day operations and financial management and helps an organisation to improve those processes and systems.

⁸ ‘Risk criteria’ can also be known as ‘risk appetite’

To preserve an internal audit function's independence, it cannot be responsible or held accountable for:

- setting an organisation's risk criteria
- implementing risk management processes
- deciding how an organisation responds to risk, or
- implementing risk responses or controls.

The internal audit function also reports functionally (for internal audit operations) to an organisation's Audit, Risk and Improvement Committee to ensure that it is allowed to operate without inappropriate interference.

Governing standards

The Institute of Internal Auditors (IIA) is the recognised international standard setting body for internal audit and provides professional certification for internal auditors.

The IIA has developed the International Professional Practices Framework (IPPF)⁹ which outlines the mandatory requirements for the practice of internal auditing. It describes:

- the definition of internal auditing
- the core principles for the practice of internal auditing
- the international standards for the professional practice of internal auditing, and
- a Code of Ethics which describe the minimum behavioural and conduct requirements of individuals and organisations in the conduct of internal auditing.

These standards are international and are to be applied consistently to the practice of internal audit activity worldwide.

The core components required for internal audit under the IPPF include:

- an **internal audit charter** which communicates internal audit's purpose and authority, its position within the organisation and how internal audit will be undertaken
- reporting arrangements and responsibilities that provide the internal audit function with **independence** from the organisation so that it can be objective and unbiased in its work
- authority for the internal audit function to have **full access** to the records, information, property and personnel it needs to undertake its work
- **work plans** which provide a short-term and long-term structure for the internal audits to be undertaken
- use of **approved methods** and procedures to conduct audits
- a system to **monitor and report** on internal audit findings and the implementation of corrective actions, and
- a **quality assurance and improvement process** to continuously review and improve internal audit activities.

⁹ More information about the IPPF can be found at <https://www.iaa.org.au/technical-resources/professionalGuidance.aspx>

Under the IPPF, an effective internal audit function must also exhibit the following 10 mandatory core principles:

- demonstrates integrity
- demonstrates competence and due professional care
- is objective and free from undue influence
- aligns with the strategies, objectives and risks of the organisation
- is appropriately positioned and adequately resourced
- demonstrates quality and continuous improvement
- communicates effectively
- provides risk-based assurance
- is insightful, proactive and future-focused, and
- promotes organisational improvement.

3. Audit Committees

An audit committee is a committee of experts that plays a key role in assisting the board/governing body of an organisation to fulfil its corporate governance and oversight responsibilities. Its main role is to provide advice and assurance regarding:

- the organisation's culture and ethics
- the organisation's first and second lines of defence, including:
 - the effectiveness of risk management and the organisation's internal controls
 - the organisation's fraud and corruption controls
 - business performance and improvement
 - the adequacy of financial management practices and the organisation's accounting, financial records and external reporting
 - systems for managing the organisation's assets
 - compliance with applicable laws, regulations, standards and best practice guidelines, and
- matters that are raised during external and internal audits.

An audit committee also provides a forum for communication between the organisation, senior management, risk and compliance managers, internal auditors and external auditors.

To be effective, an audit committee must be independent from the organisation's management and free from any undue influence.

The size and nature of the committee depends on the industry and size of the organisation. Some organisations establish one committee with responsibility for all these tasks. Larger organisations may establish more than one committee, for example, an audit committee, a risk committee, a compliance committee etc. depending on the nature and extent of the organisation's operations.

There are a number of legal requirements and good practice guides that apply to audit committees depending on the jurisdiction and type of industry and organisation.

4. Use of risk management, internal audit and audit committees in the private and government sectors

Private sector

Audit committees, risk management and internal audit are widely used in the corporate sector worldwide as a mechanism to manage risk and provide independent assurance on governance, controls and financial reporting.

The *Corporations Act 2001* (Commonwealth) requires some Australian companies to ensure that financial reports are true and fair and comply with accounting standards made by the Australian Accounting Standards Board. Most of these companies have audit committees to monitor and oversight their financial reporting (in consultation with external auditors).

The Australian Securities Exchange requires entities included in the S&P/ASX All Ordinaries Index at the beginning of their financial year to have an audit committee during that year¹⁰, and to comply with specific requirements¹¹ regarding the composition, operation and responsibilities of their audit committee. If an entity does not have an audit committee, this must be disclosed along with the processes the board/governing body employs to independently verify and safeguard the integrity of its corporate reporting.

The establishment of an internal audit function is seen by many investors as essential before they will invest in a company. Since 2014, entities listed on the Australian Securities Exchange have been required to disclose to potential investors whether they have an internal audit function, how the function is structured and what role it performs. If an entity does not have an internal audit function, it must outline why it doesn't, and what assurance arrangements it has in place to manage risk and verify the integrity of financial records¹². Whilst it is not mandatory, non-listed companies are recommended under Australian standards to have an audit committee as part of good governance¹³.

The Australian Prudential Regulation Authority has also mandated the requirement for financial, insurance and superannuation institutions to have internal audit and an audit committee¹⁴. The audit committee must also meet specific requirements.

Australian Government public sector

While risk management and internal audit is often voluntary in the private sector, many governments around the world have mandated through legislation a requirement for public sector agencies to have an audit committee and some form of risk management.

The Australian Government, under the *Public Governance, Performance and Accountability Act 2013*, requires all Commonwealth entities to establish and maintain appropriate risk management systems and have an audit committee. The *Public Governance, Performance and Accountability Rule 2014* and Commonwealth Risk Management Policy¹⁵ prescribe the requirements for how risk is to be managed.

¹⁰ ASX Corporate Governance Council (2016) *ASX Listing Rules* – Rule 12.7

¹¹ As set out in ASX Corporate Governance Council (2019) *Corporate Governance Principles and Recommendations 4th Edition*

¹² ASX Corporate Governance Council (2014) *Corporate Governance Principles and Recommendations 3rd Edition*

¹³ Standards Australia International (2004) *Australian Standard - Good Governance Principles* (AS 8000-2003)

¹⁴ Australian Prudential Regulation Authority (2019) *Prudential Standard CPS 510 Governance* (July 2019)

¹⁵ Australian Government, Department of Finance (2014) *Commonwealth Risk Management Policy*

While an internal audit function is not mandated by legislation, it is recommended that Commonwealth entities establish one to support the audit committee¹⁶ and to ensure that the Secretary or Chief Executive is able to fulfil their other responsibilities under the Act. There have been calls for internal audit to be mandated for Commonwealth entities under the *Public Governance, Performance and Accountability Act 2013*¹⁷.

There are no legislated standards for risk management or internal audit in Commonwealth entities. However, the Australian Government recommends Commonwealth entities conform to ISO risk management standards and the IPPF.

State and Territory public sectors

Most Australian states and territories have mandated risk management, internal audit and/or audit committees in their public sector agencies – these include NSW, Queensland¹⁸, Tasmania¹⁹, Western Australia²⁰, Victoria²¹, and the Northern Territory²².

In South Australia, only public corporations are required to have an audit committee and an internal audit function²³. While not mandatory, the Australian Capital Territory recommends its agencies have an audit committee and internal audit function and provides guidance on how they should be established and operate²⁴.

In NSW, the new *Government Sector Finance Act 2018* requires all NSW Government departments and statutory bodies to have effective systems for risk management, internal control and assurance (including internal audit) that are appropriate for the agency²⁵.

The NSW Government's Internal Audit and Risk Management Policy²⁶ further stipulates that all NSW Government departments and statutory bodies are required to establish an Audit and Risk Committee, risk management framework and internal audit function. The core requirements of this policy are modelled on AS ISO 31000:2009²⁷ and the IPPF. The policy is currently under review by the NSW Government following the release of AS ISO 31000:2018.

¹⁶ Australian Government, Department of Finance (2018) *Resource Management Guide No. 202. A guide for non-corporate Commonwealth entities on the role of the audit committee* and Australian Government, Department of Finance (2018) *Resource Management Guide No. 202. A guide for corporate Commonwealth entities on the role of the audit committee*

¹⁷ IPA (2017) *Submission to the Department of Finance's Review of the Public Governance, Performance and Accountability Act 2013*

¹⁸ Section 78 of the *Financial Accountability Act 2009* (QLD) and *Financial and Performance Management Standard 2009* (QLD)

¹⁹ *Treasurer's Instruction 108 – Internal Audit* (TAS) September 2011

²⁰ Part 4 of the *Financial Management Act 2006* (WA) and Government of Western Australia, Department of Treasury (2018) *Treasurer's Instructions Part XII – Internal Audit*

²¹ Victorian Government (2018) *Standing Directions 2018 under the Financial Management Act 1994*

²² *Financial Management Act 1995* (NT) and NT Government (2001) *Treasurer's Directions L4/01 – Part 3 Responsible and Accountable Officers, Section 3 Internal Audit* (originally published 1995)

²³ Section 31 of the *Public Corporations Act 1993* (SA)

²⁴ ACT Government (2007) *Internal Audit Framework 2007* – this is currently under review by the ACT Government and changes may occur during 2019-2020

²⁵ Section 3.6 of the *Government Sector Finance Act 2018*

²⁶ NSW Treasury (2015) *TPP 15-03 Internal Audit and Risk Management Policy for the NSW Public Sector*

²⁷ AS ISO 31000:2018 did not exist when the policy was developed in 2015

Local government

The regulation of audit committees, risk management and internal audit in local councils varies between states and territories. Some jurisdictions, such as South Australia and Tasmania do not explicitly require their councils to have an audit committee, risk management or internal audit function. For those jurisdictions that do require an audit committee and an internal audit function, the approach varies.

All councils in Victoria are legislatively required to have an audit committee²⁸ and recommended to have an internal audit function that complies with the IPPF²⁹.

Only large councils in Queensland are legislatively required to have an audit committee³⁰, but all councils are required to have an internal audit function³¹ that complies with the IPPF³².

The Western Australian Government has legislatively mandated that each council has an audit committee comprising a majority of councillors³³. A formal internal audit function is not mandated, but encouraged³⁴.

The experience in NSW is detailed in the next part of this discussion paper.

²⁸ Section 139 of the *Local Government Act 1989 (VIC)*

²⁹ Local Government Victoria (2011) *Audit Committees, A Guide to Good Practice for Local Government*

³⁰ Section 105 of the *Local Government Act 2009 (QLD)*

³¹ Clause 207 of the *Local Government Regulation 2012 (QLD)*

³² *Local Government Bulletin 08/15: Internal Audit and Audit Committees*

³³ Part 7 of the *Local Government Act 1995 (WA)* and the *Local Government (Audit) Regulations 1996 (WA)*

³⁴ Government of Western Australia, Department of Local Government and Communities (2013) *Local Government Operational Guidelines Number 9: Audit in Local Government. The Appointment, Function and Responsibilities of Audit Committees*

PROPOSED RISK MANAGEMENT AND INTERNAL AUDIT FRAMEWORK – THE ROAD AHEAD

1. Risk management and internal audit in NSW local government – the story so far

Local councils in NSW were initially created to provide local communities with basic public services such as water, roads and waste removal on behalf of the NSW Government. As NSW has grown since federation, so too have the responsibilities of local councils. In most local government areas, councils now also provide a wide variety of community services, social infrastructure and local facilities.

NSW councils continue to largely rely on funding from the NSW Government to fulfil their responsibilities, coupled with grants from the Australian Government and rates paid by private citizens. Councils must therefore be accountable to the community and the governments who fund their activities for the way they spend this money and manage public assets.

External independent assurance via an audit committee and internal audit function has been seen for some time as key mechanisms to deliver this accountability. Up to 2008, around 20% of NSW councils were voluntarily following the example set by the private sector and implementing some aspect of external assurance or internal audit function into their operations³⁵.

In 2008, the Office of Local Government³⁶ first released guidelines to encourage councils to establish an Audit, Risk and Improvement Committee, risk management framework and internal audit function and set minimum requirements. This led to more councils establishing these mechanisms recognising the benefits they offer.

In 2009, integrated planning and reporting (IP&R) was introduced into the Local Government Act to provide a strategic planning framework for councils. IP&R could also be used to improve the management by councils of actual or potential risks to the strategic goals and objectives.

Reviews by the NSW Auditor-General found that by 2012 over 75 councils had some sort of internal audit function³⁷, and by 2016 about 60 councils (out of 152 councils), equivalent to 39%, had or shared an Audit, Risk and Improvement Committee³⁸. Other research conducted in 2015 suggested full adoption by councils of the other minimum requirements in the Office of Local Government's 2008 Internal Audit Guidelines may have been lower³⁹.

By June 2018, the NSW Auditor-General⁴⁰ found that 86 councils or 62% (out of 138 councils and county councils) now had an internal audit function and the number of councils that had an Audit, Risk and Improvement Committee had risen to 97 or 70%. In terms of risk management, the NSW Auditor-General found that 18 councils did not have a risk management policy and 38 councils did not have a risk register.

³⁵ NSW Auditor-General (2012) *NSW Auditor-General's Report - Monitoring local government: Department of Premier and Cabinet, Division of Local Government*

³⁶ Then the Department of Local Government

³⁷ NSW Auditor-General (2012) *NSW Auditor-General's Report - Monitoring local government: Department of Premier and Cabinet, Division of Local Government*

³⁸ Audit Office of NSW (2017) *NSW Auditor-General Update for Audit, Risk and Improvement Committee Chairs*

³⁹ Jones and Beattie (2015) Local Government Internal Audit Compliance, *Australasian Accounting, Business and Finance Journal* 9(3)

⁴⁰ NSW Auditor-General (2019) *Report on Local Government 2018* (see erratum)

The findings of various public inquiries and corruption investigations since 2008 have led to increased calls for risk management and internal audit to be mandated for NSW councils.

This was realised in 2016 with amendments to the Local Government Act which require councils to establish an Audit, Risk and Improvement Committee by March 2021. These amendments also enable the making of future regulations to mandate a risk management framework and internal audit function in all councils and set a minimum standard of compliance.

This discussion paper outlines what this regulatory framework is proposed to look like.

A timeline of the key influential events that lead to the development of the proposed mandatory framework is provided in **Appendix 1**.

2. Proposed policy framework

The risk management and internal audit framework proposed for the NSW local government sector seeks to:

- ensure each council (including county council/joint organisation) in NSW has an independent Audit, Risk and Improvement Committee that adds value to the council
- ensure each council (including county council/joint organisation) in NSW has a robust risk management framework in place that accurately identifies and mitigates the risks facing the council and its operations
- ensure each council (including county council/joint organisation) in NSW has an effective internal audit function that provides independent assurance that the council is functioning effectively and the internal controls the council has put into place to manage risk are working, and
- establish a minimum standard for these mechanisms based on internationally accepted standards and good practice guidance.

The framework has been based primarily on the NSW public sector risk management and internal audit framework (as recommended by the Independent Commission Against Corruption⁴¹) and the IPPF⁴².

It has also taken into consideration:

- the existing *Internal Audit Guidelines* updated by the Office of Local Government in 2010⁴³
- the internal audit-related recommendations of the Independent Local Government Review Panel's 2013 inquiry⁴⁴ and the Local Government Acts Taskforce's 2013 review⁴⁵
- recommendations made by the Independent Commission Against Corruption in its various public inquiries into local councils in NSW⁴⁶
- the Australian Government's public sector internal audit framework

⁴¹ Independent Commission Against Corruption (2011) *Investigation into the alleged corrupt conduct involving Burwood Council's general manager and others*

⁴² The Institute of Internal Auditors (2017) *International Professionals Practices Framework. International Standards for the Professional Practice of Internal Auditing*

⁴³ Division of Local Government (2010) *Internal Audit Guidelines*

⁴⁴ Independent Local Government Review Panel (2013) *Revitalising Local Government. Final Report of the NSW Independent Local Government Review Panel*

⁴⁵ Local Government Acts Taskforce (2013) *A New Local Act for New South Wales and Review of the City of Sydney Act 1988*

⁴⁶ Independent Commission Against Corruption (2017) *Investigation into the former City of Botany Bay Council Chief Financial Officer and others*. ICAC Report July 2017 and Independent Commission Against Corruption (2011) *Investigation into the alleged corrupt conduct involving Burwood Council's general manager and others*

- opinions, research and recommendations of leaders and practitioners in risk management and internal audit, and
- feedback obtained from NSW Treasury, the NSW Audit Office, the Department of Finance, Services and Innovation, the Institute of Internal Auditors and executive members of the Local Government Internal Auditors Network on earlier drafts of this discussion paper.

An overriding concern has been to ensure that the proposed framework reflects the unique structure and needs of NSW local government and that it also minimises the administrative and resource impacts for councils. For this reason, there are components of the proposed framework that are unique to NSW councils and not reflected in the above-mentioned resources.

3. Proposed statutory framework

The proposed statutory framework regulating internal audit in NSW councils (including county council/joint organisation) will consist of the current provisions in the Local Government Act, new regulations in the Local Government Regulation and new guidelines.

Current legislation

Audit, Risk and Improvement Committee

Section 428A of the Local Government Act (when proclaimed) will require each council to establish an Audit, Risk and Improvement Committee to continuously review and provide independent advice to the general manager and the governing body of the council about:

- whether the council is complying with all necessary legislation
- the adequacy and effectiveness of the council's risk management framework, fraud and corruption prevention activities, financial management processes, and the council's financial position and performance
- the council's governance arrangements
- the achievement of the goals set out in the council's community strategic plan, delivery program, operational plan and other strategies
- how the council delivers local services and how to improve the council's performance of its functions more generally
- the collection of performance measurement data by the council, and
- any other matters prescribed by the Local Government Regulation⁴⁷.

Section 428B (when proclaimed) will also allow a council to establish a joint Audit, Risk and Improvement Committee with another council/s including through joint or regional organisations of councils.

Other supporting provisions

Amendments made to the Local Government Act in 2016 to prescribe new guiding principles for councils, and update the prescribed roles and responsibilities of the governing body and general manager will support and inform the work of the Audit, Risk and Improvement Committee and provide for the future establishment of a risk management and internal audit function in each council. These guiding principles and roles and responsibilities have already been proclaimed.

⁴⁷ Internal audit will be a matter prescribed under the Regulation.

Guiding principles

The guiding principles of the Local Government Act require each council to carry out its functions in a way that provides the best possible value for residents and ratepayers. The guiding principles also specify that councils are to:

- spend money responsibly and sustainably, and align general revenue and expenses (s 8B(a))
- invest in responsible and sustainable infrastructure for the benefit of the local community (s 8B(b))
- effectively manage their finances and assets and have sound policies and processes for performance management and reporting, asset maintenance and enhancement, funding decisions, and risk management practices (s 8B(c))
- ensure the current generation funds the cost of its services and achieves intergenerational equity (s 8B(d)), and
- manage risks to the local community, area or council effectively and proactively (s 8C(h)).

Role of the governing body

Under section 223, the statutory role and responsibilities of the governing body include:

- directing and controlling the affairs of the council in accordance with the Local Government Act (s 223 (1)(a))
- ensuring as far as possible the financial sustainability of the council (s 223 (1)(c))
- ensuring as far as possible that the council complies with the guiding principles of the Local Government Act (s 223 (1)(d))
- keeping the performance of the council under review (s 223 (1)(g))
- making the decisions necessary to ensure the council properly exercises its regulatory functions (s 223 (1)(h)), and
- being responsible for ensuring that the council acts honestly, efficiently and appropriately (s 223 (1)(l)).

Role of the general manager

Under section 335, the general manager is responsible for ensuring the operational delivery of council's risk management framework and internal audit function. This includes:

- conducting the day-to-day management of the council in accordance with the strategic plans, programs, strategies and policies of the council (s 335(a))
- implementing, without undue delay, the lawful decisions of the council (s 335(b))
- advising the governing body on the development and implementation of the council's plans, programs, strategies and policies (s335(c)), and
- ensuring that the Mayor and other councillors are given timely information and advice and the administrative and professional support necessary to effectively discharge their functions (s335(f)).

Clause 209 of the Local Government Regulation also states that the general manager must ensure that:

- the council complies with all legal financial obligations, including the keeping of accounting records
- effective measures are taken to secure the effective, efficient and economical management of financial operations within each division of the council's administration
- authorised and recorded procedures are established to provide effective control over the council's assets, liabilities, revenue and expenditure and secure the accuracy of the accounting records, and
- lines of authority and the responsibilities of members of the council's staff for related tasks are clearly defined.

New regulations

The operation of sections 428A and 428B will be supported by new regulations. These will prescribe the requirements that councils are to comply with when appointing their Audit, Risk and Improvement Committee and establishing their risk management framework and internal audit function. They will also include internal audit as a function of the Committee under section 428A(2)(i) of the Local Government Act.

The Local Government Regulation will provide for a Model Internal Audit Charter and Model Terms of Reference for Audit, Risk and Improvement Committees which all councils must adopt and comply with. This discussion paper describes the key requirements that will ultimately be prescribed by the Local Government Regulation.

New guidelines

To support compliance with the Local Government Act and Regulation, *Guidelines for NSW Local Government Audit, Risk and Improvement Committees, Risk Management Frameworks and Internal Audit Functions* will be issued under section 23A of the Local Government Act. These Guidelines will outline the core requirements that each council's Audit, Risk and Improvement Committee, risk management framework and internal audit function must have.

A key aim of the Guidelines will be to create a strong and effective risk management framework and internal audit function in all councils by establishing minimum standards that reflect accepted international standards.

The nine core requirements of the Guidelines that councils will need to comply with are summarised below and explained in greater detail throughout the rest of this discussion paper.

The Office of Local Government will, on a periodic basis and at least once every five years, review the Local Government Regulation and Guidelines to assess the efficiency and effectiveness of internal audit requirements and the local government sector's compliance.

