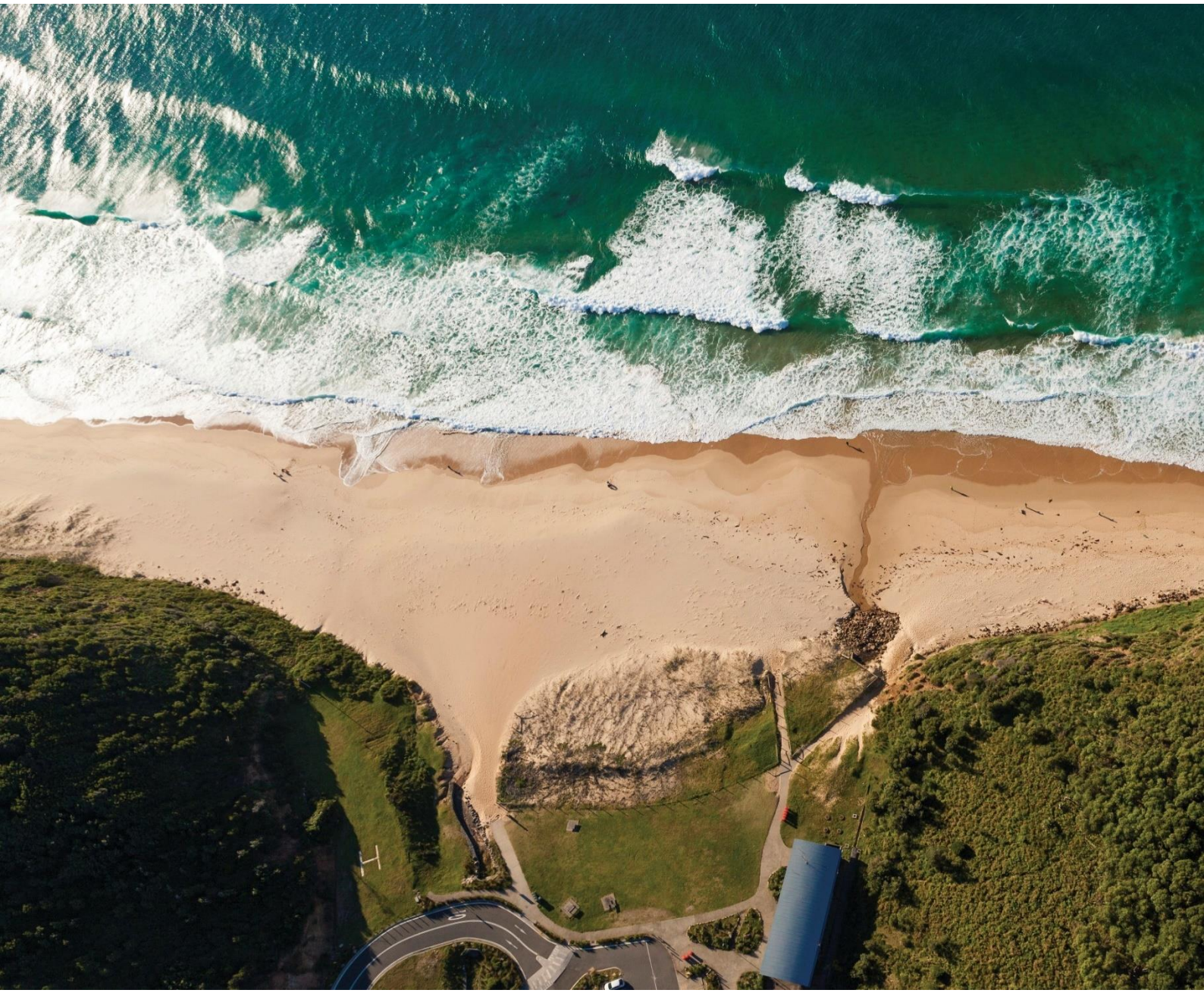
NSW Local Government Climate Change Adaptation Survey

Key Findings 2018



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Local Government NSW (LGNSW) has partnered with the NSW Office of Environment and Heritage (OEH) in ongoing **research** on the resilience of local governments to climate change.

This report presents the key findings from the latest survey of NSW local governments in relation to climate change. It explores topics including: understandings of climate change across local government; actions and processes to prepare for and respond to impacts; and, the ways in which climate information is used by local government practitioners.

Executive Summary

The NSW Climate Change Adaptation Survey has been delivered by LGNSW and OEH since 2015. The survey continues to be used as a way to understand and monitor local government responses to climate change.

The 2018 survey collected a total of 180 responses, which covered 66 per cent of NSW councils. Survey respondents represented a range of roles and the majority had more than ten years' experience in local government. As in the 2015 survey, there has been a strong and increasing survey response rate, indicating that climate change continues to grow as a significant issue for local governments.

Awareness of climate change impacts is increasing

- The overwhelming majority (82 per cent) of local governments are currently experiencing impacts from climate change in their organisations, up from 59 per cent in 2015, with increasing awareness particularly at the executive levels of local government.
- Storms and flooding are still viewed as the most common climate impacts, while extreme heat and drought are described as having the most severe impacts.
- Concerns about impacts on assets and infrastructure, biodiversity and landscapes and general environmental health remain high, as are demands for emergency services, impacts on public safety and water supply/demand.
- Additional climate impacts have been identified in 2018: including urban heat effects, groundwater impacts, changed rainfall patterns (not drought), cold snaps (not long cold periods), and an increasing number of invasive species.

Climate information is being applied to projects and planning

- Capability in using climate information is growing: 80 per cent of respondents are using climate change information to guide their planning and operations, with the need for assistance in using this information decreasing slightly, indicating increasing capability.
- Incorporation of climate change into council operational plans increased by 22 per cent, and prioritisation of climate adaptation activities increased by 27 per cent since 2015.

Adaptive capacity is growing, but support is still required in the following areas

- Fostering leadership and organisational support: lack of organisational support continues to be seen as a major barrier to adaptation and the significance of support has increased in 2018.
- Access to external funding streams: while attention to climate change risk assessments appears to have diminished since 2010, access to external funding and assigned staff remain strong enablers in the implementation of risk treatments and adaptation responses.
- Applying localised climate change information, knowledge and tools: particularly on incorporating climate change into land use planning, translating climate information for local government, providing information standards to help assess data quality, and greater consistency and guidance on applying climate change information.
- Coordination of effort to adapt at state and regional scales.

These findings have been summarised in this report and will be used to guide the design of support programs in local government and to monitor trends in climate change adaptation.

Introduction

The climate of New South Wales (NSW) is changing. The decade from 2001 to 2010 was the hottest on record, while 2014 was the hottest year in NSW. Increasing temperatures, rising sea levels, changing rainfall patterns and more frequent and intense extreme climatic events will increasingly affect the environment and society in every part of the state. As climate change impacts will be experienced at regional and local levels, local government is often at the forefront of addressing climate change risks. Climate change has the potential to damage local government assets and infrastructure, cause serious disruptions to the delivery of services, generate unbudgeted financial impacts and affect the wellbeing of the community, particularly those vulnerable to climate extremes.

All levels of government have a responsibility to manage risks to natural assets, infrastructure, and service delivery in the face of climate change. The NSW Government is committed to assisting local government, and the community, to build resilience to future extreme events and hazards by helping them to understand and minimise the impacts of climate change. The NSW Climate Change Policy Framework defines the Government's role in reducing carbon emissions and adapting to the impacts of climate change, and sets out next steps for implementation (see Climate Change Policy Framework). In addition, the NSW Office of Environment and Heritage (OEH) has been producing climate change science and information since 2009 – providing resources and support to build adaptive capacity (see AdaptNSW). OEH has worked closely with LGNSW, the local government peak body, to ensure that the information and support provided is appropriate for local government users.

The NSW Climate Change Adaptation Survey is run jointly by LGNSW and OEH as a way to understand and monitor the capacity of councils to respond to and manage climate change impacts. The 2018 survey provides a current snapshot of understandings of climate change across local government; any actions and processes to prepare for and respond to impacts; and the ways in which climate information is used by local government practitioners. The findings have been summarised in this report and will be used to guide program and information design to support local government and to monitor trends in climate change adaptation.