CORE REQUIREMENT 1:**Appoint an independent Audit, Risk and Improvement Committee**

- (a) Each council (including county council/joint organisation) is to have an independent Audit, Risk and Improvement Committee that reviews all the matters prescribed in section 428A of the Local Government Act
- (b) The Audit, Risk and Improvement Committee is to operate according to terms of reference, based on a model terms of reference, and approved by the governing body of the council after endorsement by the Committee
- (c) The Audit, Risk and Improvement Committee is to comprise of three to five independent members who are prequalified via the NSW Government's *Prequalification Scheme: Audit and Risk Committee Independent Chairs and Members*
- (d) Audit, Risk and Improvement Committee members and the Chair are to serve a three to five-year term. A member's term cannot exceed eight years and the Chair's term cannot exceed five years
- (e) The Audit, Risk and Improvement Committee is to meet quarterly, with the ability to hold extra meetings if required. A council's general manager and Chief Audit Executive should attend except where excluded by the Committee
- (f) Audit, Risk and Improvement Committee members are to comply with council's Code of Conduct and the conduct requirements of the NSW Government's *Prequalification Scheme: Audit and Risk Committee Independent Chairs and Members*
- (g) Disputes between the general manager and/or the Chief Audit Executive are to be resolved by the Audit, Risk and Improvement Committee. Disputes with the Committee are to be resolved by the governing body of the council
- (h) The Audit, Risk and Improvement Committee is to provide an annual assurance report to the governing body of the council and be assessed by an external party at least once each council term as part of council's quality assurance and improvement program
- (i) The general manager is to nominate a council employee/s to provide secretariat support to the Audit, Risk and Improvement Committee. Minutes are to be recorded for all committee meetings

CORE REQUIREMENT 2:**Establish a risk management framework consistent with the current Australian risk management standards**

- (a) Each council (including county council/joint organisation) is to establish a risk management framework that is consistent with current Australian standards for risk management
- (b) The governing body of the council is to ensure that the council is sufficiently resourced to implement an appropriate and effective risk management framework
- (c) Each council's risk management framework is to include the implementation of a risk management policy, risk management plan and risk management process. This includes deciding council's risk criteria and how risk that falls outside tolerance levels will be treated
- (d) Each council is to fully integrate its risk management framework within all of council's decision-making, operational and integrated planning and reporting processes
- (e) Each council is to formally assign responsibilities for risk management to the general manager, senior managers and other council staff and to ensure accountability
- (f) Each council is to ensure its risk management framework is regularly monitored and reviewed
- (g) The Audit, Risk and Improvement Committee and the council's internal audit function are to provide independent assurance of risk management activities, and
- (h) The general manager is to publish in council's annual report an attestation certificate indicating whether the council has complied with the risk management requirements

CORE REQUIREMENT 3:**Establish an internal audit function mandated by an Internal Audit Charter**

- (a) Each council (including county council/joint organisation) is to establish an internal audit function
- (b) The governing body is to ensure that the council's internal audit function is sufficiently resourced to carry out its work
- (c) The governing body of the council is to assign administrative responsibility for internal audit to the general manager and to include this in their employment contract and performance reviews
- (d) The Chief Audit Executive is to develop an Internal Audit Charter, based on a model charter, which will guide how internal audit is conducted by the council. The Charter is to be approved by the governing body of the council after endorsement by the Audit, Risk and Improvement Committee

CORE REQUIREMENT 4:**Appoint internal audit personnel and establish reporting lines**

- (a) The general manager is to appoint a Chief Audit Executive to oversee the council's internal audit activities in consultation with the Audit, Risk and Improvement Committee
- (b) The Chief Audit Executive is to report functionally to the Audit, Risk and Improvement Committee and administratively to the general manager and attend all committee meetings
- (c) The general manager is to ensure that, if required, council has adequate internal audit personnel to support the Chief Audit Executive. Councils will be able to appoint in-house internal audit personnel or completely or partially outsource their internal audit function to an external provider

CORE REQUIREMENT 5:**Develop an agreed internal audit work program**

- (a) The Chief Audit Executive is to develop a four-year strategic plan to guide the council's longer term internal audits in consultation with the governing body, general manager and senior managers. The strategic plan is to be approved by the Audit, Risk and Improvement Committee
- (b) The Chief Audit Executive is to develop an annual risk-based internal audit work plan, based on the strategic plan, to guide council's internal audits each year. The work plan is to be developed in consultation with the governing body, general manager and senior managers and approved by the Audit, Risk and Improvement Committee
- (c) The Chief Audit Executive is to ensure performance against the annual and strategic plans can be assessed

CORE REQUIREMENT 6:**How to performing and report internal audits**

- (a) The Chief Audit Executive is to ensure that the council's internal audits are performed in accordance with the IPPF and current Australian risk management standards (where applicable), and approved by the Audit, Risk and Improvement Committee
- (b) The Chief Audit Executive is to develop policies and procedures to guide the operation of the internal audit function, including the performance of internal audits
- (c) The Chief Audit Executive is to report internal audit findings and recommendations to the Audit, Risk and Improvement Committee. Each finding is to have a recommended remedial action and a response from the relevant senior manager/s
- (d) All internal audit documentation is to remain the property of, and can be accessed by, the audited council, including where internal audit services are performed by an external provider. It can also be accessed by the Audit Risk and Improvement Committee, external auditor and governing body of the council (by resolution)

CORE REQUIREMENT 7:**Undertake ongoing monitoring and reporting**

- (a) The Audit, Risk and Improvement Committee is to be advised at each quarterly meeting of the internal audits undertaken and progress made implementing corrective actions
- (b) The governing body of the council is to be advised after each quarterly meeting of the Audit, Risk and Improvement Committee of the internal audits undertaken and the progress made implementing corrective actions
- (c) The Audit, Risk and Improvement Committee can raise any concerns with the governing body of the council at any time through the Chair

CORE REQUIREMENT 8:**Establish a quality assurance and improvement program**

- (a) The Chief Audit Executive is to establish a quality assurance and improvement program which includes ongoing monitoring and periodic self-assessments, an annual review and strategic external review at least once each council term
- (b) The general manager is to publish in the council's annual report an annual attestation certificate indicating whether council has complied with the core requirements for the Audit, Risk and Improvement Committee and the internal audit function

CORE REQUIREMENT 9:**Councils can establish shared internal audit arrangements**

- (a) A council can share all or part of its internal audit function with another council/s by either establishing an independent shared arrangement with another council/s of its choosing, or utilising an internal audit function established by a joint or regional organisation of councils that is shared by member councils
- (b) The core requirements that apply to stand-alone internal audit functions will also apply to shared internal audit functions, with specified exceptions that reflect the unique structure of shared arrangements
- (c) The general manager of each council in any shared arrangement must sign a 'Shared Internal Audit Arrangement' that describes the agreed arrangements

Implementation timelines

The transitional arrangements built into the Local Government Act mean that the requirement to have an Audit, Risk and Improvement Committee will not come into force until six months after the next ordinary elections in September 2020. Councils will therefore have until March 2021 to establish their Audit, Risk and Improvement Committees in line with the regulatory requirements proposed in this discussion paper.

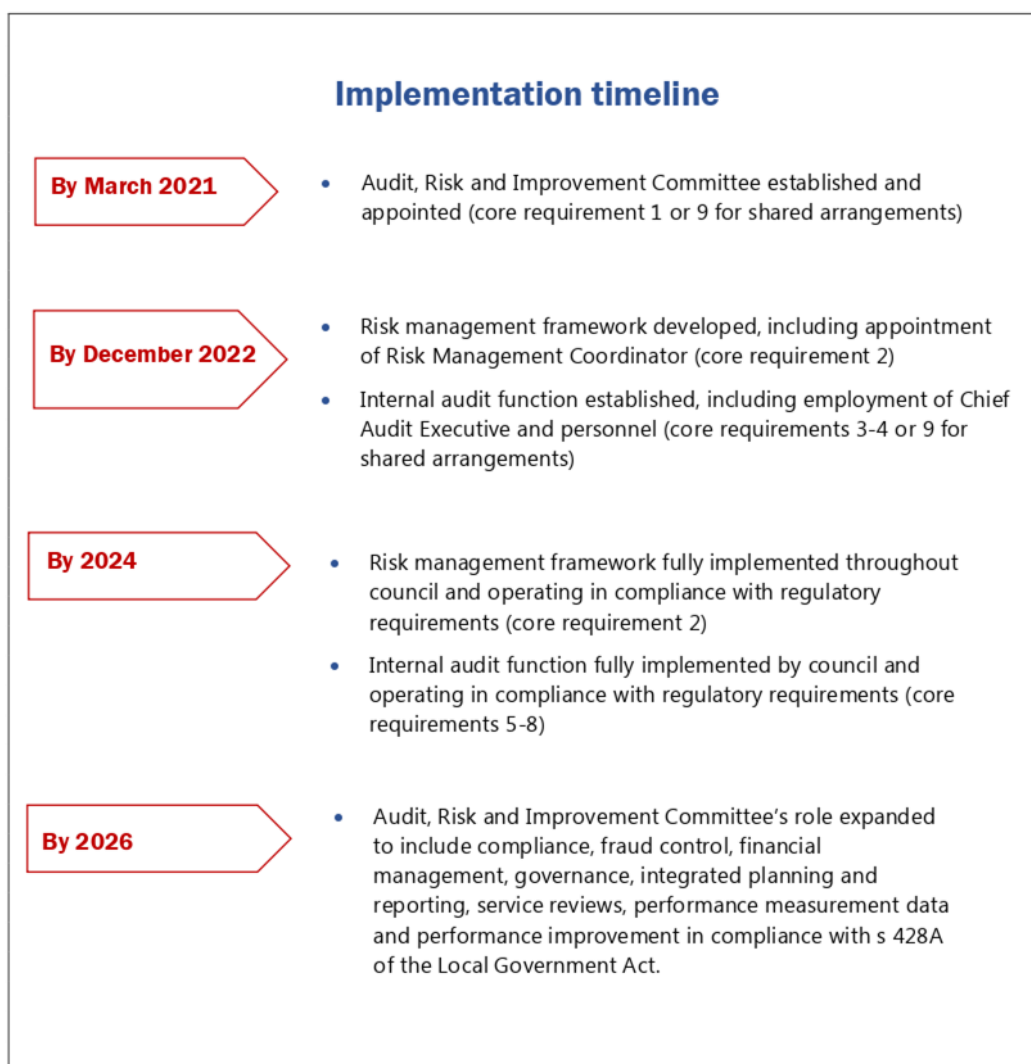
It is proposed that councils will then have a further 18 months, until December 2022, to establish and resource their internal audit function and risk management framework (guided by the Audit, Risk and Improvement Committee).

Councils' Audit, Risk and Improvement Committees will focus on ensuring the council's internal audit function and risk management framework comply with regulatory requirements during the following three years, until 2024.

As these functions are bedded down, the role of the committee is to broaden to comply with the remaining requirements of sections 428A of the Local Government Act.

Full compliance with s 428A of the Local Government Act will be expected by 2026. However, councils that already have an Audit, Risk and Improvement Committee and a mature internal audit function and risk management framework will be encouraged to comply sooner.

This implementation timeline is illustrated below.



4. Benefits of risk management and internal audit for NSW local government

Risk management and internal audit will be a valuable asset for councils.

Risk management will help each council to ensure that any risks to the achievement of its strategic goals and objectives are identified and managed effectively.

Audit, Risk and Improvement Committees and internal audit will provide councils with independent, objective assurance that they are doing things the best way that they can for their community. It will also lead to each council having effective risk management, control and governance processes which will help to instil stakeholder and community confidence in the council's ability to operate effectively.

If implemented effectively, these mechanisms will also lead to each council:

- having better and more efficient levels of service delivery
- achieving better operational consistency across council
- having a greater likelihood of achieving its goals and objectives
- using its resources more efficiently and effectively
- having improved responsiveness and flexibility
- having increased accountability and transparency
- achieving better decision-making and having the confidence to make difficult decisions
- developing good internal governance
- having increased financial stability
- being more resilient to change
- achieving and maintaining compliance with all laws, regulations, internal policies and procedures
- safeguarding its assets
- more reliable, timely and accurate financial and management reporting
- maintaining business continuity, and
- focusing on doing the right things, the right way.

PROPOSED CORE REQUIREMENTS

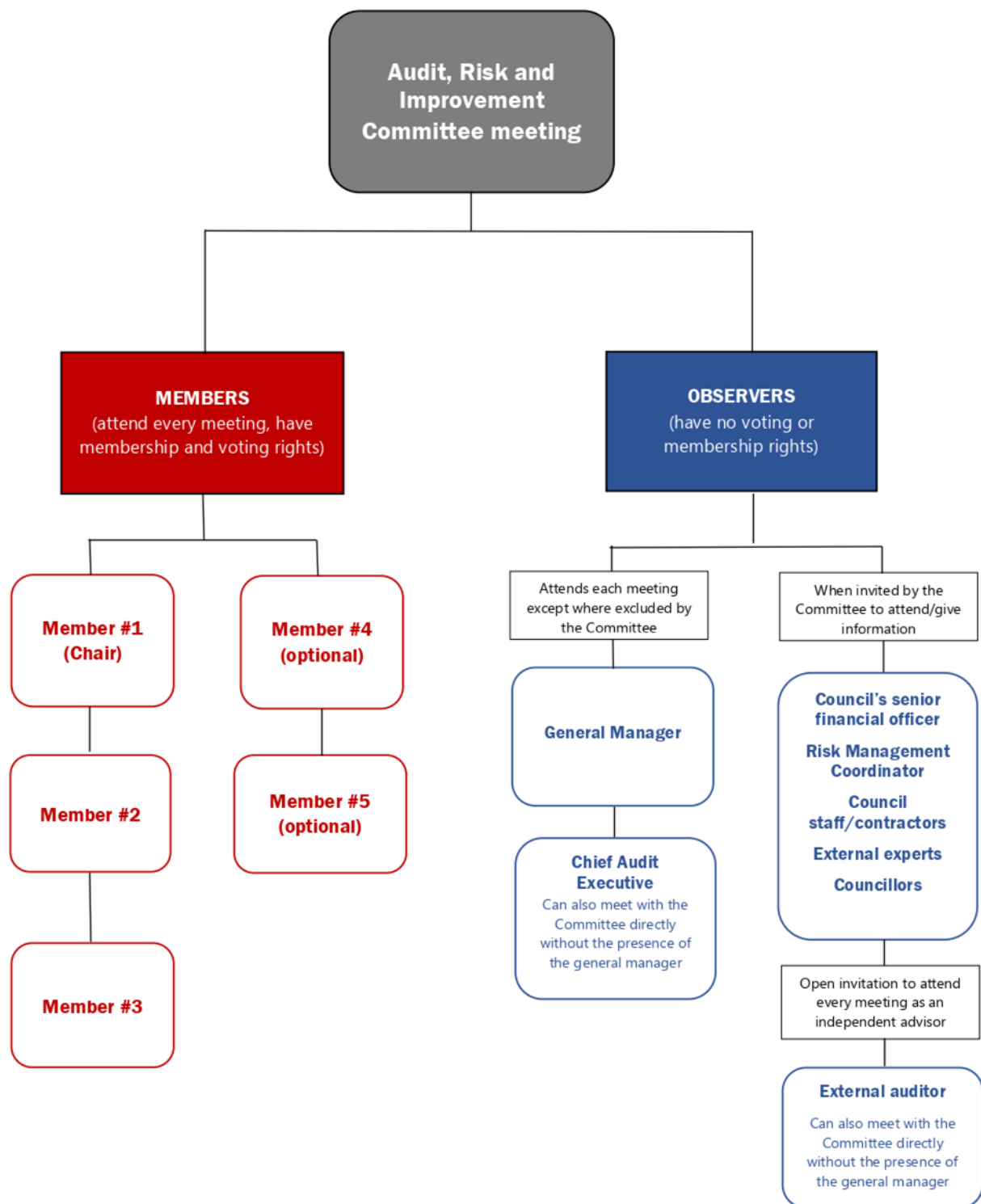
Core requirement 1:

Appoint an independent Audit, Risk and Improvement Committee

Proposal

It is proposed that:

- (a) each council (including county council/joint organisation) is to have an independent Audit, Risk and Improvement Committee that reviews all the matters prescribed in section 428A of the Local Government Act
- (b) the Audit, Risk and Improvement Committee is to operate according to terms of reference, based on model terms of reference, approved by the governing body of the council after endorsement by the Committee
- (c) the Audit, Risk and Improvement Committee is to comprise of three to five independent members who are prequalified via the NSW Government's *Prequalification Scheme: Audit and Risk Committee Independent Chairs and Members*
- (d) Audit, Risk and Improvement Committee members and the Chair are to serve a three to five-year term. A member's term cannot exceed eight years and the Chair's term cannot exceed five years
- (e) the Audit, Risk and Improvement Committee is to meet quarterly, with the ability to hold extra meetings if required. A council's general manager and Chief Audit Executive should attend except where excluded by the Committee
- (f) Audit, Risk and Improvement Committee members are to comply with the council's Code of Conduct and the conduct requirements of the NSW Government's *Prequalification Scheme: Audit and Risk Committee Independent Chairs and Members*
- (g) disputes between the general manager and/or the Chief Audit Executive are to be resolved by the Audit, Risk and Improvement Committee. Disputes with the Committee are to be resolved by the governing body of the council
- (h) the Audit, Risk and Improvement Committee is to provide an annual assurance review to the governing body of the council and be assessed by an external party at least once each council term as part of the council's quality assurance and improvement program, and
- (i) the general manager is to nominate a council employee/s to provide secretariat support to the Audit, Risk and Improvement Committee. Minutes must be recorded for all committee meetings.



Description

(a) Each council (including county council/joint organisation) is to have an independent Audit, Risk and Improvement Committee that reviews all matters prescribed in section 428A of the Local Government Act

Each council in NSW, (including county council/joint organisation), will be required to have an independent Audit, Risk and Improvement Committee that reviews all matters prescribed in section 428A of the Local Government Act.

It is recognised that each council will have different Audit, Risk and Improvement Committee requirements depending on its size, needs, budget and complexity of operations. To provide councils greater flexibility, they can either:

- directly appoint an Audit, Risk and Improvement Committee for their exclusive use
- utilise a joint Committee established by their joint or regional organisation of councils that is shared by member councils, or
- share their Committee with another council/s in close proximity or of their choosing as part of an independent shared arrangement.

It is recommended that county councils, due to their size, enter into a shared arrangement with one of their member councils or utilise an internal audit function established by a joint or regional organisation of councils.

Some of the requirements for shared arrangements will differ from those of stand-alone Audit, Risk and Improvement Committees established for a council's exclusive use (as described in core requirements 1-8). Core requirement 9 outlines the specific requirements of shared arrangements.

Role and functions

Under section 428A of the Local Government Act, each council must have an Audit, Risk and Improvement Committee to keep under review the following aspects of the council's operations:

- (a) compliance
- (b) risk management
- (c) fraud control
- (d) financial management
- (e) governance
- (f) implementation of the strategic plan, delivery program and strategies
- (g) service reviews
- (h) collection of performance measurement data by the council, and
- (i) any other matters prescribed by the regulation (i.e. internal audit).

The Committee will also provide information to the council for the purpose of improving council's performance of its functions.

The Audit, Risk and Improvement Committee is to provide an advisory and assurance role only, and is to have no administrative function, delegated financial responsibility or any management functions.

Audit, Risk and Improvement Committees will be required to give independent advice and assurance to the general manager and the governing body of the council on the issues listed in the following table. It is envisaged that these items will be standing items on agenda of each committee meeting. Beyond this, committees will have the flexibility to address the unique challenges and operating environment of each council.

It will be a matter for each council to decide whether or not it's Audit, Risk and Improvement Committee also serves any entities formed by the council.

Audit, Risk and Improvement Committee: role and responsibilities

Audit

Issue (s 428A)	Committee's role and responsibilities
Internal audit	<p>Advisory:</p> <ul style="list-style-type: none"> • providing overall strategic and executive direction for internal audit activities • advising the general manager and governing body of the council of the resources necessary to successfully deliver the internal audit function • assessing the adequacy and effectiveness of council's internal audit activities • acting as a forum for communication between the governing body, general manager, senior management, the internal audit function and external audit • overseeing the coordination of audit programs conducted by internal and external audit and other review functions, and • ensuring the council achieves maximum value from its internal audit activities. <p>Review:</p> <ul style="list-style-type: none"> • the appropriateness of council's Internal Audit Charter, internal audit policies and procedures • audit/risk methodologies used • the findings/recommendations of internal audit activities, particularly recommendations that have been assessed as the most significant according to the risk to the council if they are not implemented • the effectiveness of corrective actions implemented • compliance with statutory requirements • the performance of the Chief Audit Executive and the internal audit function as part of the council's internal audit quality improvement program • the findings of any external reviews of the internal audit function <p>Endorsement of:</p> <ul style="list-style-type: none"> • the council's Internal Audit Charter, internal audit strategic four-year plan and annual work plan, and • the appointment and remuneration of the Chief Audit Executive
External audit	<p>Advisory:</p> <ul style="list-style-type: none"> • acting as a forum for communication on external audit issues, and • advising on the findings of external audits and monitoring the implementation by the council of any recommendations for corrective action.

Risk

Issue (s 428A)	Committee's role and responsibilities
Risk management	<p>Advisory – advising whether:</p> <ul style="list-style-type: none"> the council has provided sufficient resources for risk management and staff are able to carry out their risk management responsibilities the council's risk management framework complies with current Australian risk management standards the council's risk management framework operates effectively and supports the achievement of council's strategic goals and objectives management has embedded a positive risk management culture risk management is fully integrated into all aspects of the council, including decision-making processes and operations risks are formally considered when developing and implementing all council policies, programs, projects and other activities, including procurement major risks have been identified and assessed by the council and appropriate risk treatments have been implemented that reflect council's risk criteria risk information is captured and communicated in a timely manner across the council, enabling management and staff to carry out their responsibilities there are council-specific, fit-for-purpose tools, systems and processes to help all those responsible for managing risk to fulfil their responsibilities, and the council's risk management policies, procedures and plans are being complied with. <p>Review the appropriateness and effectiveness of the council's:</p> <ul style="list-style-type: none"> risk criteria internal control framework risk register and risk profile risk reports risk management framework in relation to its insurance arrangements, and business continuity plans and natural disaster plans (including periodic testing). <p>Endorsement of:</p> <ul style="list-style-type: none"> the council's risk management policy, risk management plan and risk criteria prior to their approval by the governing body of the council, and the council's risk profile and risk register/s prior to their approval by the general manager.
Control framework	<p>Providing independent assurance on the following internal controls implemented by the council to manage specific categories of risk:</p> <p><u>The council's compliance framework</u> - advising whether:</p> <ul style="list-style-type: none"> management has embedded a culture which is committed to lawful and ethical behaviour the council has in place necessary policies and procedures and that these are periodically reviewed and updated the council is complying with all necessary legislation, regulations, policies and procedures management has appropriately considered all legal and compliance risks as part of the council's risk assessment and management arrangements delegations are properly managed and exercised, and the council's system for monitoring compliance is effective

Issue (s 428A)	Committee's role and responsibilities
	<p><u>The council's fraud and corruption framework</u> - advising whether the:</p> <ul style="list-style-type: none"> • council's fraud and corruption prevention plan and activities are adequate and effective, and • council has appropriate processes and systems in place to capture and effectively investigate fraud-related information <p><u>The council's financial management and external accountability framework</u> – including:</p> <ul style="list-style-type: none"> • advising whether the council's financial management processes are adequate • assessing the policies and procedures for council management's review and consideration of the council's current and future financial position and performance and the nature of that review (including the approach taken to addressing variances and budget risks) • advising on the adequacy of early close and year-end review procedures, and • reviewing council's financial statements, including: <ul style="list-style-type: none"> ○ providing input and feedback on council's financial statements ○ advising whether council is meeting its external accountability requirements ○ advising whether appropriate action has been taken in response to audit recommendations and adjustments ○ satisfying itself that the financial statements are supported by appropriate management signoff ○ reviewing the 'Statement by Councillors and Management' (made pursuant to s 413(2)(c) of the Local Government Act) ○ reviewing the processes in place designed to ensure that financial information included in the council's annual report is consistent with the signed financial statements ○ reviewing cash management policies and procedures ○ reviewing policies and procedures for the collection, management and disbursement of grants and tied funding, and ○ satisfying itself that the council has a performance management framework that is linked to organisational objectives and outcomes. <p><u>The council's governance framework</u> – including:</p> <ul style="list-style-type: none"> • advising on the adequacy and robustness of the processes and systems that the council has put in place to govern day-to-day activities and decision-making, and • reviewing whether controls over external parties such as contractors and advisors are sound and effective.