Approach

In April-June 2018, OEH and LGNSW developed and delivered the latest NSW Climate Change Adaptation Survey, building on the three previous surveys in 2006, 2010 and 2015. The objectives of the survey are to:

- assess the extent of climate change adaptation across NSW local government and compare these findings to previous levels;
- identify the barriers and enablers for climate change adaptation and any changes over time; and,
- evaluate the levels of awareness, use and appropriateness of OEH/LGNSW information, resources and support programs.

The overarching aim is to use this research to inform future program development and support services delivered by OEH and LGNSW to build resilience to climate change across the local government sector.

Method

The survey questionnaire included 36 questions across 6 sections comprising:

- Background
- Climate change impacts
- Climate change information
- Preparedness and response
- Barriers and enablers
- Feedback and further information

The individual questionnaire items were selected by balancing the need to ensure comparability with previous survey questions, and the ability to collect useful data for OEH and LGNSW to inform their future activities with local government. The survey was piloted with 8 staff from OEH, LGNSW and local government. The feedback from the pilot was incorporated into the final design of the survey (see Appendix A: Online Survey Questionnaire).

Administration

The survey was designed online and delivered using Survey Monkey. On average, it took 25 minutes for respondents to complete the survey. The online survey was open for 4 weeks, from 9 April to 4 May 2018. However, OEH and LGNSW deferred the scheduled closing date for an additional 6 weeks up to 12 June 2018 in an effort to increase the response rate and ensure an adequate representation of individual councils.

The survey was distributed through various channels as shown in Table 1. Most of the distribution activity (51 per cent) was facilitated by LGNSW in 2018, with follow up from OEH (and associated functions e.g. AdaptNSW), and other membership-based mailing lists (e.g. Sustainability Snippets). Those respondents indicating ‘other’ sources (21 per cent) were largely included in the survey via direct emails from other council staff and external contacts. The distribution pattern in previous years was similar.

Table 1 Survey distribution channels 2010-2018

	2010		2015		2018	
Distribution channels	**%**	**n**	**%**	**n**	**%**	**n**
Email from LGNSW	66%	70	46%	85	51%	46
Email from OEH	0%	0	24%	44	12%	11
LGNSW Weekly	7%	7	13%	24	11%	10
Letter to General Manager	23%	24	14%	26	10%	9
Sustainability Snippets	9%	10	5%	9	2%	2
AdaptNSW newsletter	0%	0	0%	0	2%	2
Other (please specify)	14%	15	26%	48	21%	19
Total gave answer	**100%**	**106**	**100%**	**186**	**100%**	**91**

Three reminders were sent out via these channels throughout the period the survey was open. The survey was officially closed on 12 June 2018 and all 180 responses have been considered in the analysis.

Respondents

The online survey collected a total of 180 respondents, which covered over 66 per cent of all NSW councils, noting there were 19 respondents who did not provide the name of the council (see Appendix B). This is comparable with the 2015 survey with 186 responses and 72 per cent of all councils. Previous surveys recorded significantly less responses (82 in 2006 and 106 in 2010), indicating that climate change is increasingly viewed as a significant issue for local government.

The majority of responses were from individual councils (172 responses), with a further 5 from Joint Organisations (JOs) and 3 from Regional Organisations of Councils (ROCs). There were no responses received from County Councils. Just over 40 per cent of councils provided multiple responses from different staff members, which was encouraged in the distribution and communications in order to ensure a diversity of views from across different divisions within councils.

The survey achieved responses from a broad spread of staff roles across councils. A total of 34 per cent of respondents were in environmental or natural resource management roles, and a further 25 per cent specifically in sustainability roles in local government (see Figure 1). There was also a reasonable rate of response (over 10 per cent of responses respectively) from General Managers/Directors and from staff involved in Planning and Development.

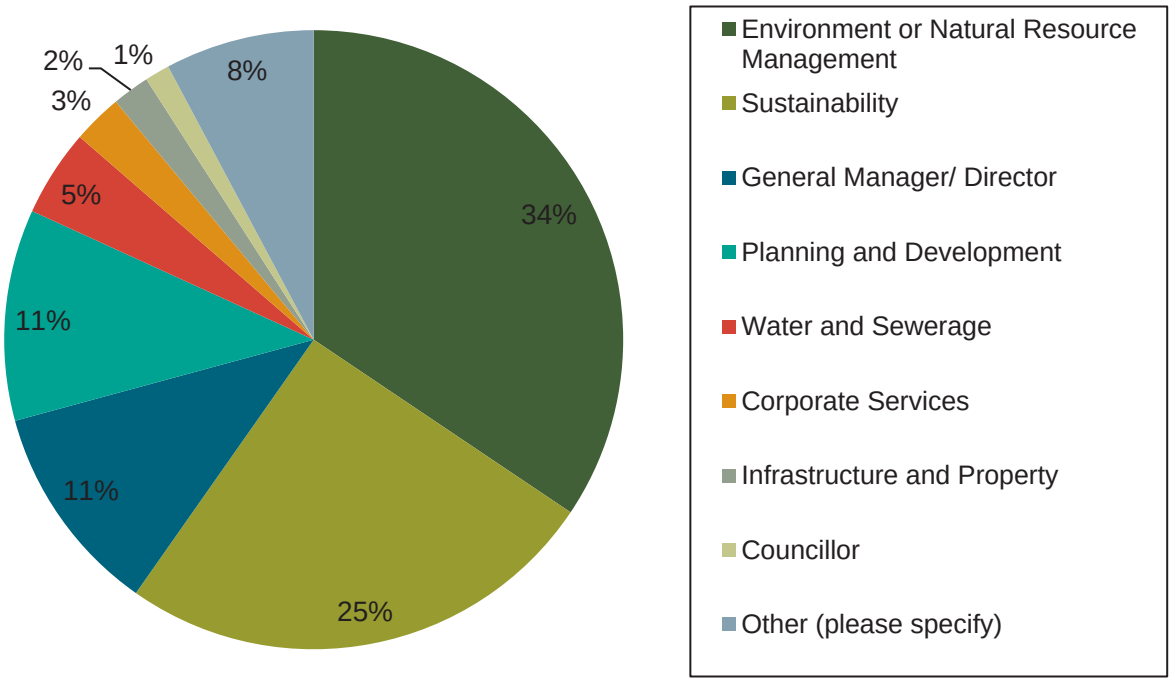

Figure 1 Distribution of survey respondents by division of council, 2018

Source: NSW Local Government Climate Change Adaptation Survey 2018, Question 6 'Which area of the organisation do you represent?', n = 154. Other categories include: Recreational Facilities (1), Economic Development (1), Community Services (1).

Compared with the 2015 survey, most divisions of council were represented by similar proportions of respondents. Interestingly though, the dedicated division of ‘sustainability’ was new to the 2018 survey and represented 25 per cent of survey respondents which most likely were previously accounted for under the general ‘environment or natural resources’ division category in earlier surveys.

Most staff responding to the survey were highly experienced and had been working in their organisation for between 5-9 years (25 per cent) or 10 years or more (40 per cent) (see Figure 2).

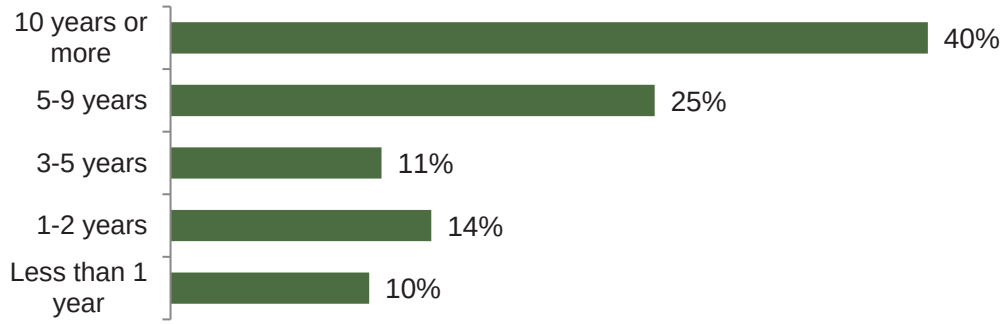

Figure 2 Length of time working in the organisation

Source: NSW Local Government Climate Change Adaptation Survey 2018, Question 7 'How long have you worked in this area of the organisation (and in predecessor organisation if an amalgamated council)?', n = 154.