Improvement

Issue (s 428A)	Committee's role and responsibilities
Strategic planning	<ul style="list-style-type: none"> advising whether the council is achieving the objectives and goals it set out in its community strategic plan and has successfully implemented its delivery program, operational plan and other strategies
Service delivery	<ul style="list-style-type: none"> advising how the council is delivering local services and how it could improve its service delivery performance
Performance data and measurement	<ul style="list-style-type: none"> assessing the adequacy of the performance indicators and data the council uses to measure its performance

Learning and development program

Some councils, particularly larger metropolitan councils, already have an established risk management and internal audit framework and have been successfully been using these assurance methods for some time. They may just need to make some adjustments to their frameworks to comply with the proposed requirements.

There are other councils that are just starting this journey - for example, they may have appointed an Audit, Risk and Improvement Committee and are now beginning the process of bedding down internal audit and risk management in their councils.

There are also some councils, particularly in rural areas, who do not have any type of internal audit or risk management in place yet, and are starting to think about how this might work for their council.

There is an opportunity for councils to learn from each other's knowledge and experiences, especially during the initial implementation stage.

A sharing and learning program for Audit, Risk and Improvement Committees will be established to facilitate sharing information between committees about how they implement s428A of the Local Government Act and perform the other regulatory requirements placed upon them.

A sharing and learning program for councils (general managers, Chief Audit Executives and/or Risk Management Coordinators) will also be established to facilitate the sharing of information and learning from each other, particularly between councils that have already established a strong internal audit and risk management function and those that are just starting this journey.

The development of these programs will be guided by similar programs established by the Australian Government and bodies such as Chartered Accountants Australia and New Zealand, the Australian Institute of Company Directors and the Actuaries Institute.

(b) The Audit, Risk and Improvement Committee is to operate according to terms of reference, based on model terms of reference, approved by the governing body of the council after endorsement by the Committee

Each Audit, Risk and Improvement Committee is to prepare terms of reference to define how it is structured and how it will operate. The terms of reference are to be approved by the governing body after endorsement by the Committee. The terms of reference can also be used by the council as a benchmarking tool to measure the effectiveness of the committee.

The general manager is to ensure that each member of the Audit, Risk and Improvement Committee, including new appointments, are provided with a copy of the terms of reference and a formal induction.

Each Audit, Risk and Improvement Committee's terms of reference are to comply with Model Terms of Reference⁴⁸. This is consistent with councils being required to adopt policies based on model documents (for example, the Model Code of Conduct and the Model Code of Meeting Practice).

The Model Terms of Reference will require each Audit, Risk and Improvement Committee's terms of reference to:

- set out the committee's objectives, authority, composition, tenure, roles, responsibilities, duties, reporting lines, reporting and administrative arrangements
- be sufficiently detailed to ensure there is no ambiguity, and
- have clear guidance on key aspects of the committee's operations.

The Audit, Risk and Improvement Committee will be able to include additional provisions in its terms of reference as long as they do not conflict with the Model Terms of Reference or the IPPF. This will ensure any matters not contemplated by the Model Terms of Reference are addressed by councils in a robust way that complies with internationally recognised industry standards.

As part of the council's quality assurance and improvement program, where the Audit, Risk and Improvement Committee's Terms of Reference include additional provisions, they are to be reviewed annually by the Audit, Risk and Improvement Committee, and once each council term (i.e. four years) by an external party.

(c) The Audit, Risk and Improvement Committee is to comprise of three to five independent members who are prequalified via the NSW Government's Prequalification Scheme: Audit and Risk Committee Independent Chairs and Members

Appointment and size of the Committee

The Audit, Risk and Improvement Committee is to be appointed by the governing body of the council. Councils may find it practical to establish a small committee of councillors and the general manager to conduct the selection process and make appointment recommendations to the larger governing body.

⁴⁸ The Model Terms of Reference will be drafted by the Office of Local Government in consultation with councils based on the final internal audit framework developed following consultation on this discussion paper

Each council's Audit, Risk and Improvement Committee is to have no fewer than three members and no more than five members. The Chair is to be counted as a member of the committee. The exact size of the committee is to be determined by the governing body of the council, in consultation with the general manager, taking into account the size and complexity of the council's operations and risk profile.

The Chair of the Audit, Risk and Improvement Committee is to act as the interface between the Committee and the general manager, the Committee and the governing body of council, and the Committee and the Chief Audit Executive.

Independence of members

All Audit, Risk and Improvement Committee members must be independent. To be classified as 'independent', a member must be both:

1. Free of any relationships that could be perceived to result in bias or a conflict of interest or interfere with their ability to act independently.

This means an independent committee member cannot:

- be a councillor of any council in Australia, a candidate at the last election of a council or a person who has held office in a council during its previous two terms
- be employed (currently or during the last three years) by any council in Australia
- have a close personal or business relationship with a councillor or a person who has a senior role in the council
- be a current service provider to the NSW Audit Office, or have been a service provider during the last three years
- currently, or within the last three years, provided any material goods or services (including consultancy, legal, internal audit and advisory services) to the council which directly affect subjects or issues considered by the Audit, Risk and Improvement Committee
- be a substantial shareholder, owner, officer or employee of a company that has a material business, contractual relationship, direct financial interest or material indirect financial interest with the council or a related entity, or have an immediate or close family member who is, which could be perceived to interfere with the individual's ability to act in the best interests of the council
- currently or previously acted as an advocate of a material interest on behalf of the council or a related entity, or

2. Selected from the panel of prequalified audit and risk committee independent chairs and members administered by the NSW Government⁴⁹.

The evaluation criteria for prequalification as a member on the Panel includes⁵⁰:

- extensive senior level experience in governance and management of complex organisations
- an ability to read and understand financial statements

⁴⁹ The NSW Government's *Prequalification Scheme: Audit and Risk Committee Independent Chairs and Members* streamlines selection processes by providing an impartial third party assessment of independent persons seeking appointment to public sector Audit and Risk Committee positions. Individuals prequalified under the scheme have satisfied key skills, knowledge and experience criteria that ensure they will be able to undertake their role on an audit committee effectively. Further information about the scheme can be found at <https://www.procurepoint.nsw.gov.au/scm2421>. The scheme's prequalification criteria may be amended to ensure that members who wish to work with local government satisfy the unique needs and requirements of councils.

⁵⁰ See the prequalification scheme's conditions at <https://tenders.nsw.gov.au/dfs/?event=public.scheme.show&RFTUUID=32C22F9B-DCD8-D61D-59601E7558E2FA26> for more information on the scheme's prequalification criteria. These criteria may be amended in relation to council Audit, Risk and Improvement Committees to ensure that members who wish to work with local government satisfy the unique needs and requirements of councils.

- a capacity to understand the ethical requirements of government (including potential conflicts of interest)
- functional knowledge of areas such as:
 - risk management
 - performance management
 - human resources management
 - internal and external auditing
 - financial reporting
 - accounting
 - management control frameworks
 - financial internal controls
 - governance (including planning, reporting and oversight), or
 - business operations
- a capacity to form independent judgements and willingness to constructively challenge/question management practices and information
- a professional, ethical approach to the exercise of their duties
- the capacity to devote the necessary time and effort to the responsibilities of a member of an Audit, Risk and Improvement Committee, and
- possession of a relevant professional qualification or membership (for example, Certified Internal Auditor, Certified Practising Accountant, Chartered Accountant, Certified Practising Risk Manager, Graduate Member of the Australian Institute of Company Directors) is desirable.

Chairs must also possess:

- leadership qualities and the ability to promote effective working relationships in complex organisations
- an ability to communicate complex and sensitive assessments in a tactful manner to chief audit executives, senior management, board members and Ministers
- a sound understanding of:
 - the principles of good organisational governance and capacity to understand public sector accountability, including financial reporting
 - the business of the department or statutory body or the environment in which it operates
 - internal audit operations, including selection and review of chief audit executives, and
 - risk management principles.

A person prequalified under the scheme as a 'committee member' can only be appointed as a member of an Audit, Risk and Improvement Committee – they cannot be appointed as the Chair. Similarly, only a person pre-qualified as a 'Chair' can be appointed as the Chair of an Audit, Risk and Improvement Committee.

Satisfying both these criteria will ensure Audit, Risk and Improvement Committee chairs and members are sufficiently skilled and experienced and have no real or perceived conflicts of interest. It is important to note that prequalification does not automatically mean that an individual satisfies the independence requirements listed in criteria 1 above.

Living in a local government area is not, in itself, to be considered as impacting a person's ability to be independent of council.

Both the governing body of the council and the general manager must ensure that adequate procedures are in place to preserve the independence of the Audit, Risk and Improvement Committee Chair and committee members. Likewise, the chair and members must notify the governing body and/or general manager if a real or perceived threat to their independence arises⁵¹.

Knowledge, skills and experience collectively needed on the committee

When selecting individual Audit, Risk and Improvement Committee members, the governing body of the council will be required to ensure that the committee as a collective body has the appropriate mix of skills, knowledge and experience to successfully implement its terms of reference and add value to the council.

At least one member of the Audit, Risk and Improvement Committee should have accounting or financial management experience with an understanding of accounting and auditing standards in a local government context.

Each individual should also have sufficient time to devote to their responsibilities as an Audit, Risk and Improvement Committee member.

Fees paid to members and the Chair

Fees paid to Audit, Risk and Improvement Committee members and the Chair are to be the same as those currently paid under the NSW Government's prequalification scheme, as set out in the table below, subject to any changes to the scheme. Members will be able to serve on Audit, Risk and Improvement Committees on a voluntary basis.

The rates include all reasonable costs incurred by members and the Chair engaged under the scheme excluding subsistence and travel costs if travelling into the Sydney metropolitan area from interstate. Subsistence and travel expenses outside the Sydney metropolitan area and/or where the panel member is from interstate are to be charged at the actual cost, or at the rates specified under the *Crown Employees (Public Service Conditions of Employment) Reviewed Award 2009*, whichever is the lesser.

The method of payment (e.g. payroll, invoice) will be at the discretion of the council.

Council size	Indicator	Chair fee (excluding GST)	Member fee (excluding GST)
Large	Expenditure greater than \$400 million	\$20,920 per annum	\$2,092 per meeting day including preparation time
Medium	Expenditure between \$50 million and \$400 million	\$16,213 per annum	\$1,621 per meeting day including preparation time
Small	Expenditure less than \$50 million	\$12,552 per annum	\$1,255 per meeting day including preparation time

⁵¹ As part of their inclusion in the prequalification scheme and prior to their engagement taking effect, chairs and members will be required to provide the council and NSW Government and the details of any other panels they are already on or any other significant appointments within or outside the local government sector (including their nature, duration, payments to the NSW Government agency administering the scheme). Currently under the scheme, members are only permitted to be appointed to five separate audit committees in the NSW public sector. This requirement will be updated to also include the NSW local government sector.

(d) Audit, Risk and Improvement Committee members and the Chair are to serve a three to five-year term. A member's term cannot exceed eight years and the Chair's term cannot exceed five years

The initial term of membership of an Audit, Risk and Improvement Committee member on any one Audit, Risk and Improvement Committee will be three to five-years to ensure that the committee maintains a fresh approach. Members can be reappointed or extended for a further term/s but the total period of continuous membership on any one committee will not be able to exceed eight years. This includes any term as Chair of the committee. Individuals who have served an eight-year term (either as a member or Chair) must have a three-year break from serving on the committee before being appointed again.

The terms of appointments will commence on the date the legislation is commenced. This includes for any existing members of Audit, Risk and Improvement Committees already established by councils who will remain members under the new arrangements.

Membership is to be regularly rotated to keep a fresh approach and avoid any perceptions of bias or conflicts of interest. Care is to be taken to ensure that membership renewal dates are staggered so knowledge is not lost to the Audit, Risk and Improvement Committee when members change. Ideally, no more than one member should leave the committee because of rotation in any one year.

Each council is to provide a thorough induction to each of its Audit, Risk and Improvement Committee members.

When approving the reappointment or extension of a membership term on the Audit, Risk and Improvement Committee, the governing body of the council is to consider a formal assessment by the Mayor (in consultation with the general manager) of the member's or Chair's performance on the committee.

The Council may engage an external reviewer to undertake this assessment if they choose. Joint or regional organisations may wish to engage an external reviewer that the mayors of member councils can utilise for this purpose.

The reappointment of members is also to be subject to the individual still meeting the independence and prequalification requirements outlined above.

The governing body can appoint the Chair for one term only for a period of three to five-years. The Chair's term can be extended but any extension must not cause the total term of the Chair to exceed five years.

(e) The Audit, Risk and Improvement Committee is to meet quarterly, with the ability to hold extra meetings if required. A council's general manager and Chief Audit Executive should attend except where excluded by the Committee

The Audit, Risk and Improvement Committee is to meet at least quarterly over the course of each year. A special meeting may be held, if needed, to review the council's financial statements.

Meetings can be held in person, by telephone or videoconference.

The committee is to ensure that its meeting agenda covers all of its responsibilities, as outlined in the committee's terms of reference, and all the items included in council's annual internal audit work plan.

The Audit, Risk and Improvement Committee will also be able to hold additional meetings when significant unexpected issues arise, or the Chair is asked to hold an additional meeting by the majority of committee members, the general manager, or the governing body of the council (by resolution). The Chair will be responsible for deciding if an additional meeting will be held. To enhance accountability, the ability to hold additional meetings is to be documented in the committee's terms of reference.

Any individual Audit, Risk and Improvement Committee member who wishes to meet with the general manager or governing body of the council to discuss internal audit issues is to do so through the Chair of the committee, and vice versa.

Agenda and minutes

The agenda for each Audit, Risk and Improvement Committee meeting is to be circulated at least one week before the meeting. It is to include as standing items all the lines of defence listed in section 428A of the Local Government Act - internal audit, external audit, risk management, compliance, fraud and corruption, financial management, governance, strategic planning, service delivery and performance measurement.

Audit, Risk and Improvement Committee meeting minutes are to:

- include a record of attendance, items of business considered, decisions and actions arising
- be approved by the Chair before circulation
- be provided to the governing body to enable councillors to keep abreast of assurance issues throughout the year, as well as the general manager, Chief Audit Executive and external auditor
- be provided within two weeks of the meeting date to ensure relevant individuals are made aware of any significant issues discussed at the meeting that need to be dealt with, and
- be treated as confidential unless otherwise specified by the committee - public access should be controlled to maintain confidentiality in accordance with council policy.

Quorum

A quorum is to consist of a majority of Audit, Risk and Improvement Committee members. Where the vote is tied, the Chair is to have the casting vote.

Attendance of non-voting observers at committee meetings

Audit, Risk and Improvement Committee meetings will not be open to the public.

In addition to Audit, Risk and Improvement Committee members, the general manager and the Chief Audit Executive are to attend committee meetings as non-voting observers, except where they are excluded by the committee.

The NSW Auditor-General, as council's external auditor, or their representative, is to be invited to each committee meeting as an independent non-voting observer and can choose whether to attend. The committee can also exclude the external auditor if needed.

The Audit, Risk and Improvement Committee will be able to request to meet with any of the following non-voting individuals whenever necessary in order to seek additional information or explanations:

- privately with the Chief Audit Executive and/or external auditor without the general manager present (this is to occur at least annually)
- council's Chief Financial Officer (or equivalent) given their knowledge of, and responsibility for, council's financial management
- council's Risk Management Coordinator
- any councillor (the Chair of the Committee only)
- any employee or contractor of the council, and/or
- any external independent expert or external party whose advice is needed (subject to confidentiality considerations).

These individuals must comply with the Audit, Risk and Improvement Committee's request.

Others may, with the agreement of the Audit, Risk and Improvement Committee, attend as non-voting observers at committee meetings, but such persons will have no membership or voting rights. The committee can also exclude any of these observers from meetings as needed.

The Audit, Risk and Improvement Committee can also request any written reports or other risk management reports from council's senior management, or other related information as necessary, to enable it to fulfil its assurance role in relation to council's risk management framework. The Committee can also request senior managers to present at Committee meetings to discuss their activities and risks.

The committee will be able to hold closed ('in-camera') meetings whenever it needs to discuss confidential or sensitive issues with only committee members of the Audit, Risk and Improvement Committee present.

The Audit, Risk and Improvement Committee can obtain such external legal or other professional or subject matter expert advice, as considered necessary to meet its responsibilities. The service provider and payment of costs for that advice by the council is subject to the prior approval of the governing body of the council.

Access to council, staff, resources and information

The Audit, Risk and Improvement Committee is to have direct and unrestricted access to the general manager, senior management and staff and contractors of the council in order to perform its role.

The Audit, Risk and Improvement Committee is also to have direct and unrestricted access to the council resources and information it needs to perform its role.

The Audit, Risk and Improvement Committee may only release council information to external parties with the approval of the general manager. The general manager's approval is not required where the information is being provided to an external investigative, audit or oversight agency such as, but not limited to, the Office of Local Government, the NSW Audit Office, the Independent Commission Against Corruption or the NSW Ombudsman for the purpose of informing that agency of a matter that may warrant its attention.

(f) Audit, Risk and Improvement Committee members are to comply with the council's Code of Conduct and the conduct requirements of the NSW Government's Prequalification Scheme: Audit and Risk Committee Independent Chairs and Members

Under section 440 of the Local Government Act, independent Audit, Risk and Improvement Committee members are subject to and required to comply with the council's Code of Conduct. Complaints or breaches of council's code of conduct will be dealt with in accordance with the *Procedures for the Administration of the Model Code of Conduct for Local Councils in NSW*⁵². Committee members should also be deemed to be a 'designated person' and required to complete and submit returns of interests.

As required under the Model Code of Conduct, Audit, Risk and Improvement Committee members must declare any pecuniary or significant non-pecuniary conflicts of interest at the start of each Committee meeting, before discussion of the relevant agenda item or issue, or when the issue arises. Details of any conflicts of interest should also be appropriately minuted.

Where Audit, Risk and Improvement Committee members or observers at Committee meetings are deemed to have a real or perceived conflict of interest they are to remove themselves from Committee deliberations on the issue.

Given they will have been selected from the NSW Government's panel of prequalified Audit and Risk Committee Independent Chairs and Members, members will also be required to comply with that scheme's conduct requirements⁵³.

(g) Disputes between the general manager and/or Chief Audit Executive are to be resolved by the Audit, Risk and Improvement Committee. Disputes with the Committee are to be resolved by the governing body of the council

Members of the Audit, Risk and Improvement Committee should maintain an effective working relationship and try to resolve any differences they may have via open negotiation.

However, in the event of a disagreement between the council management and the Chief Audit Executive (for example, about findings or recommendations of audits), it is to be resolved by the Audit, Risk and Improvement Committee. Disputes between the council management and the Audit, Risk and Improvement Committee are to be resolved by the governing body.

Unresolved disputes regarding compliance with statutory or other requirements are to be referred to the Office of Local Government in writing for its resolution.

⁵² The Procedures can be found at <http://www.olg.nsw.gov.au/sites/default/files/Procedures-for-Administration-of-Model-Code-of-Conduct.pdf>

⁵³ The prequalification scheme's code of conduct can be found at <https://www.procurepoint.nsw.gov.au/scm2421>

(h) The Audit, Risk and Improvement Committee is to provide an annual assurance report to the governing body of the council and be assessed by an external party at least once each council term as part of the council's quality assurance and improvement program

Annual assurance report

As part of council's quality assurance and improvement program, the Audit, Risk and Improvement Committee is to provide an annual assurance report to the governing body which provides:

- a summary of the work the committee performed to discharge its responsibilities during the preceding year
- advice on the appropriateness of the Committee's terms of reference (where the Committee's terms of reference contain additional clauses to those contained in the Model Terms of Reference)
- an overall assessment of the following aspects of council's operations in accordance with section 428A of the Local Government Act:
 - compliance
 - risk management
 - fraud control
 - financial management
 - governance
 - implementation of the strategic plan, delivery program and strategies
 - service reviews
 - collection of performance measurement data by the council, and
 - any other matters prescribed by the regulation (i.e. internal audit), and
- any other information to help the council improve the performance of its functions.

This will ensure that the governing body of the council receives the committee's independent views about these matters in accordance with legislative requirements each year. It will also enable the governing body to assess the work of the Committee each year.

Strategic external review

At least once each council term (i.e. four years) an external strategic review of the effectiveness of the Audit, Risk and Improvement Committee is to be conducted to assess how the committee is functioning. This will provide accountability and ensure that the governing body of the council can assess how the committee's performance and whether any changes to the committee's terms of reference or membership are required.

This strategic external review is to consider:

- whether the Committee has fulfilled its terms of reference
- the appropriateness of the Committee's terms of reference (where the Committee's terms of reference contain additional provisions to those contained in the Model Terms of Reference)
- the performance of Committee members and whether any change of membership is required
- the way the Committee, external auditor, council and internal audit function work together to manage risk and support the council and how effective this is, and
- whether the work of the Committee has contributed to the improvement of the factors identified in section 428A of the Local Government Act.

The external review is to address the collective performance of the Audit, Risk and Improvement Committee, as well as the individual performance of each member and the Chair. In considering the outcomes of the external strategic review, the review is to consider feedback on each member's performance by the Chair of the Committee, mayor and general manager. The governing body of council will be able to request the Chair of the committee to address the council and answer any questions about the operation of the committee.

Dismissal of committee members and the Chair

The governing body of council may terminate the engagement of the Chair or a member of the Audit, Risk and Improvement Committee where the Chair or member has:

- breached the conditions of the prequalification scheme
- breached the council's Code of Conduct
- performed unsatisfactorily, or
- declared, or is found to be in, a position of a conflict of interest which is unresolvable.

Termination can only occur with the approval of the Chief Executive of the Office of Local Government and is to be reported to the agency which is responsible for administering the Audit, Risk and Improvement Committee prequalification scheme. Approval is not needed for termination where the Chair or member has become ineligible or removed from the prequalification scheme by the agency administering the scheme. Dismissal is automatic in these situations.

(i) The general manager is to nominate a council employee/s to provide secretariat support to the Audit, Risk and Improvement Committee. Minutes are to be recorded for all committee meetings

The general manager will be required to nominate a council employee/s to provide secretariat support to the Audit, Risk and Improvement Committee. The main functions of this role are to be:

- minuting Audit, Risk and Improvement Committee meetings
- preparing agendas, and
- providing the committee with any information it needs to fulfil its responsibilities.

Core requirement 2:

Establish a risk management framework consistent with current Australian risk management standards

Proposal

It is proposed that:

- (a) each council (including county council/joint organisation) is to establish a risk management framework that is consistent with current Australian standards for risk management
- (b) the governing body of the council is to ensure that council is sufficiently resourced to implement an appropriate and effective risk management framework
- (c) each council's risk management framework is to include the implementation of a risk management policy, risk management plan and risk management process. This includes deciding council's risk criteria and how risk that falls outside tolerance levels will be treated
- (d) each council is to fully integrate its risk management framework within all of the council's decision-making, operational and integrated planning and reporting processes
- (e) each council is to formally assign responsibilities for risk management to the general manager, senior managers and other council staff and ensure accountability
- (f) each council is to ensure its risk management framework is regularly monitored and reviewed
- (g) the Audit, Risk and Improvement Committee and the council's internal audit function are to provide independent assurance of risk management activities, and
- (h) the general manager is to publish in the council's annual report an attestation certificate indicating whether the council has complied with the risk management requirements.