Results and reporting

The individual responses to the survey are strictly confidential. The report presents all results at an aggregated level and does not identify individuals or individual councils.

Results are presented as percentages of respondents, not as a percentage of councils (e.g. frequencies should be understood as a proportion of responses provided (n=180), rather than as a proportion of the councils who provided at least one response (n=172) excluding those from other types of local government organisations). In some cases, the number of individual councils represented in responses is also highlighted where relevant (e.g. number of councils with climate change risk assessments).

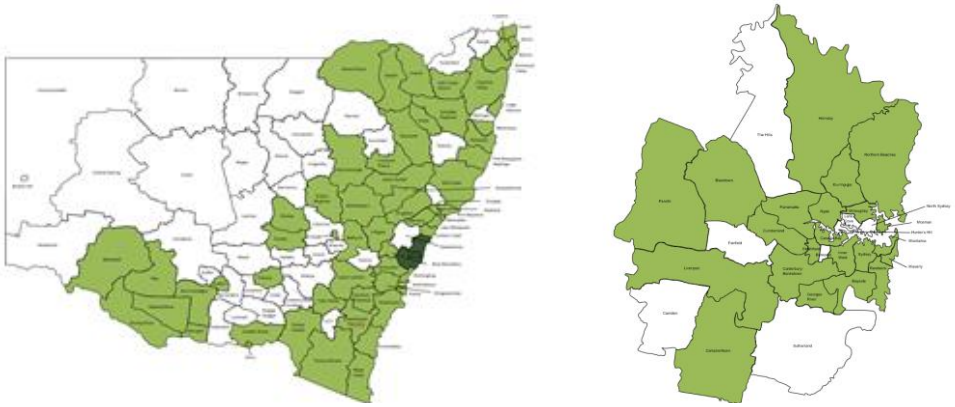

Figure 3 Distribution of responding councils across NSW and Metropolitan Sydney

The report also compares results with previous surveys where questions have remained similar over time (NB: this applies only to 2010 and 2015 as the previous 2006 survey was undertaken as a scoping needs analysis and does not align closely enough with the 2018 questionnaire for direct comparison).

Key findings

82% are experiencing some impacts from climate change in their LGA currently

Experience of climate change impacts

The vast majority (82 per cent) of respondents felt that climate change was currently impacting on council operations and management (Figure 4). A total of 35 per cent of respondents stated climate change was having a 'great deal' and 'fair amount' of impact now, and a further 47 per cent stated it was having a 'small impact now'.

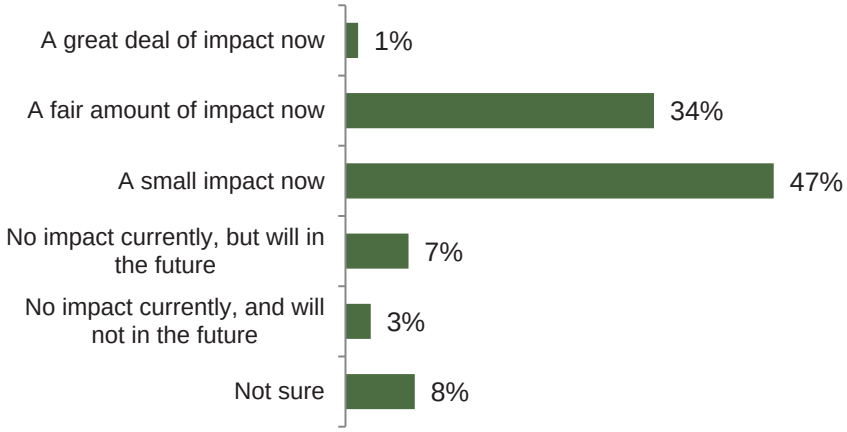

Figure 4 Extent of climate change impacts on council operations and management

Source: NSW Local Government Climate Change Adaptation Survey 2018, Question 9 'How much impact is climate change having on your local government operations and management currently?', n = 144.

A small proportion of respondents (7 per cent) felt there were no impacts on local government now but there would be in the future. Of those who are not experiencing any impacts yet (N=10), most expect the impacts to occur within 1 to 5 years (42 per cent of respondents) or 6 to 10 years (33 per cent of respondents).