Description

(a) Each council (including county council/joint organisation) is to establish a risk management framework that is consistent with current Australian standards for risk management

Each council in NSW (including county council/joint organisation) will be required to implement a risk management framework that is consistent with the current Australian risk management standard – currently AS ISO 31000:2018⁵⁴. The framework is to take an enterprise risk management approach which applies to all council activities and risks, not just well-recognised risks such as work health and safety, insurable risks and disaster recovery planning.

⁵⁴ Where ISO 31000:2018 is superseded following a future review by the International Organisation of Standardisation or Standards Australia, councils are to conform to the most current Australian risk management standard. AS ISO 31000:2018 can be found at <https://www.standards.org.au/standards-catalogue/sa-snz/publicsafety/ob-007/as--iso--31000-colon-2018>

The definition of risk management adopted by councils will be the same as that adopted in AS ISO 31000:2018. Risk management comprises of *"coordinated activities to direct and control an organisation with regard to risk"*. Risk is the *"effect of uncertainty on objectives, where an effect is a deviation from the expected. It can be positive, negative or both, and can address, create or result in opportunities and threats"*.

It is recognised that each council will have different risk management requirements depending on its size, needs, budget, complexity of operations and risk management maturity (i.e. the extent to which risk management has already been implemented in the council). Councils will have the flexibility under AS ISO 31000:2018 to choose the size, scope and delivery of their risk management activities so long as they include a number of key structural components (see below).

Where a council wishes to impose requirements that are additional to the proposed framework, it will be able to do so provided the requirements conform to AS ISO 31000:2018 and do not conflict with regulatory requirements.

(b) The governing body of the council is to ensure that council is sufficiently resourced to implement an appropriate and effective risk management framework

The governing body of each council is to provide the resources needed to:

- implement a risk management framework appropriate to the council, and
- deliver the risk treatments and internal controls needed to ensure the council's risks are appropriately managed.

This forms part of the governing body's responsibility for approving the council's budget.

These resources include the necessary:

- human resources (with appropriate skills and experience)
- technology, equipment, tools and information management systems for managing risk
- documented processes and procedures, and
- professional development and training for staff to ensure they can fulfil their risk management responsibilities.

To ensure that the governing body makes informed budgeting decisions, the Audit, Risk and Improvement Committee is to advise the governing body of the resources needed, having regard to any budgetary constraints and the council's operational environment.

Where the Audit, Risk and Improvement Committee considers the resourcing provided for risk management is insufficient relative to the risks facing the council, it is to draw this to the attention of the general manager and the governing body of the council. The Chair of the Committee is to also ensure that the Committee's funding recommendations are minuted by the Committee's secretariat.

The governing body will also be responsible for approving key elements of the council's risk management framework, including the council's risk management policy, risk management plan and risk criteria, following their endorsement by the Audit, Risk and Improvement Committee (see below).

(c) Each council's risk management framework is to include the implementation of a risk management policy, risk management plan and risk management process. This includes deciding the council's risk criteria and how risk that falls outside tolerance levels will be treated

In compliance with AS ISO 31000:2018, each council's risk management framework is to comprise the following key elements:

Risk management policy

Each council will be required to adopt a risk management policy that communicates the commitment of the governing body and the general manager to risk management, and how risk management will be undertaken by the council. The risk management policy is to be approved by the governing body, after endorsement by the Audit, Risk and Improvement Committee.

The council's risk management policy is to describe, at a minimum:

- The council's risk management objectives and priorities, and how these are linked to the council's strategic plans and objectives
- how risk management will be integrated into the overall culture of the council, core business activities and decision-making
- the council's risk criteria
- how the council's risk management policy sits within, and is supported by the council's other policies
- who in the council is accountable and responsible for managing risk in the council
- the resources that will be made available, and
- how the council's risk management performance will be reviewed, measured, reported and improved.

The council's risk management policy can also provide guidance to council staff on the council's commitment to:

- integrating risk management into the council's procedures and practices
- communicating the council's approach to managing risk
- coordinating the interface between risk management and other assurance activities, for example, the Audit, Risk and Improvement Committee, the council's internal audit function and external audit, and
- incorporating risk management into internal staff induction and professional development programs.

The council's risk management policy is to be reviewed at least once each council term, or within one year if there is a significant restructure or change.

Risk management plan

Each council is to develop and implement a risk management plan that provides a structure for how the council will implement its risk management policy and conduct its risk management activities. The chief purpose of the plan is to ensure that the council's arrangements for managing risks are clearly understood and practiced, and identifies where, when and how different types of decisions relating to risk are made across the council and by whom.

To do this, it must include:

- the activities the council will undertake to implement its risk management policy
- roles, accountabilities and responsibilities in relation to risk management
- the timeframes for risk management activities

- how risk management processes will be implemented and maintained (see below)
- resourcing requirements (people, IT and physical assets)
- training and development requirements
- performance measures that will be used to evaluate the success of the council's risk management framework, and
- how and when the council's risk management framework will be reviewed.

Depending on the size, complexity and nature of the council, the council may require a single risk management plan or a hierarchy of linked risk management plans.

The governing body is to approve the council's risk management plan, and any changes made to it, after endorsement by the Audit, Risk and Improvement Committee.

Risk management plans should be living documents and regularly reviewed to reflect current and emerging risks as circumstances change.

Risk management process

The risk management process is a systematic way of identifying, assessing and prioritising risks, deciding how they will be managed, and documenting and communicating this across the council. A summary diagram of the risk management process is provided below.

Each council's risk management process is to include the following stages to ensure its risks are managed effectively. Each stage is to be performed in accordance with AS ISO 31000:2018, using qualitative, semi-quantitative or quantitative methods and techniques that best suit the council's operations, risk management maturity and decision-making needs. NSW Treasury has released a *Risk Management Toolkit for NSW Public Sector Agencies* that councils can use to help them establish their risk management framework⁵⁵.

All knowledgeable council staff are to be involved and councils are encouraged to access external expertise where required.

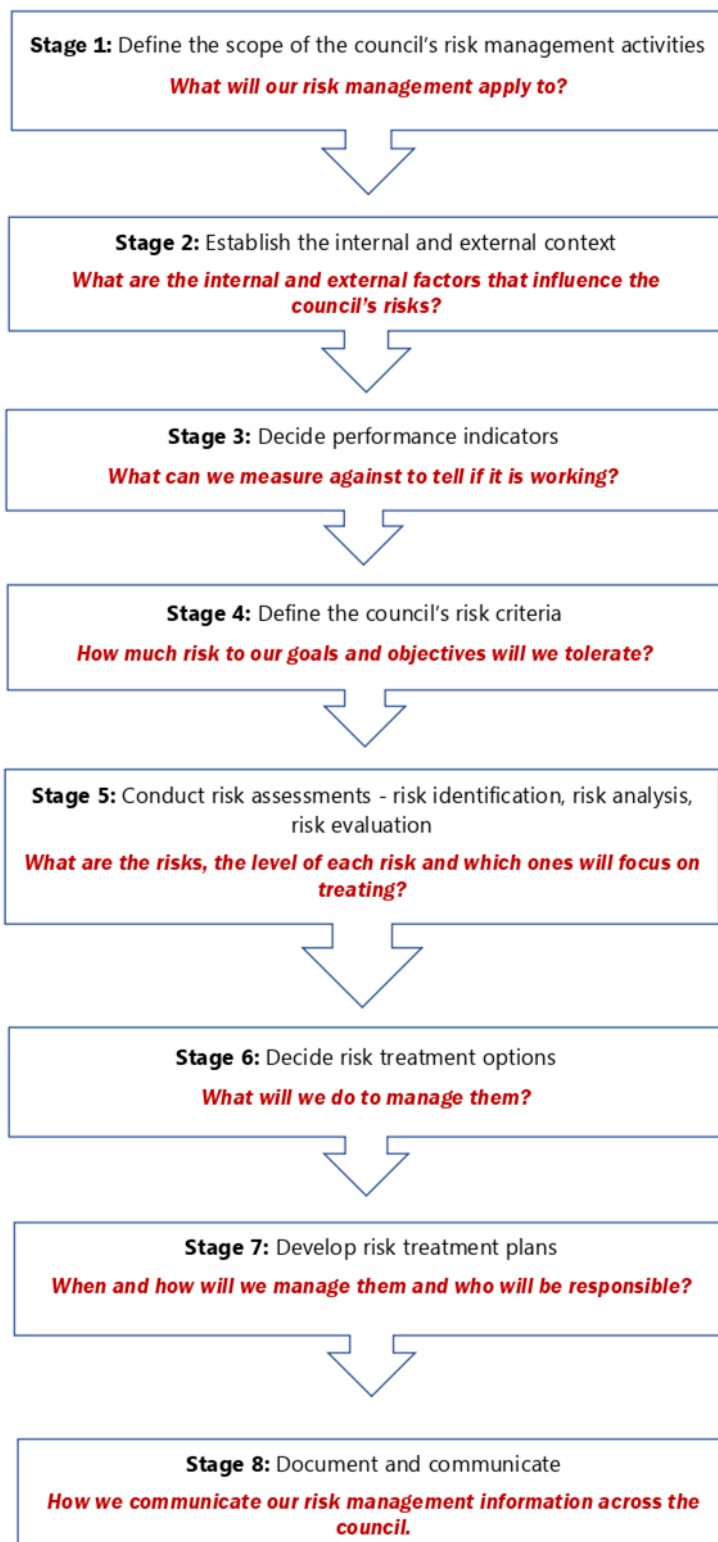
Stage 1: Define the scope of the council's risk management activities

The council is to decide and document the scope of its risk management activities to assist in planning the council's risk management approach. The scope to be decided includes aspects such as:

- the objectives of the council's risk management framework and outcomes expected
- the resources required to plan and develop the framework
- who is responsible for planning and developing the framework
- what records will be kept, and
- what will be the relationship of the risk management framework to other council projects, processes and activities.

⁵⁵ The *Risk Management Toolkit for Public Sector Agencies* (TPP 12-03) can be found at <https://www.treasury.nsw.gov.au/information-public-entities/governance-risk-and-assurance/internal-audit-and-risk-management/risk>

Stages of council's risk management process



Stage 2: Establish the internal and external context

The council is to ensure that it understands and documents the internal and external environment or parameters it operates in and how risk management will impact, and be impacted by these. Factors to be taken into consideration should include internal, political, economic, socio-cultural, technological, legal, and environmental trends and drivers that influence the council's operating environment and can be a source of risk.

Stage 3: Decide performance indicators

The council is to decide the performance indicators it will use to measure the effectiveness of its risk management framework and identify gaps between its actual and desired performance. The performance indicators selected need to be able to be easily measured on an ongoing basis, easily interpreted and understood by staff and management, and provide a meaningful picture of the council's risk management performance.

Stage 4: Define the council's risk criteria

The council is to decide its risk criteria - that is, the amount and type of risk that it is willing to take, or not take, in order to achieve its strategic plan and objectives. It should also define criteria to evaluate the significance of risk based on the council's values, objectives and resources. This will ensure that all council staff have a common understanding of how to evaluate whether a risk is significant and requires a response. It will also ensure that ongoing decision-making about specific activities is consistent across the council.

While the council's risk criteria must be established at the beginning of the risk assessment process, it is dynamic and should be continually reviewed and amended as changes occur to the council's internal or external context.

The council's risk criteria is to be approved by the governing body of the council, after endorsement by the Audit, Risk and Improvement Committee.

Stage 4: Conduct risk assessments

The council is to conduct risk assessments using the following three-step process⁵⁶:

- risk identification – as a first step to assessing what risks need managing, the council is to identify and categorise any risks it is aware of that may help or prevent the council from achieving its strategic goals and objectives. Risk categories could include, for example, council governance risks, fraud and corruption risks, financial risks, compliance risks, risks to council policies, programs and projects, risks to the continuity of operations and services, environmental damage risks, work health and safety risks, purchasing and procurement risks and reporting risks
- risk analysis – once each risk is identified, the council is to assess the effectiveness of any controls that already exist to reduce or enhance the likelihood of a particular event and manage the nature and magnitude of any consequences. This will enable the council to determine the overall level of risk that exists, and
- risk evaluation – once the overall level of risk is determined, the council is to assess and decide which risks require further treatment, and in what order of priority. This is to involve comparing the overall level of risk that exists (based on the risk analysis performed) to the council's risk criteria.

⁵⁶ In addition to AS ISO 31000:2018, *IEC/ISO 31010 Risk management – risk assessment techniques* provides additional guidance on each step of the risk assessment process. This standard can be found at <https://www.iso.org/standard/51073.html>

Those risks that fall outside the risk levels the council is willing to tolerate are to be proactively managed. The least tolerable risks are to be given the highest priority.

Stage 5: Decide risk treatment options

The council is to determine a strategy for the treatment of each risk. A decision should be made to either:

- minimise the risk by implementing controls (see stage 6)
- avoid the risk by adopting alternative approaches (for example, revising the timing of a project, choosing a different delivery model)
- transfer the risk to another party which has greater control over the risk, or is less susceptible to the impact of the risk (for example, insurance), or
- accept the risk and develop contingency plans to minimise the impact should the risk eventuate.

Stage 6: Develop risk treatment plans

The council is to develop risk treatment plans that document how the control will be implemented and integrated into the council's day-to-day management and operational processes. Risk treatment plans are to include:

- the rationale, actions to be taken and expected outcome of control
- who is responsible for implementing the control
- resources required
- timeframes, and
- necessary monitoring and reporting, including the performance indicators that will be used to measure the controls effectiveness.

The general manager is to approve the council's risk treatment plans.

Stage 7: Document and communicate

The council is to develop risk reports to summarise and communicate to all staff what risks the council faces. These reports will also be used by the council to regularly review the risk management framework.

Each council's risk reports will vary, dependent on the needs, complexity and risk maturity of each council. At a minimum, however, they should include:

- a risk profile – this is a high-level status report which describes the priorities and management of risk across the council. It provides an overall picture of a council's risk profile, identifies risk priorities, explains the rationale for decisions made about individual risks and allows those responsible for managing particular risks to see how their risks/controls fit into the council's overall risk management framework, and
- risk registers – these describe and prioritise each individual risk, including its cause/s, impact/s and control/s. They also outline who in the council is responsible for managing individual risks.

Risk reports are to be approved by the general manager, following endorsement by the Audit, Risk and Improvement Committee.

(d) Each council is to fully integrate its risk management framework within all of the council's decision-making, operational and integrated planning and reporting processes

The council's risk management framework must be integrated within all of the council's decision-making processes, governance structures, operational procedures and integrated planning and reporting processes for it to be successful.

For effective risk integration to occur, each council must ensure that, in addition to its risk management policy, plan and process, it implements the following supporting elements:

Risk management culture

A poor risk management culture can lead to poor risk management outcomes.

Each council is to foster a positive risk management culture that ensures that the task of managing risks is not seen by management and staff as an additional responsibility or burden, but a normal part of everyday activities and decision-making. A positive risk management culture relies on strong leadership, commitment, reinforcement and communication from the general manager and senior management of the council.

Risk management communication

Poor communication about risk management can lead to a lack of ownership for managing risk.

Each council is to ensure there is clear communication and consultation about risk management to ensure all staff have a common understanding of:

- the basic principles of risk management
- why the council undertakes risk management and how it relates to the council's strategic plans and objectives
- the basis on which decisions within the council are made and the reasons why particular actions are required to manage risk
- the council's risk criteria and risk management policy, plan and priorities
- staff responsibilities and accountabilities for managing certain risks, and
- how to notify new or emerging risks or when something goes wrong or is not working.

The way each council communicates risk management to its staff will vary depending on its needs, organisational structure, existing communication methods and risk maturity. Communication mechanisms could include, for example, specific risk reports relating to key drivers, trends, incidents, risks or business units, formal training programs, information sessions and informal communication such as staff newsletters.

Risk management information system/s

Each council's risk management framework is to be supported by a robust risk management information system that manages risk-related reports, registers, information, documents, policies and procedures. Easy access to information will ensure the council is able to monitor risks/controls and make informed decisions about any further action needed.

The size, complexity and risk management maturity of a council, and the nature of its risk information, will influence the type of risk management information system that it requires. For smaller councils, Microsoft Word or Excel documents that record, report and communicate risk may be appropriate. Larger councils may need to purchase a custom-made product or system.

(e) Each council is to formally assign responsibilities for risk management to the general manager, senior managers and other council staff and ensure accountability

It is the responsibility of all council managers and staff to manage risk.

For risk management to be effective, all staff (permanent, temporary and contractors) must be aware of the risks that relate to their day-to-day roles and activities and their responsibility for managing these risks and following risk management policies and procedures.

To provide accountability, risk management responsibilities are to be clearly articulated in the job descriptions and performance measurement processes of all relevant managers and staff.

Managers and staff with risk management responsibilities are to also have the necessary skills, knowledge and experience required to fulfil their risk management responsibilities, as well as attitudes and behaviours that support risk management.

General manager and senior managers

Consistent with the general manager's role under section 335 of the Local Government Act to conduct the day-to-day management of the council, the general manager will have ultimate responsibility and accountability for risk management in the council.

This includes:

- approving the council's risk management plan, risk treatment plans, risk register and risk profile
- recommending the council's risk management policy and risk criteria for the endorsement of the Audit, Risk and Improvement Committee and approval of the governing body
- overseeing the council's risk management framework and ensuring it is effectively communicated, implemented and reviewed regularly
- promoting and championing a positive risk culture
- ensuring that all council managers and staff (permanent, temporary or contract) understand their risk management responsibilities and that these are included in all job descriptions, staff induction programs, performance agreements and performance appraisals
- annually attesting that council's risk management framework complies with statutory requirements, and
- approving the council's implementation of corrective actions recommended by the council's internal audit function, external audit and Audit, Risk and Improvement Committee.

Depending on the council's needs, resources and organisational structure, and to assist the integration of risk management across the council, the general manager may wish to delegate key aspects of the council's risk management framework to a group of senior managers established for this purpose. The senior management group would report to the general manager on risk management issues.

Tasks delegated to a council's senior management group could include:

- developing the council's risk management policy
- determining the council's risk criteria
- leading the risk management process - for example, evaluating the council's internal and external context, identifying, assessing and prioritising risks and developing risk treatment plans and internal controls
- developing the council's risk register and risk profile
- communicating and implementing the council's risk management policy and plans across council

- advising/reporting on the performance and implementation of the council's risk management framework to the general manager, and
- reviewing recommendations for corrective actions from the Chief Audit Executive and council's internal audit function and determining council's response.

The senior management group is to meet regularly to enable it to fulfil its functions. Council's Risk Management Coordinator is to attend senior management group meetings. The senior management group can also invite the Chief Audit Executive.

Responsibilities for risk management assigned to the general manager and senior managers are to be included in their employment contract and performance reviews.

Risk Management Coordinator and risk management function

The general manager is to appoint a Risk Management Coordinator who will be responsible for the day-to-day activities required to implement the council's risk management framework and provide specialist risk management skills and knowledge.

The Risk Management Coordinator is to report directly to the general manager or a member of the senior management group in relation to council's risk management function.

Whilst this role has been titled as the 'Risk Management Coordinator', councils will be free to use whatever title they wish to refer to this function (for example, Chief Risk Officer, Risk Manager etc.).

The role and responsibilities of the Risk Management Coordinator are to include:

- supporting the senior management group by coordinating and providing clear and concise risk information, advice and/or reports that can be used in planning and decision-making
- coordinating the various activities relating to risk management within the council
- helping to build a risk management culture within the council, including facilitating and driving risk management at the strategic and operational level within the council and ensuring consistency in practice
- ensuring there are easily accessible systems and processes in place to enable all staff to conveniently undertake risk management in their day-to-day work
- ensuring risk management processes are applied consistently across the council
- organising appropriate staff risk management training and development
- developing and maintaining a risk reporting framework to enable regular advising/reporting of key risks, and the management of those risks, to the senior management group
- supporting council staff with their risk management obligations and providing staff with advice and tools to ensure risk management compliance
- implementing effective risk management communication mechanisms and information system/s
- establishing and maintaining an ongoing monitoring system to track the risk management activities undertaken within council and assessing the need for further action
- assessing risk management information for completeness, accuracy and consistency (for example, risk registers, risk treatment plans), and
- preparing advice or reports for the Audit, Risk and Improvement Committee and attending Committee meetings (where requested).

In order to fulfil their role, the Risk Management Coordinator must:

- have a well-developed understanding of the council and its operations
- have the skills, knowledge and leadership qualities required to support and drive risk management
- have sufficient authority to intervene in instances where risk management efforts are being hampered by a lack of cooperation or through lack of risk management capability or maturity, and

- be able to add value to the risk management process by providing guidance and support in managing difficult risk, or risks spread across a number of the council's business units or operational areas.

Each council will have the flexibility to establish its risk management function based on its structure, resourcing, risk management needs and risk management maturity.

For some councils with larger budgets and higher risks, the Risk Management Coordinator will require dedicated staff to help implement the council's risk management framework. For other councils, their size and risk profile may not justify additional risk management staff and the Risk Management Coordinator will be sufficient.

While best practice would see a stand-alone Risk Management Coordinator employed by each council, it is recognised that some smaller or rural councils may find it difficult to employ a stand-alone Risk Management Coordinator due to the cost involved, the council's remote location and/or that the council's risk management framework may not require a full-time stand-alone employee.

Councils will, therefore, be able to combine the Risk Management Coordinator's role with other council responsibilities (including the Chief Audit Executive) provided that there are adequate safeguards put in place by the council to limit any cognitive bias (which can lead to faulty risk assessments and decision-making errors).

Depending on the specific needs and circumstances of the council, these safeguards could include:

- the Audit, Risk and Improvement Committee being informed of the Risk Management Coordinator's additional role, including the reporting lines, responsibilities and expectations related to the role
- any potential issues or conflicts of interest arising from the other operational roles held by the Risk Management Coordinator being formally documented and communicated to the Audit, Risk and Improvement Committee
- the Risk Management Coordinator being prohibited from undertaking risk management evaluations and reviews in relation to the council operations they are responsible for. Another senior staff member will conduct these and will report directly to the general manager on the results
- if the Chief Audit Executive and Risk Management Coordinator is a combined role, any independent review of council's risk management framework must be undertaken by an independent external party, and
- the Audit, Risk and Improvement Committee regularly assessing that the safeguards put in place are effective.

Council managers

Responsibility for managing specific policy, project and program risks generally rests with council managers across the council. This includes council managers being responsible, within the sphere of their authority, for:

- promoting awareness of risks and risk treatments that must be implemented
- ensuring council staff are implementing the council's risk management framework as developed and intended and performing their risk management responsibilities
- identifying risks that will affect the achievement of the council objectives
- establishing and/or implementing specific policies, operating and performance standards, budgets, plans, systems and/or procedures to manage risks, and
- monitoring the effectiveness of risk treatment and internal controls.