Only a minority of respondents (3 per cent) felt climate change was not impacting on the council and would not in the future. However, these respondents commonly noted impacts from specific climate events (see section below: "Storms and flooding are viewed as the most common types of climate events and impacts") but viewed these as natural events independent of climate change.

"Climate change is placing additional stress on ecosystems and exacerbating existing threats and biodiversity. Climate change will increase the future cost of constructing, operating and maintaining our built assets"

(Respondent quote)

Storms and flooding are the most commonly identified climate impacts on LGAs.

Perceptions of climate change impacts on councils have increased 23% from 2015-18

A total of 8 per cent of survey respondents stated they were unsure whether climate change was impacting on local government currently.

The experience of climate change impacts has increased markedly from the previous 2015 survey (Figure 5). In 2015, only 59 per cent of respondents (N=186) reported experiencing some level of impacts on council operations and management, compared to 82 per cent in 2018.

A similar proportion of respondents described the impact as 'small' (45 per cent in 2015 and 47 per cent in 2018). However, there was a significant increase in those describing 'a fair amount' of impact (from 11 per cent in 2015 to 24 per cent in 2018); and a significant decrease in those describing no impact (from 22 per cent in 2015 to 10 per cent in 2018).

Interestingly, in 2015 there were a lot more respondents who indicated they were unsure of whether there was any impact from climate change (20 per cent unsure in 2015 compared to 8 per cent in 2018).

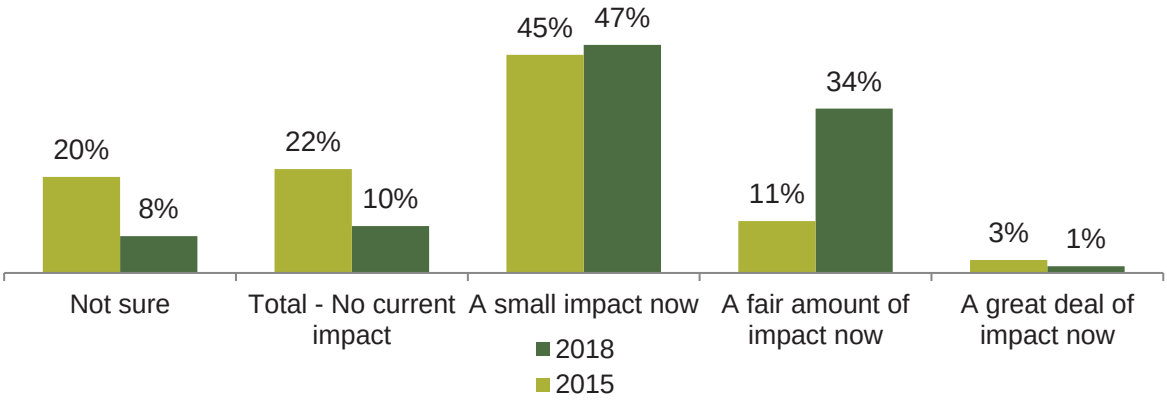

Figure 5 Extent of impact of climate change on operations and management, 2015-2018

Source: NSW Local Government Climate Change Adaptation Survey 2018, Question 9 'How much impact is climate change having on your local government operations and management currently?', n = 144. NSW Local Government Climate Change Adaptation Survey 2015, Question 7 'Are you currently experiencing impacts from climate change in your operations or management of assets?', n = 186.

Interestingly, respondents working in 'Water/ Sewerage' and 'General Managers/ Directors' were most likely to suggest there was some level of impact from climate change currently (100 per cent and 94 per cent of responses from these functional areas respectively), followed by those working in 'environment/natural resource management' and 'sustainability' areas (81 per cent and 88 per cent respectively). Those respondents working in 'Planning and Development' were most likely to indicate there were no impacts. This has changed markedly from previous surveys where it was 'General Managers/Directors' who were most likely to report no impacts from climate change.

Overall, climate change is more widely acknowledged across the local government sector than it was in 2015. The sector is also describing a greater extent of impact now than in previous years. This suggests an increasing level of acceptance of climate change and awareness of the impacts, and that this is increasing at the executive level as well.

Storms and flooding are viewed as the most common impacts

Storms and flooding are the most commonly identified climate impacts on LGAs.