All other council staff

All council staff are to be responsible for:

- helping to identify risks in their business unit
- implementing risk treatment plans within their area of responsibility
- following standard operating procedures (where applicable), and
- communicating or escalating new risks that emerge to their manager.

(f) Each council is to ensure its risk management framework is regularly monitored and reviewed

The senior management group is to establish and maintain an ongoing monitoring and review process of the information gathered from council's risk management process⁵⁷ to ensure its risk management framework is up-to-date and relevant. It will also enable the senior management group to report to the general manager, governing body of the council and Audit, Risk and Improvement Committee when required about the council's risk management framework.

Each council is to base its ongoing monitoring and review process based on its own needs, however, this should include at a minimum the following two key elements:

1. **Quarterly advice from the Risk Management Coordinator to the senior management group assessing the council's risk profile and risk registers** – this will ensure that risks are being correctly identified, prioritised and treated, and any emerging problems are known and rectified quickly. Any changes are to be captured in updates to the council's risk profile and risk register, and relevant risk treatment plans.
2. **An annual self-assessment at the end of each financial year by the senior management group of the quality of the council's risk management framework** – this is to assess the operation of the risk management framework during the preceding financial year and to ensure:
 - the council is providing sufficient resources for risk management and staff are able to carry out their risk management responsibilities
 - the council's risk management framework complies with AS ISO 31000:2018
 - the council's risk management framework operates effectively and supports the achievement of council's strategic goals and objectives
 - management has embedded a positive risk culture
 - the council's risk criteria is appropriately reflected in council's internal control framework
 - the council takes an enterprise risk management approach that is fully integrated into all aspects of the council, including decision-making processes and operations
 - risks are formally considered when developing and implementing all council policies, programs, projects and other activities, including procurement
 - risk management covers all relevant risk categories including strategic, operational, compliance, reputational and reporting risks
 - major risks have been identified and assessed by the council and appropriate risk treatments have been implemented that reflect the council's risk criteria
 - the council's internal controls are effective and appropriate
 - the council's risk register and risk profile is current and appropriate

⁵⁷ This includes ongoing monitoring and review of the scope of the council's risk management framework, the context the council operates in, the council's risk criteria, the results of the council's risk assessment, controls implemented, risk treatment plans and risk reports such as the council's risk profile and risk registers

- risk information is captured and communicated in a timely manner across the council, enabling management and staff to carry out their responsibilities, and
- the council's risk management policies, procedures and plans are being complied with.

Ultimately the general manager is responsible for the implementation of the council's risk management framework, and ensuring that risks are being managed appropriately. Each council will have the flexibility to decide, based on its own needs and resources, how and when the senior management group reports risk information to the general manager and the governing body of the council.

Standards Australia has released *HSB 158-2010 Delivering assurance based on ISO 31000:2009 Risk management – Principles and guidelines*⁵⁸ which may assist councils to monitor and review their risk management frameworks.

Performance management system

The senior management group is to ensure the effectiveness of the risk management framework can be assessed. This will require the senior management group and Risk Management Coordinator to ensure that:

- approved risk treatment plans have performance targets that can be measured against goals and objectives, and
- a data collection system is maintained to obtain the data needed to measure the impact of the council's risk management framework.

Performance targets are to be set annually by the senior management group, in consultation with the general manager and the Audit, Risk and Improvement Committee.

(g) The Audit, Risk and Improvement Committee and the council's internal audit function are to provide independent assurance of risk management activities

Role of the Audit, Risk and Improvement Committee

The Audit, Risk and Improvement Committee will be responsible for providing independent assurance to the general manager and governing body that the council's risk management framework is appropriate and working effectively.

This includes advising whether:

- the council is providing sufficient resources for risk management and staff are able to carry out their risk management responsibilities
- the council's risk management framework complies with AS ISO 31000:2018
- the council's risk management framework operates effectively and supports the achievement of the council's strategic goals and objectives
- management has embedded a positive risk management culture
- the council's risk criteria is appropriately reflected in the council's internal control framework
- the council takes an enterprise risk management approach that is fully integrated into all aspects of the council, including decision-making processes and operations

⁵⁸ More information about HSB 158-2010 can be found at <https://www.standards.org.au/standards-catalogue/sa-snz/publicsafety/ob-007/hb--158-2010>. Please note that this standard is based on the previous risk management standard ISO 3100:2009 and may possibly be updated.

- risks are formally considered when developing and implementing all council policies, programs, projects and other activities, including procurement
- risk management covers all relevant risk categories including strategic, operational, compliance, reputational and reporting risks
- major risks have been identified and assessed by the council and appropriate risk treatments have been implemented that reflect the council's risk criteria
- the council's internal controls are effective and appropriate
- the council's risk register and risk profile is appropriate
- risk information is captured and communicated in a timely manner across the council, enabling management and staff to carry out their responsibilities
- there are council-specific, fit-for-purpose tools, systems and processes to help all those responsible for managing risk to fulfil their responsibilities, and
- the council's risk management policies, procedures and plans are being complied with.

The Audit, Risk and Improvement Committee's role and responsibilities in relation to risk management are to be documented in its terms of reference.

The frequency and nature of the Committee's assurance to the general manager and governing body is to be determined by the Committee in consultation with the general manager and governing body of the council.

At a minimum, the Audit, Risk and Improvement Committee is to be required to provide an annual assessment of the council's risk management framework as part of its annual assurance report to the governing body of the council. This will ensure that the governing body of the council receives the Committee's independent and objective opinion about the risk management activities conducted each year. It will also support the governing body in the exercise of its oversight role under the Local Government Act.

Reporting to the Audit, Risk and Improvement Committee

The Audit, Risk and Improvement Committee is to determine in consultation with the general manager what information it needs from the council to fulfil its risk management assurance role. Information requirements are to be based on the council's risk management maturity, the resources available and the aspect of the risk management framework being assessed.

Review or information requirements could include, for example:

- advice from the senior management group to each quarterly meeting of the Audit, Risk and Improvement Committee providing an overview of the council's risks and controls and whether significant risks have been identified, assessed and responded to appropriately
- annual advice from the senior management group about the implementation of the council's risk management framework - for example, whether it conforms with AS ISO 31000:2018, the risk process has been implemented effectively, there is a positive risk culture, the council's risk register and profile are appropriate, the council's risk management policy and procedures are being complied with, and/or
- an independent strategic review by the internal audit function or an external party at least once each council term (i.e. four years) assessing adequacy of the risk management framework.

The Audit, Risk and Improvement Committee will also be informed by any findings or recommendations made by the council's external auditor in relation to risk management.

The senior management group will be required to develop an action plan for the general manager and the Audit, Risk and Improvement Committee to address any risk management issues identified by the Committee.

Role of the internal audit function

The council's internal audit function will support the Audit, Risk and Improvement Committee to fulfil its assurance responsibilities through the audit of particular risks, as identified in the internal audit function's work plan. The role of the council's internal audit function in relation to risk management is to be documented in the council's Internal Audit Charter.

Given the need to maintain the independence and objectivity of the internal audit function, the following boundaries are to apply with respect to the role of the internal audit function in the council's risk management framework:

- it is to be clear that council management remains responsible for risk management
- the internal audit function is to provide advice, challenge and support management's decision-making, as opposed to taking risk management decisions themselves
- the internal audit function should not:
 - manage any of the risks on behalf of the council
 - set the council's risk criteria
 - impose risk management processes
 - decide or implement risk responses, or
 - be held accountable for risk management activities.

(h) The general manager is to publish in the council's annual report an attestation certificate indicating whether the council has complied with the risk management requirements

The general manager will be required to annually publish an attestation statement in the council's annual report indicating whether, during the prior financial year, the council was 'compliant', 'non-compliant' or 'in transition' against each of the above-mentioned requirements of the council's risk management framework.

Compliance status is to be self-assessed based on the results of the senior management group's annual self-assessment. The table on page 84 lists the proposed compliance categories and follow-up action that will be required.

The general manager is to ensure that a copy of the attestation statement and the exception approval from the Chief Executive Officer of the Office of Local Government (if applicable) is published in the council's annual report. A copy of the attestation statement is to also be provided to the Office of Local Government.

The Chair of the Audit, Risk and Improvement Committee is to also sign the attestation statement where he/she agrees that it is a true and accurate reflection of the council's compliance status against statutory requirements.

Core requirement 3:**Establish an internal audit function mandated by an Internal Audit Charter****Proposal**

It is proposed that:

- (a) each council (including county council/joint organisation) is to establish an internal audit function
- (b) the governing body is to ensure that the council's internal audit function is sufficiently resourced to carry out its work
- (c) the governing body of the council is to assign administrative responsibility for internal audit to the general manager and include this in their employment contract and performance reviews, and
- (d) the Chief Audit Executive is to develop an Internal Audit Charter, based on a model charter, which will guide how internal audit is conducted by the council. This Charter is to be approved by the governing body of council after endorsement by the Audit, Risk and Improvement Committee.

Description**(a) Each council is to establish an internal audit function**

Each council in NSW, (including county council/joint organisation), will be required to have an internal audit function that reports functionally to the Audit, Risk and Improvement Committee and is independent from council management.

The definition of internal audit adopted by councils will be the same as that adopted in the IPPF - internal audit is *"an independent, objective, assurance and consulting activity designed to add value and improve [council's] operations. It helps [council] accomplish its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control and governance processes"*.

It is recognised that each council will have different internal audit requirements depending on its size, needs, budget and complexity of operations. To provide councils greater flexibility, each council will have the freedom to determine the size and scope of their internal audit activities. Councils will also have the flexibility to decide how to deliver their internal audit function. They can either:

- establish a stand-alone internal audit function for their exclusive use
- utilise a joint internal audit function established by their joint or regional organisation of councils that is shared by member councils, or
- share their internal audit function with another council/s in close proximity or of their choosing as part of an independent shared arrangement.

It is recommended that county councils, due to their size, enter into a share arrangement with one of their member councils or utilise an internal audit function established by a joint or regional organisation of councils.

Some of the requirements for shared arrangements will differ from those of stand-alone internal audit functions established for a council's exclusive use (as described in core requirements 1-8). Core requirement 9 outlines the specific requirements of shared arrangements.

Where a council wishes to impose requirements that are additional to the proposed framework, it will be able to do so provided the requirements comply with the IPPF and do not conflict with statutory requirements.

(b) The governing body is to ensure that council's internal audit function is sufficiently resourced to carry out its work

The governing body will be required to ensure that the council's internal audit function is sufficiently resourced to effectively carry out its work⁵⁹. This is in line with the governing body's responsibility for the council's budget and other resourcing decisions. To ensure that the governing body makes informed budgeting decisions, the Audit, Risk and Improvement Committee is to advise the governing body of the resources needed.

Where the Audit, Risk and Improvement Committee considers the resourcing provided for internal audit activities is insufficient relative to the risks facing the council, it is to draw this to the attention of the general manager and the governing body of the council. The Chair of the Committee is to also ensure that the Committee's funding recommendations are minuted by the Committee's secretariat.

(c) The governing body of the council is to assign administrative responsibility for internal audit to the general manager and include this in their employment contract and performance reviews

Consistent with the general manager's role under section 335 of the Local Government Act to conduct the day-to-day management of the council, the general manager will be responsible for the **administrative** delivery of council's internal audit function. This means that the general manager will be required to:

- advise the governing body of the funding needed to adequately resource the internal audit function when making final budget decisions
- align the internal audit budget to approved work plans and recommendations made by the Audit, Risk and Improvement Committee
- allocate the funds needed to engage internal audit personnel or external providers with the technology, skills and experience necessary to meet the risk and assurance needs of the council
- provide appropriate administrative support, for example, access to council's human resources networks, payroll, work health and safety, office facilities and resources etc., and
- ensure that the council's internal audit activities are appropriately positioned within the council to work with external audit and internal business units and to operate independently.

The general manager will have no role in the exercise of the internal audit (for example, the conduct of internal audits, development of work plans, audit techniques used, reporting to the governing body and Audit, Risk and Improvement Committee etc.). The general manager's administrative responsibilities in relation to internal audit are to be included in the general manager's employment contract and regular performance reviews to ensure accountability. The Office of Local Government will amend the general manager's standard contract under section 338 of the Local Government Act to reflect this requirement.

⁵⁹ The Institute of Internal Auditors has developed the *Audit Intelligence Suite* which can be used to obtain a general picture of the potential resources needed for an internal audit function based on benchmark costs across the corporate and public sectors. For access (cost involved), go to <https://www.theiia.org/centers/aec/Pages/benchmarking.aspx>

(d) The Chief Audit Executive is to develop an Internal Audit Charter, based on a model charter, which will guide how internal audit is conducted by the council. This Charter is to be approved by the governing body of the council after endorsement by the Audit, Risk and Improvement Committee

Each council will be required to adopt an 'Internal Audit Charter' to guide how internal audit will be undertaken by that council and measure its effectiveness.

The Internal Audit Charter is to be developed by the council's Chief Audit Executive in consultation with the Audit, Risk and Improvement Committee and approved by the governing body of the council after endorsement by the Committee.

Each council's Internal Audit Charter is to comply, at a minimum, with a Model Internal Audit Charter⁶⁰. This is consistent with councils being required to adopt policies based on other model documents (for example, the Model Code of Conduct and the Model Code of Meeting Practice).

The Model Internal Audit Charter will:

- define the purpose, authority and responsibility of the internal audit function
- establish internal audit's position, role and responsibilities within the council
- describe the importance of the independence of the internal audit function and how this will be maintained
- define the roles and responsibilities of those involved in the council's internal audit activities
- assign responsibility for appointing and dismissing the Chief Audit Executive
- describe how internal audit activities are to be undertaken (i.e. the scope of assessments, writing internal audits and work plans, performing internal audits, communicating results, writing audit reports and monitoring the implementation of corrective actions)
- describe the quality assurance and improvement program
- describe administrative arrangements, HR support and budget provided to support the internal audit function
- define reporting relationships
- define internal audit's relationship with the external auditor, and
- authorise access to internal audit information.

Councils will be able to include additional provisions in their Internal Audit Charter so long as they do not conflict with the Model Internal Audit Charter or the IPPF. This will ensure any matters not contemplated by the Model Charter are addressed by councils in a robust way that complies with internationally recognised standards.

Where the council's Internal Audit Charter contains additional provisions not included in the Model Internal Audit Charter, the Chief Audit Executive is to review the Charter annually as part of the council's internal audit quality assurance and improvement program. A strategic review is to also be undertaken once each council term (i.e. four years). Changes to the Charter are to be approved by the governing body of the council after endorsement by the Audit, Risk and Improvement Committee.

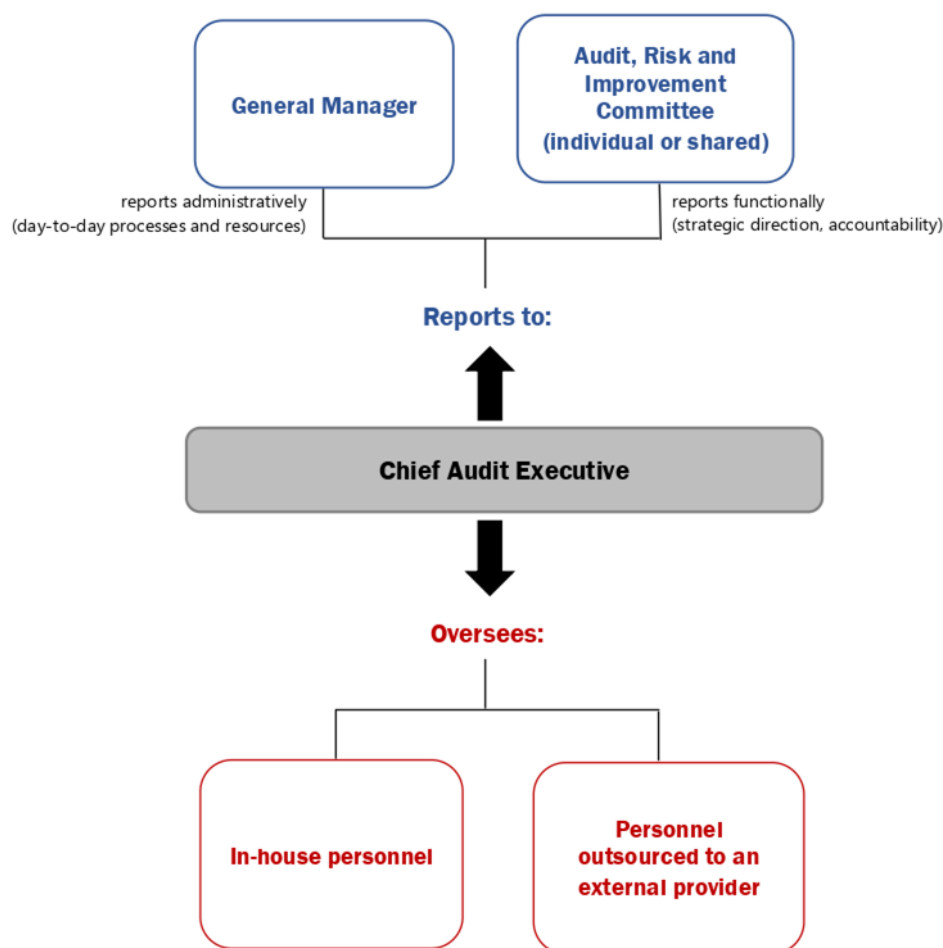
⁶⁰ The Model Internal Audit Charter will be drafted by the Office of Local Government in consultation with councils based on the final internal audit framework developed following consultation on this discussion paper

Core requirement 4: **Appoint internal audit personnel and establish reporting lines**

Proposal

It is proposed that the:

- (a) general manager is to appoint a Chief Audit Executive to oversee the council's internal audit activities in consultation with the Audit, Risk and Improvement Committee
- (b) Chief Audit Executive is to report functionally to the Audit, Risk and Improvement Committee and administratively to the general manager and attend all committee meetings, and
- (c) general manager is to ensure that, if required, the council has adequate internal audit personnel to support the Chief Audit Executive. Councils will be able to appoint in-house internal audit personnel, or completely or partially outsource their internal audit function to an external provider.



Description

(a) The general manager is to appoint a Chief Audit Executive to oversee the council's internal audit activities in consultation with the Audit, Risk and Improvement Committee

Attributes of the Chief Audit Executive

The general manager, in consultation with the Chair of the Audit, Risk and Improvement Committee, will be required to appoint a Chief Audit Executive to oversee the council's internal audit activities. The term 'Chief Audit Executive' has been used throughout this discussion paper to reflect the terminology used in the IPPF and NSW public sector internal audit model. However, each council is able to describe this role as it chooses, for example, Chief Internal Auditor, Chief Audit Officer etc.

The Chief Audit Executive is to

- be independent, impartial, unbiased and objective when performing their work and free from conflicts of interest. This also means that the Chief Audit Executive cannot undertake internal audit activities on any council operations or services that he/she has held responsibility for within the last five years
- be a council employee and the most senior member of staff in council responsible for internal audit (but not the general manager or council's senior financial officer)
- cannot be outsourced to an external service provider, except where the council has entered into a shared arrangement with another council or as part of their joint or regional organisation of councils
- possess the following skills, knowledge and experience to effectively carry out their role:

Essential

- the credibility to ensure they are able to negotiate on a reasonably equal footing with the general manager and councillors of the council, as well as the Audit, Risk and Improvement Committee, and
- the skills, knowledge and personal qualities necessary to lead credible and accepted internal audit activities in the council

Preferred

- high-level experience overseeing internal audit, and
- appropriate professional certifications such as those recognised by the Institute of Internal Auditors (Certified Internal Auditor), Certified Professional Accountants Australia or Chartered Accountants Australia and New Zealand.

This will ensure that the internal audit function of each council is led by someone with the skills, knowledge, experience and integrity needed to establish and effectively oversee a council's internal audit functions. It will also ensure that the council retains control of the internal audit strategic direction and is able to monitor the performance of any external service provider.

Oversight

It is important that the Chief Audit Executive has the functional independence to ensure that this role has the freedom necessary to independently assess and report on the way council operates. However, the Chief Audit Executive, as a member of staff under the Local Government Act, must also be appointed by and accountable to the general manager.

As a safeguard, to ensure the functional independence of the Chief Audit Executive, the general manager is to consult with the Chair of the Audit, Risk and Improvement Committee before appointing or dismissing the Chief Audit Executive, or making any change to the Chief Audit Executive's

employment conditions. Where dismissal occurs, the general manager is to report to the governing body advising of the reasons why the Chief Audit Executive was dismissed.

Where the Chair of the Audit, Risk and Improvement Committee has any concerns about the treatment of the Chief Audit Executive, or any action taken that may compromise the Chief Audit Executive's ability to undertake their functions, they must report their concerns to the governing body of the council.

Responsibilities

The key responsibilities of the Chief Audit Executive include:

- managing the day-to-day direction and performance of the council's internal audit activities to ensure they add value to council
- supporting the operation of the Audit, Risk and Improvement Committee
- ensuring the council's internal audit activities comply with statutory requirements, the IPPF and the council's needs
- developing, implementing and reviewing the council's Internal Audit Charter, policies and procedures, work plans and quality assurance and improvement program
- providing advice to the Audit, Risk and Improvement Committee and governing body of the council on the adequacy and effectiveness of the council's governance frameworks, risk management practices and internal controls
- confirming the implementation by the council of corrective actions that arise from the findings of internal audit activities, and
- managing internal audit personnel and ensuring that they have the skills necessary to perform audits and are up to date on current issues affecting the council and on audit techniques and developments.

Where a council has outsourced its internal audit activities to an external provider, the Chief Audit Executive will be responsible for:

- overseeing the service contract and the quality of audits conducted by the external provider (including overseeing the quality assurance and improvement program)
- ensuring that the council retains control of the strategic direction of internal audit activities
- reporting to the general manager and the governing body of the council on the adequacy and effectiveness of the council's governance frameworks, risk management practices and internal controls (based on the findings provided by the external provider)
- confirming the council's implementation of corrective actions that arise from the findings of audits
- developing policies and procedures that guide the audits conducted by the external provider
- developing the internal audit annual work plan and strategic plan
- ensuring audit methodologies used by the external provider comply with the IPPF and are accessible to the council (subject to any licensing restrictions), and
- supporting the operation of the Audit, Risk and Improvement Committee.

Combining Chief Audit Executive with other responsibilities

It is recognised that some smaller rural councils may find it difficult to employ both a stand-alone Chief Audit Officer and stand-alone Risk Management Coordinator due to the cost involved, council's remote location and/or that the council's risk management function and internal audit function may not require full-time stand-alone employees.

Whilst it is not best practice, it is recognised that combining the Chief Audit Officer role with the Risk Management Coordinator role may make it easier for smaller or remote councils to establish their risk management framework and internal audit function.