Types of climate events and impacts

For those respondents who identified current climate impacts on the Local Government Area (LGA), storms were seen as having the most impact, particularly heavy rain, hail and lightning (85 per cent), and to a lesser extent strong winds and dust (72 per cent) (Figure 6).

Flooding was also viewed as a significant climate impact for LGAs, with a total of 76 per cent of respondents identifying this as having some level of impact currently.

Storms and flooding were also rated as the most common impacts in the previous surveys.

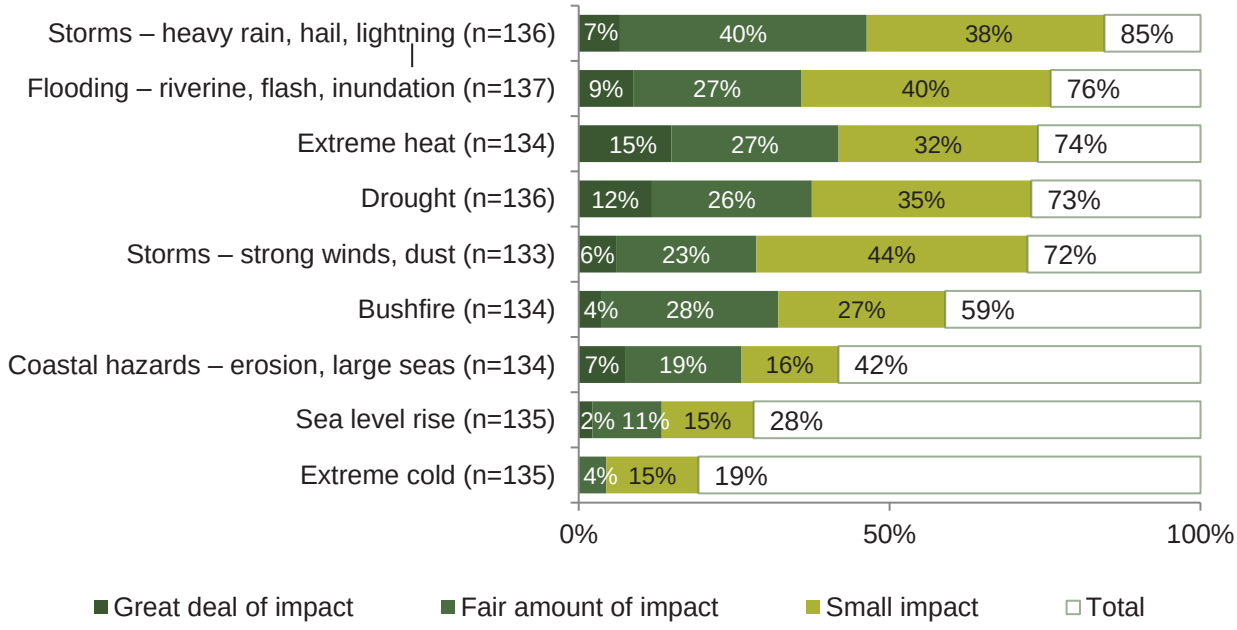

Figure 6 Types and extent of climate impacts

Source: NSW Local Government Climate Change Adaptation Survey 2018, Question 11 'To what extent are the following climate events impacting on your Local Government Area(s)/region?'.

Heat and drought are viewed as the most extreme impacts

Extreme heat and drought had the highest number of respondents describing the impact as 'great'.

Notably, extreme heat and drought were also commonly identified as climate impacts currently, with these categories having the highest proportion of respondents describing 'a great deal' of impact (15 per cent and 12 per cent respectively for extreme heat and drought).

Other commonly identified climate impacts on LGAs were bushfires (59 per cent of responses), and coastal hazards (42 per cent of responses). Sea level rise and extreme cold were identified to a lesser extent with 28 per cent and 19 per cent of responses respectively.