Councils will, therefore, be able to combine the Chief Audit Officer's role with the Risk Management Coordinator role provided there are adequate safeguards put in place by the council to limit any real or perceived bias or conflicts of interest that may lead to faulty decision-making and cognitive bias. The endorsement of the Audit, Risk and Improvement Committee will also be required before the combined role can commence.

Depending on the specific needs and circumstances of the council, safeguards could include:

- the Audit, Risk and Improvement Committee being informed of the Chief Audit Executive's dual role, including reporting lines, responsibilities and expectations related to the role
- any potential issues or conflicts of interest arising from the dual role being formally documented in council's Internal Audit Charter
- internal audit briefs being reviewed by the Audit, Risk and Improvement Committee to ensure adequate coverage of the proposed audit, where it concerns any key risks overseen by the Chief Audit Executive in their role as Risk Management Coordinator
- the Audit, Risk and Improvement Committee, or a qualified external party, reviewing internal audit findings and recommendations before they are finalised
- the council's quality assurance program including an external assessment of the Chief Audit Officer's independence and objectivity (for internal audit purposes) in relation to their Risk Management Coordinator role, and
- the Audit, Risk and Improvement Committee regularly assessing that the safeguards put in place are effective.

(b) The Chief Audit Executive is to report functionally to the Audit, Risk and Improvement Committee and administratively to the general manager, and attend all committee meetings

To ensure that internal audit operates independently, the Chief Audit Executive will have a dual reporting line and report:

- **administratively to the general manager** - to facilitate the day-to-day operations of internal audit (for example, in relation to budgeting, accounting, internal audit staff leave and disciplinary matters, internal communications, administration of policies and procedures), and
- **functionally to the Audit, Risk and Improvement Committee** - for the strategic direction, performance and accountability of internal audit activities and personnel.

The general manager must not take any action impacting on the employment of the Chief Audit Executive, including through performance management or disciplinary processes, without consulting with the Chair of the Audit, Risk and Improvement Committee.

The Chief Audit Executive will be required to confirm at least annually to the Audit, Risk and Improvement Committee the independence of internal audit activities.

Access to council staff and information

To achieve the degree of independence necessary to effectively carry out internal audit activities, the Chief Audit Executive will automatically have direct and unrestricted access to the general manager and senior managers of the council, as well as the Audit Risk and Improvement Committee (through the Chair).

Any council staff member or contractor will also be able to directly alert the Chief Audit Executive of emerging risks or internal audit related issues.

The Chief Audit Executive is to have direct and unrestricted access to all council staff, resources and information necessary for the performance of internal audit activities.

Reporting concerns about councillors or council staff

Where a Chief Audit Executive has concerns regarding the general manager or senior council staff, they will be able to:

- raise their concerns with the Chair of the Audit, Risk and Improvement Committee (if it relates to the effectiveness of the internal audit function)
- report breaches of the council's Code of Conduct to the general manager, or by the general manager to the Mayor⁶¹
- report their concerns through the council's internal reporting policy, complaints handling policy or other associated protocols, and/or
- make a public interest disclosure under the *Public Interest Disclosures Act 1994* to the:
 - Independent Commission Against Corruption (concerning corrupt conduct)⁶²
 - NSW Ombudsman (concerning maladministration)
 - NSW Auditor General (concerning serious and substantial waste of public money)
 - Office of Local Government (concerning serious and substantial waste in local government and breaches of pecuniary interest obligations), and/or
 - Information and Privacy Commissioner (concerning government information contraventions).

Code of Conduct

The Chief Audit Executive is to comply with the council's Code of Conduct, as well as the Code of Ethics in the IPPF.

Breaches of the council's Code of Conduct by the Chief Audit Executive are to be reported in writing to the general manager of the council in the first instance. The general manager should notify the Chair of the Audit, Risk and Improvement Committee of any such allegations and their outcome.

(c) The general manager is to ensure that, if required, the council has adequate internal audit personnel to support the Chief Audit Executive. Councils will be able to appoint in-house internal audit personnel or to completely or partially outsource their internal audit function to an external provider

Regardless of size, each council will be required to have an appropriately resourced internal audit function when section 428A of the Local Government Act commences.

For some councils with larger budgets and higher risks, this will require dedicated internal audit staff to support the Chief Audit Executive to deliver the internal audit function. For other councils, their size and risk profile may not justify additional internal audit staff and the Chief Audit Executive will be sufficient.

For councils that require additional internal audit personnel, options include having a dedicated in-house team, co-sourcing arrangements, or outsourcing their audits to an external provider.

⁶¹ As required by the *Procedures for the Administration of the Model Code of Conduct for Local Councils in NSW*

⁶² Under section 11 of the *Independent Commission Against Corruption Act 1988*, the Chief Audit Executive must report any suspected corrupt activity to the Independent Commission Against Corruption

In determining the most appropriate option for the delivering the council's internal audit function, the general manager should consider the:

- size of the council in terms of both staffing levels and budget
- geographical and functional distribution of the council's operations
- complexity of the council's core business
- risk profile of the council's operations
- council's integrated planning and reporting framework
- the viability of alternative service delivery models (for example, whether council could attract and retain suitable in-house internal audit staff or experienced contract managers for out-sourced service delivery)
- overall cost of alternative service delivery models, including the salaries and overheads of in-house internal audit personnel compared to the costs of contract management and delivery for out-sourced services, and
- capacity of alternative service delivery models to deliver flexibility in the internal audit work plan.

Whichever model a council chooses, the internal audit function, including the appointment of internal audit personnel, is to be overseen by the Chief Audit Executive.

The Chief Audit Executive must be a council employee and cannot be outsourced, other than through a shared arrangement with another council or through a joint or regional organisation of councils.

Employing in-house internal audit personnel

Internal audit personnel report directly to the Chief Audit Executive.

In-house internal audit personnel can be appointed on a full-time or part-time basis. They will be required to comply with the council's Code of Conduct and the Code of Ethics in the IPPF and are to have no executive, managerial or operational powers, authorities, functions or duties except those relating to internal audit. They also cannot have any responsibility for managing any risks or implementing any audit recommendations, including those made by external audit.

Position descriptions for in-house internal audit staff are to require:

- appropriate qualifications
- proficiency in internal audit and accounting principles and techniques (particularly if working extensively with financial information and reports)
- knowledge of economics, management practices, commercial law, taxation, finance, quantitative methods, fraud and internal audit technology, and
- effective interpersonal and communication skills.

Outsourcing internal audits to an external provider

Providing that independence requirements are adhered to, councils can contract their internal audit function to an external internal audit service provider. Examples of providers include private sector accounting firms with a specialist internal audit division, boutique firms that specialise in internal audit, and internal audit contractors.

The advantages of using external providers for internal audit activities include⁶³:

- flexibility
- access to a wide range of expertise
- the ability to access the service as and when required, and
- the ability to pool resources with other councils to purchase external services as part of a shared arrangement.

Disadvantages include loss of corporate knowledge, lack of proximity and possible increased costs.

If a council chooses to outsource its internal audits, the Chief Audit Executive is to be the contract manager of the service and is to ensure that:

- an appropriately qualified external provider is conducting the audit in compliance with relevant standards
- the performance of the external provider is actively monitored, and
- the external provider:
 - does not undertake audit work regarding operations or services they have been responsible for, or consulted on, within the last two years
 - is not the same auditor providing council's external audit services
 - is not the auditor of any contractors of the council (and therefore subject to council's internal audits)
 - does not undertake other contract work for the council in addition to internal audit
 - has authority to implement the work program approved by the Audit, Risk and Improvement Committee
 - is rotated, or some other method is established, to address risks caused from having the same auditors auditing the same unit/functional area over a prolonged period of time, and
 - uses audit methodologies that comply with the IPPF and are accessible to the council (subject to any licensing restrictions that may be in place).

⁶³ *Internal Audit in Australia* published by The Institute of Internal Auditors - Australia (2016) provides a useful comparison of the advantages and disadvantages of different internal audit function delivery models (page 23 onwards).

Core requirement 5:

Develop an agreed internal audit work program

Proposal

It is proposed that, for each council, the Chief Audit Executive will:

- (a) develop a four-year strategic plan to guide the council's longer-term internal audits in consultation with the governing body, general manager and senior managers. The strategic plan is to be approved by the Audit, Risk and Improvement Committee
- (b) develop an annual risk-based internal audit work plan, based on the strategic plan, to guide the council's internal audits each year. The work plan is to be developed in consultation with the governing body, general manager and senior managers and approved by the Audit, Risk and Improvement Committee, and
- (c) ensure performance against the annual and strategic plans can be assessed.

Description

- (a) The Chief Audit Executive is to develop a four-year strategic plan to guide the council's longer-term audits in consultation with the governing body, general manager and senior managers. The strategic plan is to be approved by the Audit, Risk and Improvement Committee**
-

The Chief Audit Executive will be required to develop a strategic plan every four years based on the council's risk profile to ensure that areas or activities with higher risks are audited over the longer term and that no higher risk area or activity is forgotten. This should align with the council's integrated planning and reporting framework and timetable.

The four-year strategic plan is to be developed in consultation with the Audit, Risk and Improvement Committee, governing body, general manager and senior managers. Final approval is to be given by the Committee.

The purpose of the plan is to decide and outline what council areas or activities will be covered in any given year, and if the area/activity is not covered in a given year, when it will be scheduled for review during the four-year period. It is to include:

- a description of the goals/objectives of internal audit
- key organisational issues and risks faced by the council, in order of priority, and
- which council areas will be audited over the four years, prioritised according to risk.

The Chief Audit Executive is to review and update the four-year strategic plan at least annually to ensure that it still aligns with the council's risk profile. This will also ensure that the council remains on track with its audits and any slippage in progress can be quickly addressed.

(b) The Chief Audit Executive is to develop an annual risk-based internal audit work plan, based on the strategic plan, to guide the council's audits each year in consultation with the governing body, general manager and senior managers. The work plan is to be approved by the Audit, Risk and Improvement Committee

The Chief Audit Executive will be required to develop an annual risk-based work plan for the council's internal audits based on:

- the priorities set by the council's four-year internal audit strategic plan
- the council's strategic goals and objectives, developed through the integrated planning and reporting framework
- the information obtained as part of the council's risk assessment process and the council's material risks
- any findings or risks raised by the NSW Auditor-General in its external audits of the council and sector-wide performance audits
- external factors such as industry trends or emerging issues, and
- any special requirements of the Audit, Risk and Improvement Committee.

The annual work plan is to be developed in consultation with the Audit, Risk and Improvement Committee, governing body, general manager, and senior managers. Final approval is to be given by the Committee.

The annual work plan is to identify:

- the key risks facing the council
- the key goals and objectives of the proposed audits
- the audits that will be carried out during the year and rationale for selecting each, having regard to areas of most significant risk to achieving the council's strategic objectives
- the resources needed for each audit (for example, staffing, budget, technology), including any external expertise needed
- the timing and duration of each audit
- the performance measures that will be used to measure against goals and objectives (described below)
- any areas not included in the work plan, which in the opinion of the Chief Audit Executive, should be reviewed, and
- quality assurance activities (where applicable).

The annual work plan is to be flexible enough to allow the Chief Audit Executive to review and adjust it as necessary in response to any changes to the council's risks or operations. Significant changes are to be approved by the Audit, Risk and Improvement Committee.

(c) The Chief Audit Executive is to ensure performance against the annual and strategic plans can be assessed

To establish the quality assurance and improvement program and to collect the data and information required to review the council's internal audit activities:

- the Chief Audit Executive will need to ensure internal audit work plans have performance indicators that can be measured against goals and objectives⁶⁴, and
- the general manager will need to ensure that a data collection or performance management system is established and maintained to collect the data needed to measure the impact of the internal audit function.

Performance indicators are to be set annually by the Audit, Risk and Improvement Committee, in consultation with the Chief Audit Executive and the general manager of the council.

⁶⁴ *Internal Audit in Australia* published by The Institute of Internal Auditors - Australia (2016) lists a range of examples of performance indicators that councils could consider when selecting their performance indicators

Core requirement 6:

How to perform and report internal audits

Proposal

It is proposed that:

- (a) the Chief Audit Executive is to ensure that the council's internal audits are performed in accordance with the IPPF and current Australian risk management standards (where applicable), and approved by the Audit, Risk and Improvement Committee
- (b) the Chief Audit Executive is to develop policies and procedures to guide the operation of the internal audit function, including the performance of internal audits
- (c) the Chief Audit Executive is to report internal audit findings and recommendations to the Audit, Risk and Improvement Committee. Each finding is to have a recommended remedial action and a response from the relevant senior manager/s, and
- (d) all internal audit documentation is to remain the property of, and can be accessed by, the audited council, including where internal audit services are performed by an external provider. It can also be accessed by the Audit, Risk and Improvement Committee, external auditor and governing body of the council (by resolution).

Description

- (a) The Chief Audit Executive is to ensure that the council's internal audits are performed in accordance with the IPPF and current Australian risk management standards (where applicable), and approved by the Audit, Risk and Improvement Committee**
-

Each council's internal audits are to be performed in accordance with statutory requirements, and the IPPF (only where the IPPF does not conflict with statutory requirements).

The internal audit methodologies used (that is, the tools or techniques used by internal auditors to conduct internal audits and analyse the information or data obtained) are also to be approved by the Audit, Risk and Improvement Committee.

Where risk information or ratings are used during the internal audit process, they must be developed and applied consistent with current Australian risk management standards. This means the Chief Audit Executive is responsible for ensuring that any risk information used in internal audits or any risk ratings given to internal audit findings and recommendations (for example, the risk of not implementing a recommendation) must be developed and assigned in a way that complies with AS ISO 31000:2018 and is consistent with council's risk management framework.

Performing internal audits

The Chief Audit Executive will be responsible for approving the project plan for each internal audit, supervising how each internal audit is conducted, and for any significant judgements made throughout each internal audit (including those performed by an external provider).

Each audit undertaken is to consist of following steps:

- **planning the internal audit** – which includes:
 - preliminary research
 - defining the audit's scope and criteria
 - defining the audit's objectives
 - timing
 - audit budget, and
 - information needed to perform the audit (for example, access to people, documents, systems)
- **performing the internal audit** – is to consider:
 - the objectives and purpose of the activity being reviewed
 - any risks to these objectives and the effectiveness of existing controls
 - opportunities to improve the efficiency and effectiveness of the activity, how risks are managed and council's performance more broadly
- **documenting and reporting the internal audit** - which includes:
 - documenting the evidence collected and analysed
 - producing working papers to support the findings and recommendations made
 - writing an audit report, and
 - discussing internal audit results with relevant staff and management.

It is best practice that each internal audit report is to be appropriately supervised and approved by a person not conducting the audit to ensure its findings and recommendations are accurate. Larger councils that employ or contract more than one internal auditor are encouraged to embed this practice into their audit process.

(b) The Chief Audit Executive is to develop policies and procedures to guide the operation of the internal audit function, including the performance of internal audits

The Chief Audit Executive is to ensure that the council develops and maintains policies and procedures to guide the operation of the internal audit function and the performance of internal audits. These policies and procedures should address:

- the structure, resourcing and professional development of the internal audit function
- strategic and annual audit planning
- audit methodology
- audit reports
- ongoing monitoring and reporting
- conducting internal audits and the quality assurance and improvement program
- resolving differences in professional opinion/judgements regarding internal audits
- communication between the governing body of the council, Audit, Risk and Improvement Committee, general manager, Chief Audit Executive and council staff - particularly of non-compliance or sensitive information, and
- information management including document retention, security and access to audit reports.

The Audit, Risk and Improvement Committee is to review and provide advice to the general manager of the council on all internal audit policies and procedures before they are finalised.

Where the internal audit function is outsourced, the Chief Audit Executive will be required to ensure that the external provider is consulted in the development and/or maintenance of internal audit policies and procedures.

(c) The Chief Audit Executive is to report internal audit findings and recommendations to the Audit, Risk and Improvement Committee. Each finding is to have a recommended remedial action and a response from the relevant senior manager/s

The Chief Audit Executive will be required to report the findings and recommendations of internal audits to the Audit, Risk and Improvement Committee at the end of each audit.

Each internal audit report written must include:

- necessary background information, including the objective and scope of the audit
- the audit processes and methodology used
- findings and recommendations based on the audit's objectives, prioritised according to their level of risk
- recommended remedial actions to address problems identified, which:
 - are risk-rated (that is, clearly show the severity of risks identified by the audit, focus management attention on high risks that need prompt attention and allow resources to be first applied to high risks rather than low risks), and
 - have been agreed to by the general manager and responsible senior managers of the council.

The Chief Audit Executive will be responsible for ensuring that each internal audit report (or supporting working papers) contains sufficient information that would enable another internal or external auditor to reach the same conclusions.

A copy of each internal audit report is to be provided to the Audit, Risk and Improvement Committee at the Committee's next quarterly meeting, or distributed out-of-session before the next meeting.

The council's response to internal audit report recommendations

The Chief Audit Executive is to provide a draft of each report to the responsible senior manager/s so that a response to each recommendation from each relevant business unit can be included in the final report that is submitted to the Audit, Risk and Improvement Committee. The general manager will have a maximum of ten working days to approve and provide the council's response to the Committee.

Responsible senior managers will have the right to reject recommended corrective action/s on reasonable grounds, but must discuss their position with the Chief Audit Executive before finalising the council's position with the general manager. Reasons for rejecting the recommendation/s must be included in the final audit report.

For those recommendations that are accepted, responsible senior managers will be required to ensure that:

- an action plan is prepared for each recommendation that assigns responsibility for implementation to a council staff member/s and timeframes for implementation
- all corrective actions are implemented within proposed timeframes, and
- the Chief Audit Executive is provided regular updates, or as otherwise reasonably requested by the Chief Audit Executive, in relation to the implementation of the internal audit action plan.

Where corrective actions are not implemented within agreed timeframes, the Audit, Risk and Improvement Committee can invite the responsible senior manager to explain why implementation has not occurred and how the resulting risk is being addressed in the interim.

The Audit, Risk and Improvement Committee can raise any concerns it may have about the council's response to internal audit reports in the committee's quarterly report to the governing body.

(d) All internal audit documentation is to remain the property of, and can be accessed by, the audited council, including where internal audit services are performed by an external provider. It can also be accessed by the Audit, Risk and Improvement Committee, external auditor and the governing body of the council (by resolution)

The Chief Audit Executive will be responsible for ensuring internal audit information (in whatever form) is documented, retained and controlled in accordance with the council's policies and any legislative or IPPF requirements. Internal audit documentation includes any information or documents produced or obtained by council's internal audit function that relates to the internal audit activities of the council.

All audit documentation is to remain the property of the audited council and can be accessed by the audited council, the Audit, Risk and Improvement Committee and the external auditor. This includes where the internal audits are performed by an external provider. Authorised access to internal audit documents must be outlined in council's Internal Audit Charter.

The governing body can also request access to internal audit information via a resolution of the council. The Audit, Risk and Improvement Committee is to decide the governing body's request. Any disputes between the governing body and the committee are to be referred to the Office of Local Government for resolution.

Apart from external audit purposes, it is envisaged that internal audit reports will be for internal council use only, subject to the requirements of the *Government Information (Public Access) Act 2009*. Approval must be obtained from Chief Audit Executive or Audit, Risk and Improvement Committee before internal audit reports are provided to any other person or external party.

The Chief Audit Executive or the Audit, Risk and Improvement Committee must obtain approval from the general manager prior to releasing any internal audit documents to external parties.

The general manager's approval is not required where the information is being provided to an external oversight or investigative such as, but not limited to, the Office of Local Government, the Audit Office, the Independent Commission Against Corruption or the NSW Ombudsman, for the purposes of informing that agency of a matter that may warrant its attention.

Core requirement 7:

Undertake ongoing monitoring and reporting

Proposal

It is proposed that an ongoing monitoring and reporting system be established where the:

- (a) Audit, Risk and Improvement Committee is advised at each quarterly meeting of the internal audits undertaken and progress made implementing corrective actions
- (b) governing body of the council is advised after each quarterly meeting of the Audit, Risk and Improvement Committee of the internal audits undertaken and the progress made implementing corrective actions, and
- (c) Audit, Risk and Improvement Committee can raise any concerns with the governing body of the council at any time through the Chair.

Description

(a) The Audit, Risk and Improvement Committee is to be advised at each quarterly meeting of the internal audits undertaken and progress made implementing corrective actions

Ongoing monitoring and reporting to the Audit, Risk and Improvement Committee is essential to ensure that any emerging problems are identified and rectified quickly before their consequences escalate, especially in relation to material risks. It will also ensure that a clear message is sent that these matters are important and are being reviewed at the most senior levels in council.

To ensure this occurs, the Chief Audit Executive is to establish and maintain an ongoing monitoring system to track the internal audits undertaken within the council and follow-up the council's progress in implementing corrective actions. For smaller councils, this could simply be in a table or spreadsheet format.

The Chief Audit Executive is to ensure that the Audit, Risk and Improvement Committee is advised at each of the Committee's quarterly meetings of

- the number of internal audits completed during that quarter, including providing copies of the audit reports and advice on their findings
- progress in implementing the annual work plan
- progress made implementing corrective actions arising from any past internal audits, and
- any concerns the Chief Audit Executive may have.

The way this information is communicated is to be decided by the Audit, Risk and Improvement Committee in consultation with the Chief Audit Executive.

(b) The governing body of the council is to be advised after each quarterly meeting of the Audit, Risk and Improvement Committee of the internal audits undertaken and the progress made implementing corrective actions

Ongoing monitoring and reporting by the Audit, Risk and Improvement Committee to the governing body of the council is essential for accountability. It will also ensure that the governing body is kept abreast of the internal audits conducted and any emerging issues that may influence the strategic direction of the council or the achievement of the council's goals and objectives.

The governing body of the council is to be advised of the internal audits undertaken and progress made implementing corrective actions and any significant or emerging risk issues after each quarterly meeting of the Audit, Risk and Improvement Committee.

The governing body and the Audit, Risk and Improvement Committee is to decide how the Committee's advice is to be communicated. Options include providing the governing body with:

- a formal monitoring report from the Committee – this report would be for information only and a decision at the council meeting would not be required
- copies of the minutes of the Audit, Risk and Improvement Committee's meeting, or
- where appropriate, copies of the relevant agenda papers considered by the Committee at its quarterly meeting.

(c) The Audit, Risk and Improvement Committee can raise any concerns with the governing body of the council at any time through the Chair

Where the Audit, Risk and Improvement Committee is concerned about the progress of implementing corrective actions, or an internal audit-related issue arises, the Committee will be able to provide an additional report to the governing body of the council. This will ensure that the governing body is fully aware of the risks posed to the council.

The Chair of the Audit, Risk and Improvement Committee can also request at any time a meeting with the governing body of the council to discuss an internal audit-related issue.

Similarly, the governing body of the council can request by resolution at any time to meet with the Chair of the Audit, Risk and Improvement Committee regarding an internal audit-related issue.

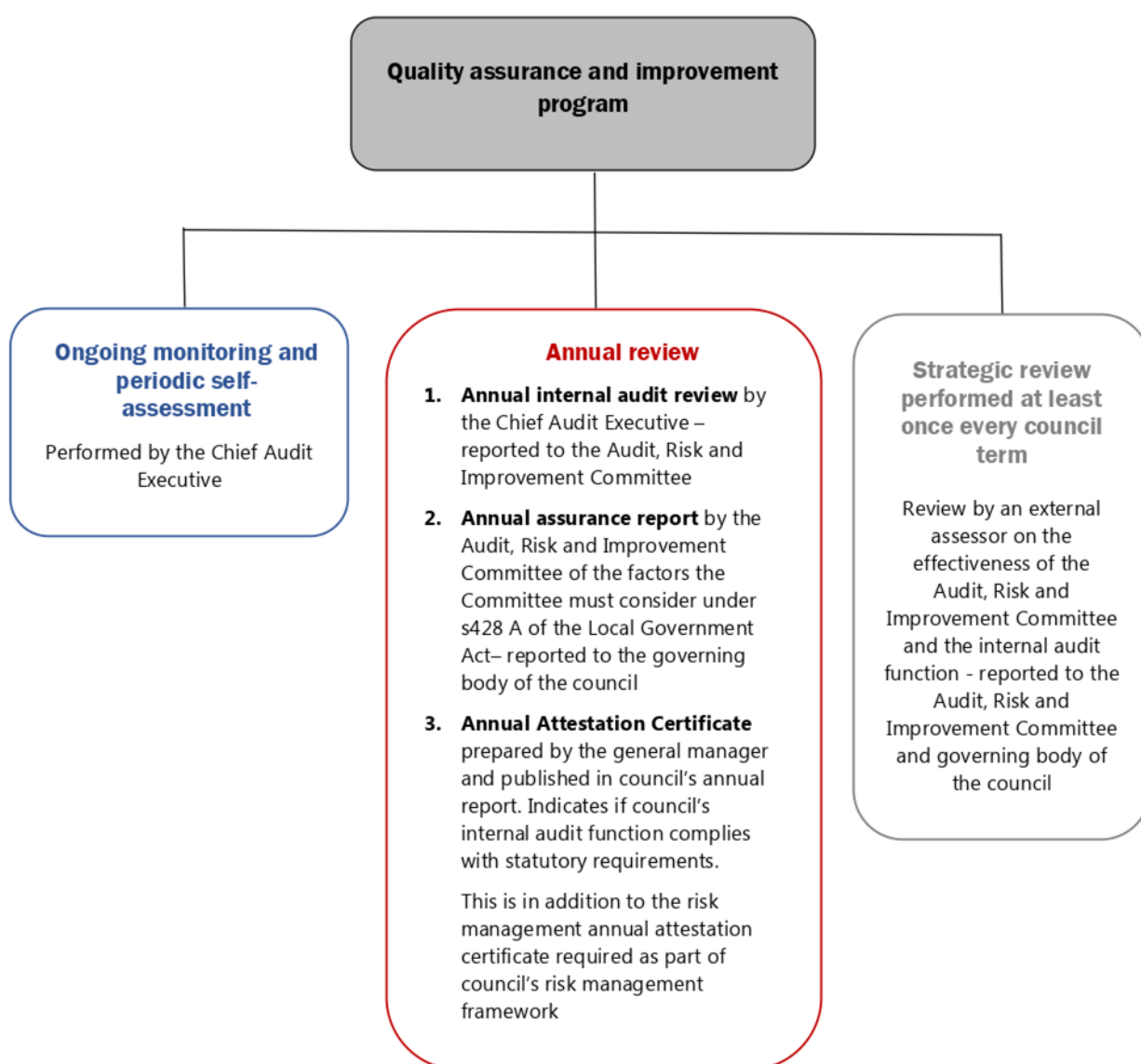
Core requirement 8:

Establish a quality assurance and improvement program

Proposal

It is proposed that:

- (a) the Chief Audit Executive is to establish a quality assurance and improvement program which includes ongoing monitoring and periodic self-assessments, an annual review and strategic external review at least once every council term, and
- (b) the general manager is to publish in the council's annual report an annual attestation certificate indicating whether the council has complied with the core requirements for the Audit, Risk and Improvement Committee and the internal audit function.



Description

(a) The Chief Audit Executive is to establish a quality assurance and improvement program which includes ongoing monitoring and periodic self-assessments, an annual review and strategic external review at least once each council term

The Chief Audit Executive is to ensure that there is a documented and operational quality assurance and improvement program for assurance activities that is reported to the governing body of the council. The quality assurance and improvement program is to consist of three key elements:

1. **Ongoing monitoring and periodic self-assessments** by the Chief Audit Executive
2. **An annual review** at the end of each financial year by the:
 - Chief Audit Executive on the performance of the internal audit function for the Audit, Risk and Improvement Committee, and
 - Audit, Risk and Improvement Committee on its responsibilities under section 428A of the Local Government Act for the governing body of the council,
3. **A strategic external review at least once every council term** (i.e. four years) by an external party which is reported to the Audit, Risk and Improvement Committee and the governing body of the council.

These are described in greater detail below.

Ongoing monitoring and periodic self-assessments

The Chief Audit Executive is to undertake ongoing monitoring and periodic self-assessments of the internal audit function throughout the year to validate that it is operating effectively and delivering quality and value.

Monitoring and self-assessments could consider, for example:

- compliance with regulatory requirements and the IPPF
- the quality and supervision of audit work performed
- standardised work practices
- communication practices
- timeliness of audit activities
- any professional development or training required
- client satisfaction and the degree to which stakeholder expectations are being met
- the adequacy of internal audit policies
- progress towards key performance indicators, and
- any weaknesses or areas that need improvement.

The Chief Audit Executive is to implement any changes necessary to address deficiencies identified through ongoing monitoring and periodic self-assessment.

Annual performance review

The annual review (performed at the end of each financial year) is to assess the assurance activities that occurred over the preceding financial year. It is to consist of the following two elements, which together will ensure that the council's assurance activities are comprehensively assessed and any issues identified.

1. An annual internal audit review by the Chief Audit Executive for the Audit, Risk and Improvement Committee which assesses:

- how effectively council has implemented the internal audit function (for example, that findings are communicated and implemented appropriately, resourcing is sufficient, the Internal Audit Charter remains appropriate etc.)
- how the internal audit function has performed against the annual work plan and performance targets, and
- how the internal audit function and activities comply with statutory requirements and the IPPF and
- the independence of the internal audit function.

This will ensure that the Audit, Risk and Improvement Committee receives the Chief Audit Executive's advice on the effectiveness of the internal audit function each year. It will also enable the general manager to complete the council's annual attestation certificate (see below).

2. An annual assurance review by the Audit, Risk and Improvement Committee for the governing body of the council which includes:

- a summary of the work the Committee performed to discharge its responsibilities during the preceding year
- advice on the appropriateness of the Committee's terms of reference (where they contain additional clauses that are not included in the Model Terms of Reference)
- an overall assessment of the following aspects of the council's operations in accordance with section 428A of the Local Government Act:
 - compliance
 - risk management
 - fraud control
 - financial management
 - governance
 - implementation of the strategic plan, delivery program and strategies
 - service reviews
 - collection of performance measurement data by the council, and
 - any other matters prescribed by the regulation (i.e. internal audit), and
- information to help the council improve the performance of its functions.

This will ensure that the governing body of council receives the Audit, Risk and Improvement Committee's independent assurance about these matters in accordance with legislative requirements each year. This will support the governing body in the exercise of its oversight role under the Local Government Act.

The general manager and senior managers are to be advised of the findings and outcomes of the annual review and the Chief Audit Executive is to develop an action plan for the Audit, Risk and Improvement Committee, governing body of the council and general manager to address any issues identified in the annual review.

Strategic external review

An external assessment of council's assurance activities is to be conducted at least once every council term (i.e. four years) by a qualified, independent assessor according to the IPPF quality assessment framework. Requiring compliance with the IPPF will ensure that each council can have confidence in the findings and that councils are assessed consistently across the sector.

The strategic review is to be commissioned by the governing body of the council and reported to the Audit, Risk and Improvement Committee, governing body and the general manager. The Chief Audit Executive is to develop an action plan for the Committee, governing body of the council and general manager to address any issues identified in the external review.

The external review is to include the following two components:

- **the effectiveness of the Audit, Risk and Improvement Committee**, including:
 - whether the Committee has fulfilled its terms of reference
 - the appropriateness of the Committee's terms of reference (where the Committee's terms of reference contain additional provisions not contained in the Model Terms of Reference)
 - the performance of Committee members
 - the way the Committee, external auditor, council and internal audit function work together to manage risk and support the council and how effective this is, and
 - whether the Committee has contributed to the improvement of the factors identified in section 428A of the Local Government Act.

The external review is to address the collective performance of the Audit, Risk and Improvement Committee and the individual performance of each member and the Chair. The review is to consider feedback on each member's performance by the Chair of the Committee, mayor and general manager.

This component of the four-yearly external review will provide accountability and ensure that the governing body of the council can assess how the Audit, Risk and Improvement Committee is functioning and whether any changes to the Committee's terms of reference or membership are required.

In considering the outcomes of the external strategic review, the governing body of the council will be able to request the Chair of the Committee to address the council and answer any questions about the operation of the Committee.

- **the effectiveness of the internal audit function**, including:
 - the independence of the internal audit function
 - whether resourcing is sufficient
 - whether the internal audit function complies with statutory requirements and the IPPF
 - the appropriateness of annual work plans and strategic plans based on the risks facing the council
 - whether the internal audit function adds value and delivers outcomes for the council, and
 - the appropriateness of the Internal Audit Charter (where it includes additional provisions not contained in the Model Internal Audit Charter).

This component of the strategic external review will ensure that the governing body of the council is able to assess whether the internal audit function is effective and adding value to the council and whether any changes are required. The governing body of the council will be able to request the Chair of the Audit, Risk and Improvement Committee and/or the Chief Audit Executive to address the council and answer any questions about the internal audit function.

External assessor

The governing body will be able to commission the strategic external review by either engaging an external assessor to undertake the assessment, or by undertaking a self-assessment and engaging a qualified external reviewer to conduct an independent evaluation of that self-assessment.

The external assessor must have, at a minimum:

- no real or perceived conflicts of interest
- certification as an internal auditor
- knowledge of internal audit and external assessment practices, and
- sufficient recent experience in internal audit at a management level which demonstrates a working knowledge of statutory requirements and the IPPF.

The strategic review report is to outline the qualifications of the assessor and any potential conflicts of interest.

(b) The general manager is to publish in the council's annual report an annual attestation certificate indicating whether the council has complied with the core requirements for the Audit, Risk and Improvement Committee and internal audit function

The general manager will be required to annually publish an attestation statement in the council's annual report indicating whether, during the prior financial year, the council was 'compliant', 'non-compliant' or 'in transition' against each of the core requirements of the Audit, Risk and Improvement Committee and council's internal audit framework. The certificate can be combined with the risk management attestation certificate required as part of the council's risk management framework.

Compliance status is to be self-assessed based on the results of the annual performance review. The following table lists the proposed compliance categories and follow-up action that will be required.

Councils that are 'non-compliant' can apply to the Chief Executive Officer of the Office of Local Government for an exemption from statutory requirements. The Chief Executive Officer will be able to grant exemptions to any or all statutory requirements and will be able to impose conditions on the exemption given.

An exemption will only be granted where:

- a council cannot comply because of temporary extenuating circumstances, substantial structural constraints or resourcing constraints that will materially impact the council's operating budget
- the council is not able to enter into a shared arrangement with another council/s in order to comply (for internal audit only), and
- current or proposed alternative arrangements will achieve outcomes equivalent to the requirements.

The maximum period an exemption can apply will be 24 months (two reporting periods). Any further exemption must be reapplied for.

The council's application for an exemption must:

- be in writing
- be made prior to the reporting period in which full compliance with statutory requirements cannot be achieved or as soon as circumstances arise during the reporting period that will make full compliance throughout the reporting period impossible
- provide the reasons why the council cannot comply with statutory requirements, and
- describe and demonstrate the council's efforts to implement alternative arrangements and how these will achieve an outcome equivalent to the requirements.

The general manager is to ensure that a copy of the attestation statement and the exception approval from the Chief Executive Officer of the Office of Local Government (if applicable) is published in the council's annual report. A copy of the attestation statement is to also be provided to the Office of Local Government.

The Chair of the Audit, Risk and Improvement Committee is to also sign the attestation statement where they agree that it is a true and accurate reflection of the council's compliance status against statutory requirements.

Proposed compliance status for attestation certificates

Definition	Further requirements
COMPLIANT	
The council is 'compliant' if it has implemented and maintained practices consistent with statutory requirements for the whole of the financial year	The council is to provide a copy of its attestation statement to the Office of Local Government and publish the attestation certificate in the council's annual report.
NON-COMPLIANT	
<p>The council is 'non-compliant' if:</p> <ul style="list-style-type: none"> it has not implemented and maintained a risk management framework or internal audit practices consistent with statutory requirements for the whole of the financial year, or the council's Audit, Risk and Improvement Committee and internal audit function has been in place for more than five years but has not been externally assessed (for internal audit only) 	<p>The general manager will be required to apply to the Chief Executive Officer of the Office of Local Government for an exemption from statutory requirements</p> <p>The council's application for an exemption must:</p> <ul style="list-style-type: none"> be in writing be made prior to the reporting period in which full compliance with statutory requirements cannot be achieved or as soon as circumstances arise during the reporting period that will make full compliance throughout the reporting period impossible provide the reasons why the council cannot comply with statutory requirements, and describe and demonstrate the council's efforts to implement alternative arrangements and how these will achieve an outcome equivalent to the requirements. <p>The general manager must ensure a copy of the attestation statement and the Chief Executive Officer's exemption approval (if applicable) is published in the council's annual report. A copy of the council's attestation statement is also to be sent to the Office of Local Government.</p> <p>The council will also have to explain on the attestation statement why it is not compliant and if it has received an exemption from the Chief Executive Officer.</p>
IN TRANSITION	
<p>The council is 'in transition' if it is transitioning its operations to the statutory requirements during the financial year because:</p> <ul style="list-style-type: none"> it is a newly constituted council established after the risk management and internal audit requirements of the Local Government Act and Regulation came into force (a two-year transition period will be granted in this instance), or the requirements that are not complied with have been newly prescribed within the last two years and the council is in the process of implementing them. 	<p>Councils taking advantage of the transitional arrangements will not be required to apply for approval from the Chief Executive Officer of the Office of Local Government. However, councils must be actively taking steps during the two-year (for internal audit) and five-year (for risk management) transitional period to commence implementation and detail how the council plans to achieve compliance within this period.</p> <p>The council is to provide a copy of its attestation statement to the Office of Local Government.</p>

Core requirement 9:

Councils can establish shared internal audit arrangements

Proposal

It is proposed that:

- (a) a council can share all or part of its internal audit function with another council/s by either establishing an independent shared arrangement with another council/s of its choosing, or utilising an internal audit function established by a joint or regional organisation of councils that is shared by member councils
- (b) the core requirements that apply to stand-alone internal audit functions will also apply to shared internal audit functions, with specified exceptions that reflect the unique structure of shared arrangements, and
- (c) the general manager of each council in any shared arrangement must sign a 'Shared Internal Audit Arrangement' that describes the agreed arrangements.

Description

- (a) A council can share all or part of its internal audit function with another council/s by either establishing an independent shared arrangement with another council/s of its choosing, or utilising an internal audit function established by a joint or regional organisation of councils that is shared by member councils**

Councils that do not want to establish a stand-alone internal audit function will be able to:

- share all or part of their internal audit function with another council/s of their choosing as part of an independent shared arrangement, or
- utilise a joint internal audit function established by their joint or regional organisation of councils that is shared with other member councils.

These options will:

- assist smaller councils to implement their internal audit function in a more cost-effective way where:
 - a full-time committee, Chief Audit Executive or internal audit function is not necessary
 - the council's risk profile does not warrant stand-alone arrangements, and/or
 - the cost of having a stand-alone arrangements will significantly and unacceptably impact the council's operating budget
- assist councils in remote locations that may find it difficult to employ or appoint the suitably qualified personnel that are necessary to support a stand-alone internal audit function
- allow councils to access a larger resource pool than would be available to a single council
- create efficiencies through common systems, shared knowledge and internal audit tools, and
- potentially lower audit costs.

When deciding the most appropriate way to establish a council's internal audit function, the general manager should consider the viability and capacity of a shared Audit, Risk and Improvement Committee, Chief Audit Executive or internal audit function to meet their responsibilities given the:

- size of the council in terms of both staffing levels and budget
- geographical and functional distribution of the council's operations
- complexity of the council's core business

- risk profile of the council's operations
- expectations of stakeholders, and
- likely demands placed on the committee, Chief Audit Executive or internal audit function by other councils in the shared arrangement.

A shared arrangement should only be established where the shared internal audit function can maintain a high level of understanding and oversight of each council's operations and internal audit function, as well as effective working and reporting relationships with the general manager and governing bodies of each council.

(b) The core requirements that apply to stand-alone internal audit functions will also apply to shared internal audit functions, with specified exceptions that reflect the unique structure of shared arrangements

The majority of the core requirements outlined in this discussion paper that apply to stand-alone internal audit functions will also apply to shared internal audit arrangements.

This means that any shared internal audit function must operate as an individual resource for each council that meets each council's unique internal audit needs. In terms of roles and responsibilities:

- the **Audit, Risk and Improvement Committee** is to operate as an individual committee for each council in any shared arrangement⁶⁵. This includes the committee:
 - providing independent assurance and oversight for each council
 - endorsing each council's Internal Audit Charter, annual work plan and four-year strategic plan
 - holding individual meetings for each council that are separately minuted⁶⁶ and observers being invited to only attend that part of the committee meeting that relates to their council
 - liaising with the respective governing bodies and general managers of each council in relation to that council's internal audit issues
 - approving individual performance indicators for each council based on that council's needs and operations
 - fulfilling the requirements of each council's quality assurance and improvement program and conducting a separate annual review for each individual council based on that council's internal audit activities which is reported to the governing body of that council
 - maintaining separate and confidential information for each council
- the **Chief Audit Executive** (who may be employed by one of the participating councils or by a joint or regional organisation of councils) is to work separately with each council in any shared arrangement to implement the internal audit function for that council. This includes the Chief Audit Executive:
 - liaising with the governing body and general manager of each separate council about that council's internal audit activities
 - individually developing and implementing the annual work plan and four-year strategic plan for each council, based on each council's individual requirements and in consultation with that council's general manager
 - developing and maintaining internal audit policies and procedures for each council based on that council's needs and operations

⁶⁵ Under the NSW Government's prequalification scheme, membership on any shared Audit, Risk and Improvement Committee will count as one towards the limit of five memberships allowed for a committee member

⁶⁶ Individual meetings for each council can be held sequentially but joint or shared meetings discussing multiple councils must not be held (apart from common agenda items, for example, the Audit, Risk and Improvement Committee's terms of reference, Internal Audit Charter etc.)

- conducting the individual audits of each council
- confirming the implementation by the council of corrective actions that arise from the findings on internal audit activities
- submitting to each respective council an individual report after each internal audit and liaising with the general manager of each respective council (and governing body where necessary) on that council's internal audit issues
- managing any contractual arrangements for externally provided internal audit personnel on behalf of each council in the shared arrangement
- fulfilling the requirements of each council's quality assurance and improvement program and conducting a separate annual review for each individual council based on that council's internal audit activities which is reported separately to the Audit, Risk and Improvement Committee
- attending the Audit, Risk and Improvement Committee meetings of each respective council on behalf of that council
- maintaining separate and confidential information for each council
- providing independent assurance and oversight for each council, and
- **internal audit personnel** (who may be employed by one of the participating councils or by a joint or regional organisation of councils or supplied through an external provider) are to operate as an individual internal auditor/internal audit team for each council in any shared arrangement. This includes internal audit personnel conducting the individual internal audits of each council.

Given there are multiple councils and therefore multiple decision-making bodies involved, shared arrangements will have a number of unique requirements that will be different to those that apply to a stand-alone internal audit function. These are described below.

Unique requirements for independent shared arrangements

Decision-making body

The governing body and general manager of a council are the key decision-makers in a council in relation to internal audit. However, given that any shared arrangement will have more than one governing body and general manager, decision-making in relation to a shared internal audit function is likely to be administratively complex.

To simplify and streamline decision making, councils in an independent shared arrangement will be required to establish a committee comprising of councillors from each of the participating councils under section 355 of the Local Government Act. This committee will make the following decisions (where applicable) about the Audit, Risk and Improvement Committee, Chief Audit Executive or internal audit function that would otherwise be made by the governing body of each council, and each council will be required to delegate these decisions to the committee:

- approving the Internal Audit Charter (after endorsement by the Audit, Risk and Improvement Committee), so it can then be adopted by each individual council
- determining the size of the shared Audit, Risk and Improvement Committee
- appointing and dismissing members and the Chair of the shared Audit, Risk and Improvement Committee
- approving the terms of reference of the Audit, Risk and Improvement Committee (after endorsement by the Committee), so it can then be adopted by each individual council, and
- approving internal audit policies and procedures (in consultation with the Audit, Risk and Improvement Committee and the general managers of each participating council), so they can then be adopted and implemented by each individual council.

Where an Audit, Risk and Improvement Committee is shared, each council in the shared arrangement will still be required to adopt and implement their own Internal Audit Charter, terms of reference for the Audit, Risk and Improvement Committee, and internal audit policies and procedures.

Committee members will be required to consult with other members of the governing body of their council on any decisions made. All other functions assigned to the governing body of a council in core requirements 1-8 will remain with each individual council.

Auspecting body

Where the Chief Audit Executive and other internal audit personnel are shared by councils, these positions must be employed by one of the participating councils in the shared arrangement and located together to work effectively. The Chief Audit Executive must also report administratively to the general manager of the council that employs them.

This will create greater administrative efficiency by reducing reporting and communication lines. It will also ensure that:

- the Chief Audit Executive reports administratively to one general manager on behalf of all councils in the independent shared arrangement
- the Chief Audit Executive, in-house internal audit staff and secretariat staff will be employees of, and located at the auspecting council and have access to necessary administrative and HR support, and
- the Chief Audit Executive and internal audit staff will be subject to the Code of Conduct of the auspecting council.

Administrative responsibility and oversight of the shared internal audit function should be exercised by an administrative oversight committee comprising of all general managers of the participating councils.

The administrative oversight committee will have the following responsibilities in relation to the Audit, Risk and Improvement Committee:

- ensuring adequate procedures are in place to protect the independence of the Audit, Risk and Improvement Committee
- overseeing arrangements for secretariat support for the Audit, Risk and Improvement Committee, and
- receiving written declarations from members that they do not have conflicts of interest that may preclude them from serving on the Audit, Risk and Improvement Committee.

The administrative oversight committee will also have the following responsibilities in relation to the Chief Audit Executive and internal audit staff:

- recommending the appointment and dismissal of the Chief Audit Executive (in consultation with the Audit, Risk and Improvement Committee and governing bodies of each council) – the ultimate decision will be made by the employing general manager, and
- recommending any changes impacting the employment of the Chief Audit Executive (in consultation with the Audit, Risk and Improvement Committee) – the ultimate decision will be made by the employing general manager.

Allegations of breaches of the auspecting council's Code of Conduct by the Chief Audit Executive or internal audit staff are to be dealt with by the auspecting general manager, in consultation with the other general managers.

The general managers of each council will be required to attend the Audit, Risk and Improvement Committee meetings related to their council and to undertake all other functions in relation to internal audit referred to general managers in core requirements 1-8.

Unique requirements for joint/regional organisation shared arrangements

Decision-making body

The member councils of a joint or regional organisation are to delegate their decision making authority in relation to internal audit under section 377 of the Local Government Act to the Board of their joint or regional organisation of councils. The Board will make the decisions that would have otherwise been made by the governing body of each council. This includes:

- adopting the Internal Audit Charter on behalf of each member council (after endorsement by the Audit Risk and Improvement Committee)
- appointing and dismissing members and the Chair of the shared Audit, Risk and Improvement Committee
- adopting the terms of reference of the Audit, Risk and Improvement Committee on behalf of each member council (after endorsement by the Audit, Risk and Improvement Committee), and
- adopting internal audit policies and procedures on behalf of each member council (in consultation with the Audit, Risk and Improvement Committee and the general managers of each participating council).

All other functions assigned to the governing body of a council in core requirements 1-8 will remain with each individual council.

Auspicing body

The shared internal audit function is to be undertaken on behalf of member councils by the joint or regional organisation of councils. This will mean that:

- the Chief Audit Executive will report administratively to the executive officer of the joint/regional organisation
- the Chief Audit Executive, in-house internal audit staff and secretariat staff will be employees of the joint or regional organisation. The Chief Audit Executive and in-house internal audit staff may be located at the joint or regional organisation or at one of the member councils and have access to necessary administrative and HR support supplied through the joint or regional organisation or council, and
- the Chief Audit Executive and internal audit staff will be required to comply with the Code of Conduct of the joint or regional organisation⁶⁷.

The executive officer of the joint/regional organisation will also, on behalf of, and in consultation with each general manager in the shared arrangement, take on the administrative responsibility of some aspects of the shared internal audit function.

In relation to the Audit, Risk and Improvement Committee, this includes:

- determining the size of the Audit, Risk and Improvement Committee
- ensuring adequate procedures are in place to protect the independence of the Audit, Risk and Improvement Committee
- arranging secretariat support for the Audit, Risk and Improvement Committee, and
- receiving written declarations from members that they do not have conflicts of interest that may preclude them from serving on the Audit, Risk and Improvement Committee.

⁶⁷ Where the Code of Conduct of the joint or regional organisation differs from the Model Code of Conduct, the Model Code of Conduct will apply.

In relation to the Chief Audit Executive and internal audit staff, this includes:

- appointing and dismissing the Chief Audit Executive (in consultation with the Audit, Risk and Improvement Committee and governing bodies of each council)
- deciding any changes that may impact the employment of the Chief Audit Executive (in consultation with the Audit, Risk and Improvement Committee), and
- dealing with breaches of the joint/regional organisation's code of conduct by the Chief Audit Executive or internal audit staff.

The general manager of each council will be required to attend the Audit, Risk and Improvement Committee meetings that relate to their council and exercise all other functions of the general managers in relation to internal audit described in core requirements 1-8.

Internal audit requirements for joint organisations

It is important to note that, like councils, joint organisations will also be required to appoint an Audit, Risk and Improvement Committee and have an internal audit function.

The Audit, Risk and Improvement Committee appointed by the joint organisation on behalf of member councils is therefore also to operate as the Audit, Risk and Improvement Committee for the joint organisation and the Chief Audit Executive appointed by the joint organisation is also to oversee the internal audit function for the joint organisation in addition to member councils.

Fees for shared Audit, Risk and Improvement Committee members

The following fee structure that currently applies under the NSW Government's prequalification scheme for Audit and Risk Committee Chairs and Members will apply to all shared arrangements, subject to any change.

Shared Audit, Risk and Improvement Committees	Fee category (based on stand-alone internal audit functions)	Chair fee (excluding GST)	Member fee (excluding GST)
Up to and including three small councils	Medium	\$16,213 per annum	\$1,621 per meeting day including preparation time
Two or more medium councils	Large	\$20,920 per annum	\$2,092 per meeting day including preparation time
Any combination of small and medium councils	Large	\$20,920 per annum	\$2,092 per meeting day including preparation time

(c) The general manager of each council in any shared arrangement must sign a 'Shared Internal Audit Arrangement' that describes the agreed arrangements

The general manager of each council in any shared arrangement will be required to sign a 'Shared Internal Audit Resourcing Agreement' with the other councils in the shared arrangement which agrees the following components.

Shared Internal Audit Resourcing Agreement

Issue	Components to be agreed by councils
Audit, Risk and Improvement Committee	<ul style="list-style-type: none"> • Number of committee members • Term of committee membership • Process for appointing and dismissing the Chair and committee members, including skills and capability requirements • Content, approval and review of the committee's terms of reference • Process for reviewing the committee's performance • Secretariat support arrangements for the committee • The committee's meeting schedule, including the sequencing of meetings to cover each council's requirements and when and how emergency committee meetings can be called • Process for the committee to request others to attend committee meetings or provide additional information about internal audit matters • Arrangements for the provision of information by the committee to the Chief Audit Executive and internal audit personnel, as well as the governing body and general manager of each council
Auspicing arrangements	<ul style="list-style-type: none"> • What the auspicing arrangements will be • What the responsibilities of each council will be • Roles, responsibilities and reporting lines of the internal audit function
Chief Audit Executive and internal audit personnel	<ul style="list-style-type: none"> • Whether internal audit personnel are in-house or contracted through an external provider • Chief Audit Executive and internal audit personnel's purpose, scope, authority, delegations, role, responsibilities and reporting lines • HR matters such as recruitment processes, disciplinary matters, employment conditions, HR support, remuneration • Process for reviewing the performance of the Chief Audit Executive and internal audit personnel as part of each council's quality assurance and improvement program
Administrative arrangements	<ul style="list-style-type: none"> • Content of the Internal Audit Charter as well as how it is approved and reviewed • How costs will be determined, administered and shared • How disputes between councils in the shared arrangement will be resolved • How conflicts of interest, disciplinary or performance issues regarding Audit, Risk and Improvement Committee members, the Chief Audit Executive and internal audit personnel are to be dealt with • Information management and record-keeping • What information, if any, will be shared between councils • How much time the internal audit function spends on each council • Composition of the s 355 committee and the process for appointing and removing members (for independent shared arrangements) • Establishment and operation of the general manager's administrative oversight committee (for independent shared arrangements) • Process for agreeing contractual arrangements with external providers • Procedures and safeguards to be put in place to preserve the independence of the internal audit function

NEXT STEPS

Have Your Say

In developing the risk management and internal audit framework proposed in this paper, the Office of Local Government has considered the recommendations of various inquiries conducted by the Local Government Acts Taskforce, the Independent Local Government Review Panel and the Independent Commission Against Corruption, and the internal audit frameworks of other jurisdictions.

The Institute of Internal Auditors, NSW Treasury, the Department of Finance, Services and Innovation, the NSW Audit Office and the Executive of the Local Government Internal Auditors Network have also provided valuable feedback on earlier drafts of this discussion paper.

We now want to hear from you.

Key questions to consider

- Will the proposed internal audit framework achieve the outcomes sought?
- What challenges do you see for your council when implementing the proposed framework?
- Does the proposed framework include all important elements of an effective internal audit and risk framework?
- Is there anything you don't like about the proposed framework?
- Can you suggest any improvements to the proposed framework?

Submissions may be made in writing by **31 December 2019** to the following addresses.

Post

Locked Bag 3015
NOWRA NSW 2541

Email:

olg@olg.nsw.gov.au

Submissions should be marked to the attention of the Council Governance Team.

Next steps

Feedback will be considered when finalising the risk management and internal audit framework.

Once finalised, the Office of Local Government will notify councils of the new requirements and the steps and timeline for implementation.

Further information

For more information, please contact the Council Governance Team on (02) 4428 4100 or via email at olg@olg.nsw.gov.au.

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APPENDIX 1 – TIMELINE OF KEY INFLUENTIAL EVENTS

When	Who	What
2008	Office of Local Government ⁶⁸	<p>Internal Audit Guidelines for local government in NSW</p> <p>The Office of Local Government issued <i>Internal Audit Guidelines</i> under section 23A of the Local Government Act. The Guidelines sought to assist councils to put into place effective risk management and internal audit processes. This was in recognition that many councils wished to have a risk management framework and internal audit function and wanted guidance on how to achieve this. The Guidelines included:</p> <ul style="list-style-type: none"> • the aims and objectives of risk management and internal audit in councils • how a risk management framework and an internal audit function is to be overseen, structured and operated • the roles, responsibilities and reporting lines of relevant staff • the need for internal audit charters, and • the establishment, structure and function of audit and risk management committees.
2010	Office of Local Government ⁶⁹	<p>Internal Audit Guidelines for local government in NSW - updated⁷⁰</p> <p>A survey of councils conducted by the Office of Local Government to ascertain the progress made towards implementing the 2008 Guidelines found that while more than 50% of councils reported that they had an internal audit function, there were areas where the Guidelines needed to be clarified to improve compliance. The Guidelines were updated to:</p> <ul style="list-style-type: none"> • provide more guidance on the requirements for an independent audit committee • expand the conflicts of interest provisions, and • clarify the role of the general manager in the internal audit function.

⁶⁸ Then the Department of Local Government

⁶⁹ Then the Division of Local Government in the Department of Premier and Cabinet

⁷⁰ Division of Local Government (2010) *Internal Audit Guidelines*

When	Who	What
2011	Independent Commission Against Corruption	<p>Burwood Council Inquiry</p> <p>The Independent Commission Against Corruption found in its <i>Investigation into alleged corrupt conduct involving Burwood Council's General Manager and others</i>⁷¹ that the absence of internal audit at Burwood Council was a significant factor that allowed corruption to occur at that council. The Commission recommended that:</p> <ul style="list-style-type: none"> • internal audit be legislatively mandated for local councils in NSW, and • in the case of small councils, the possibility of councils sharing an internal audit function should also be provided as an option. <p>The Commission also made a number of specific recommendations regarding internal audit functions in NSW councils:</p> <ul style="list-style-type: none"> • it be made a legislative requirement that council's internal audit committee be able to meet without the general manager present as this would preserve its capacity to meet as an independent body • it be made a legislative requirement that the general manager of a council report to the governing body any decision to dismiss an internal auditor and the reason for the decision. This will help protect internal auditors from dismissal as a result of conducting an audit involving the conduct of a general manager • the Local Government Act be amended to confer powers on internal auditors similar to those conferred on external auditors. These powers should include full and free access to council information in order to carry out the internal audit function and the power to direct general managers, councillors and staff to produce documents and answer questions • clause 9.2(d) of the <i>Model Code of Conduct for Local Councils in NSW</i> be amended to permit councillors to provide information directly to internal auditors. This amendment was considered necessary to increase internal auditors' potential sources of information, and • the reporting structure for councils' internal audit function include provision for the governing body of the council to receive information about the outcome of audits. <p>Specific to Burwood Council, but relevant to councils state-wide, the Commission also recommended that:</p> <ul style="list-style-type: none"> • council's audit and risk committee be chaired by a person independent of council • the governing body of the council receive regular updates on the outcome of internal audits • council's internal audit function monitor compliance with the Councillor Expenses and Facilities Policy, any policy for the payment of out-of-pocket expenses to the general manager and staff and council's system for allocating work to legal practitioners as part of its oversight role, and • council's internal audit function conducts audits of the authorisation certification and approval processes for expenditure that is unusual or infrequent.

⁷¹ Independent Commission Against Corruption (2011) *Investigation into the alleged corrupt conduct involving Burwood Council's general manager and others*

When	Who	What
2012	NSW Auditor-General	<p>Monitoring Local Government report⁷²</p> <p>The NSW Auditor-General found that over 75 councils had some sort of internal audit function and recommended that amendments be made to the Local Government Act (or other suitable alternative measures) that enable the Office of Local Government to make directions to require councils to have an Audit, Risk and Improvement Committee, internal audit function and fraud control procedures. The NSW Auditor-General also recommended that the Office of Local Government use council internal audit reports to identify councils at financial risk and identify matters which warrant attention.</p>
2013	Local Government Acts Taskforce	<p>Review of the Local Government Act 1993</p> <p>The Local Government Acts Taskforce recommended in its report, <i>A new Local Government Act for NSW and Review of the City of Sydney Act 1988</i>⁷³, that the Act be amended to:</p> <ul style="list-style-type: none"> • legislate financial governance principles councils are to abide by • require councils to implement a financial governance framework that includes risk management, audit, internal controls and independent verification of financial reporting • require councils to incorporate risk management, accountability, value for money and probity in procurement, approval, enforcement and capital expenditure processes, and • require all decisions to incorporate considerations of risk management and long-term sustainability. <p>The Taskforce conducted extensive public and sector consultation in formulating its recommendations.</p>
2013	Independent Local Government Review Panel	<p>Independent Local Government Review Panel</p> <p>The Independent Local Government Review Panel found that, as at 2013, 50% of NSW councils had an Audit, Risk and Improvement Committee and/or some form of internal audit process. However, those that did tended to focus primarily on compliance, risk and fraud control and had committees that were strongly embedded within the council and answerable primarily to the general manager. This could generate conflicts of interest.</p> <p>The Panel recommended in its report, <i>Revitalising Local Government</i>⁷⁴, that the 2010 Internal Audit Guidelines issued by the Office of Local Government be made mandatory under the Local Government Act and that each council be required to have an internal audit function. Under the mandatory framework the Panel specifically recommended that:</p> <ul style="list-style-type: none"> • each council's internal audit function focus on adding value and continuous improvement rather than compliance, risk and fraud control • all councils with expenditures over a set amount (e.g. \$20 million per annum) be required to have an Audit, Risk and Improvement Committee and associated internal audit function with broad terms of reference covering financial management, good governance, performance in implementing the community

⁷² NSW Auditor-General (2012) *NSW Auditor-General's Report - Monitoring local government: Department of Premier and Cabinet, Division of Local Government*

⁷³ Local Government Acts Taskforce (2013) *A New Local Act for New South Wales and Review of the City of Sydney Act 1988*

⁷⁴ Independent Local Government Review Panel (2013) *Revitalising Local Government. Final Report of the NSW Independent Local Government Review Panel*

When	Who	What
		<p>strategic plan and delivery program, service reviews, collection of required indicator data, continuous improvement and long-term sustainability</p> <ul style="list-style-type: none"> each Audit, Risk and Improvement Committee should have a majority of independent members and an independent Chair, and the general manager should be precluded from being a committee member (but not from attending committee meetings) the Chair be required to report biannually to a council meeting on council's financial management, governance processes and opportunities for continuous improvement councils be able to share their internal audit functions under the auspices of joint organisations, and the NSW Auditor-General conduct issue-based performance audits relating to internal audit. <p>The Panel conducted extensive public and sector consultation in formulating its recommendations.</p>
2016	NSW Parliament	<p>Amendments to the Local Government Act 1993</p> <p>In response to the recommendations of the Independent Local Government Review Panel, the Local Government Act was amended⁷⁵ to require all councils to have an Audit, Risk and Improvement Committee to keep under review the following aspects of council's operations:</p> <ul style="list-style-type: none"> compliance risk management fraud control financial management governance implementation of the strategic plan, delivery program and strategies service reviews council's performance, and the collection of performance measurement data by the council. <p>Guiding principles were included in the Act to require councils to have sound policies and processes for risk management and to effectively and proactively manage risks to the local community and council.</p> <p>The roles and responsibilities of the governing body, mayor, councillors were also updated and include the need to comply with the guiding principles and keep the performance of the council under review.</p> <p>The amendments followed an extensive public consultation process.</p>
2017	Independent Commission Against Corruption	<p>Botany Bay Council Inquiry</p> <p>The Independent Commission Against Corruption found, in its <i>Investigation into the conduct of the former City of Botany Bay chief financial officer and others</i>⁷⁶, that whilst Botany Bay Council did have an internal audit function:</p> <ul style="list-style-type: none"> it lacked independence from council's management and was prevented by the general manager from investigating the key operational areas and financial aspects of the council where corruption was occurring

⁷⁵ The Local Government Act was amended via the *Local Government Amendment (Governance and Planning) Act 2016*

⁷⁶ Independent Commission Against Corruption (2017) *Investigation into the former City of Botany Bay Council Chief Financial Officer and others*. ICAC Report July 2017

When	Who	What
		<ul style="list-style-type: none"> • it was never able to directly present information or audit reports to the Audit, Risk and Improvement Committee or meet with the Committee to discuss concerns without the general manager present • it did not use risk ratings to determine what audits would be conducted which enabled key areas (where corruption was occurring) to be missed • the council's Audit, Risk and Improvement Committee was ineffective and did not properly examine the council, internal audit function or monitor the implementation of corrective actions, or report to the governing body • standard controls were frequently ignored, e.g. management letters • key financial staff in the council lacked the capabilities to perform their role • the governing body thought it was unable to request more information about audit activities • the governing body of council did not properly consider external audit reports or implement recommended corrective actions, and • corruption and misuse of public money was able to occur unabated. <p>The Commission recommended that the internal audit model to be developed under the 2016 amendments to the Act be comparable to that which applies to state government agencies. The Commission specified in particular that the NSW Government:</p> <ul style="list-style-type: none"> • issue mandatory administration and governance directives to local government similar to those that apply to state government agencies • require the composition and operation of audit committees to be similar to those that apply to state government agencies (i.e. all independent members), and • require the general managers of each council to regularly attest that its audit committee is operating in accordance with requirements. <p>The Commission also noted that had the NSW Auditor-General been conducting council's external audits (as now occurs) the corrupt conduct would have been detected much more quickly than it was.</p> <p>Specific to Botany Bay Council, but relevant to councils state-wide, the Commission also recommended that:</p> <ul style="list-style-type: none"> • council ensures that the implementation of both internal and external audit recommendations is considered by the governing body of the council when evaluating the performance of the general manager • council undertake a risk assessment (including an assessment of fraud and corruption risks) to inform its internal audit plan • council ensures that its internal audit function operates independently from management by reporting functionally to its Audit, Risk and Improvement Committee • council ensures that it has a robust system in place to monitor and report on the implementation of internal audit recommendations that is independent from management, and • the general manager reviews the Audit, Risk and Improvement Committee's effectiveness and the adequacy of its arrangements to ensure that it fulfils the responsibilities of its charter and provides sufficient assistance to the governing body on governance processes.

When	Who	What
2018	NSW Auditor-General	<p>Report on Local Government 2017</p> <p>The NSW Auditor-General released her first audit of the NSW local government sector⁷⁷ in April 2018 following the 2016 Local Government Act amendments. In relation to internal audit, the NSW Auditor-General found that, out of a combined 128 local councils and 10 county councils:</p> <ul style="list-style-type: none"> 85 councils (62%) have an Audit, Risk and Improvement Committee and 53 (38%) do not. This is further broken down by location: <ul style="list-style-type: none"> 32 metropolitan councils (94%) have a committee and 2 (6%) do not 29 regional councils (78%) have a committee and 8 (22%) do not 23 rural councils (40%) have a committee and 34 (60%) do not 1 county council (10%) has a committee and 9 (90%) do not 86 council have a supporting internal audit function and 52 councils (38%) do not. This is further broken down by location: <ul style="list-style-type: none"> 31 metropolitan councils (91%) have an internal audit function and 3 (9%) do not 29 regional councils (78%) have an internal audit function and 8 (22%) do not 24 rural councils (42%) have an internal audit function and 33 (58%) do not 2 county councils (20%) have an internal audit function and 8 (80%) do not, and 102 councils (74%) have either an Audit, Risk and Improvement Committee or an internal audit function and 36 councils (26%) have neither. <p>The Auditor-General also found that of the councils that did have a risk management framework in place, many of them were outdated and did not have accurate risk registers, risk policies and/or procedures. Many councils also had significant risks that were not being managed appropriately and were consequently affecting the governance, financial sustainability, asset management and legislative compliance of the council. 55% of Committees were also not reviewing the financial statements of councils.</p> <p>The NSW Auditor-General recommended in relation to risk management and internal audit that:</p> <ul style="list-style-type: none"> the Office of Local Government introduce a requirement for all councils to establish internal audit functions the Office of Local Government update its 2010 Internal Audit Guidelines Audit, Risk and Improvement Committees review the financial statements of councils councils could strengthen governance by implementing risk management and/or ensure their existing risk management framework includes IT, and councils should early adopt the proposed requirement to establish an Audit, Risk and Improvement Committee.

⁷⁷ NSW Auditor-General (2018) *Report on Local Government 2017*

When	Who	What
2019	NSW Auditor-General	<p>Report on Local Government 2018</p> <p>The NSW Auditor-General⁷⁸ found in her 2018 report that out of a combined 128 councils and 10 county councils, the number that have an:</p> <ul style="list-style-type: none"> ○ Audit, Risk and Improvement Committee increased from 85 (62%) in 2017 to 97 (70%), and ○ internal audit function increased from 86 (62%) in 2017 to 92 (67%). <p>The NSW Auditor-General attributed these increases to the 2016 amendments to the Local Government Act that mandate Audit, Risk and Improvement Committees and internal audit functions from March 2021.</p> <p>The councils yet to establish an Audit, Risk and Improvement Committee and internal audit function are mainly rural and county councils (50–60% of rural and county councils are non-compliant). Most metropolitan councils have a Committee and all have an internal audit function.</p> <p>For those councils that did have an Audit, Risk and Improvement Committee:</p> <ul style="list-style-type: none"> • 98% of Committees have an Audit, Risk and Improvement Committee Charter • 94% of Committees have an independent Committee Chair • 90% of Committees are advised of significant, complex or contentious financial reporting issues • 87% of Committees monitor progress in addressing internal and external audit recommendations • 83% of Committees have a majority of members who are independent • 81% of Committees review the council's risk register • 48% of Committees perform an annual self-assessment of their performance. <p>For those councils that did have an internal audit function:</p> <ul style="list-style-type: none"> • 95% have a documented internal audit plan • 90% of Audit, Risk and Improvement Committees review the internal audit plan • 85% of internal audit plans align with the council's risk register, and • 61% of Committees assess the performance of the internal audit function. <p>In relation to risk management, the NSW Auditor-General found that:</p> <ul style="list-style-type: none"> • 120 (87%) councils have a risk management policy and 18 (13%) councils do not • 100 (72%) councils have a risk register and 38 (28%) councils do not, and • 126 (91%) councils' risk registers align with their strategic objectives and 12 (9%) do not. <p>The NSW Auditor-General also recommended that councils:</p> <ul style="list-style-type: none"> • strengthen their risk management policies and practices • manage a number of specific high-risks better • implement stronger internal controls • improve fraud control, IT, asset management, procurement and contract management policies and practices, and • implement a legislative compliance framework tailored to the size and risk profile of the council.

⁷⁸ NSW Auditor-General (2019) *Report on Local Government 2018* (see erratum)