Other impacts

Some respondents identified other impacts to those listed in the survey including:

- Urban heat effects
- Groundwater impacts
- Changed rainfall patterns (not drought)
- Cold snaps (not long cold periods)
- Increased prevalence of invasive species
- Tree dieback

Consistent with the previous survey, the proportion of respondents experiencing climate change in their LGA is relatively consistent between regions, although Metropolitan Sydney and the Hunter had a slightly higher proportion of respondents experiencing some impacts from climate change. The impacts from storms were also fairly evenly distributed across LGAs, however as would be expected, coastal hazards and sea level rise were experienced far more in the Hunter, North, Central and Mid Coasts and Illawarra-Shoalhaven; and severe cold was experienced more in Central West, New England North West, Riverina-Murray and South East and Tablelands.

Respondents were also asked to describe the type and extent of the impact these specific climate events were having on the LGA and council operations. The most common impacts identified by respondents were on assets and infrastructure (84 per cent), biodiversity and landscapes (72 per cent), and general environmental health (70 per cent). Demands for emergency services and public safety were also commonly identified (66 per cent and 65 per cent respectively) as climate related impacts. Impacts on water supply/demand and service delivery both represented 61 per cent of identified impacts respectively.

Impacts on assets and infrastructure, and on water supply/demand were seen to be the most significant, with these receiving the most number of respondents (11 per cent) describing the impact as 'a great deal'.

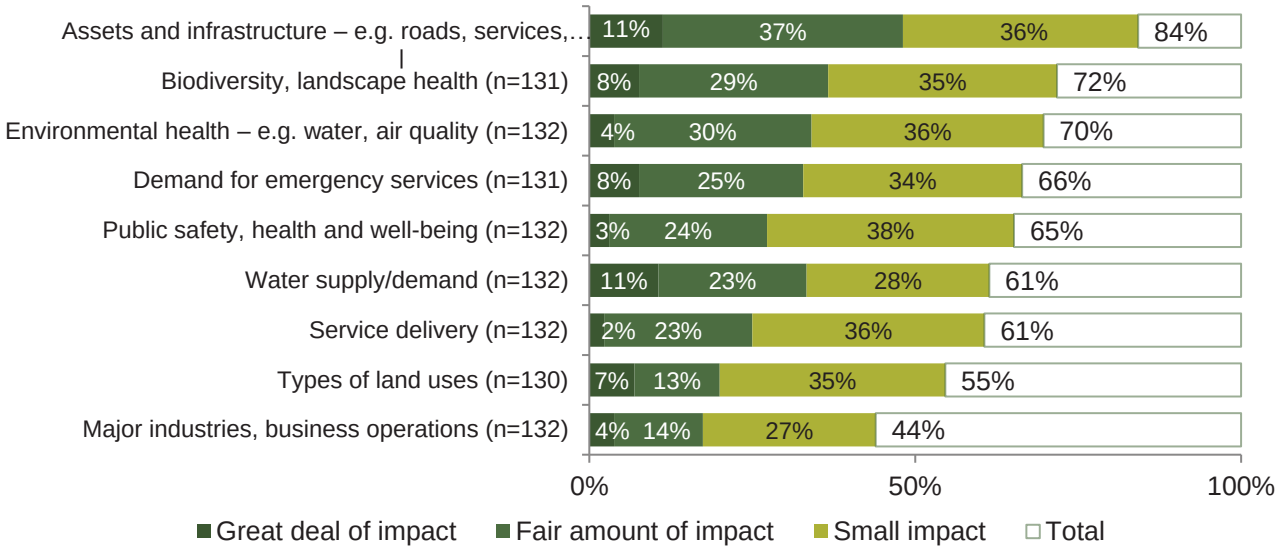

Figure 7 Types and extent of impacts on the LGA and council operations

Source: NSW Local Government Climate Change Adaptation Survey 2018, Question 12 'Overall, to what extent do you think climate events have (or will) impact on the following aspects of your Local Government Areas and operations?'.

Most local government respondents are using climate change information

Climate change information

The 2018 survey is the first survey in the research series to examine the issue of climate change information and use in detail. It is evident from the results that most local government respondents (79 per cent) are using some form of climate change information (Figure 8). A total of 38 per cent of respondents are using existing climate change information products (e.g. existing analyses, reports, maps) (Figure 6), rather than accessing raw data to undertake their own analyses. Although around 34 per cent of respondents are using a combination of existing information products and raw datasets, only 7 per cent of respondents use climate change data to do their own analyses. A total of 22 per cent of survey respondents stated they are not using any climate change information at all.

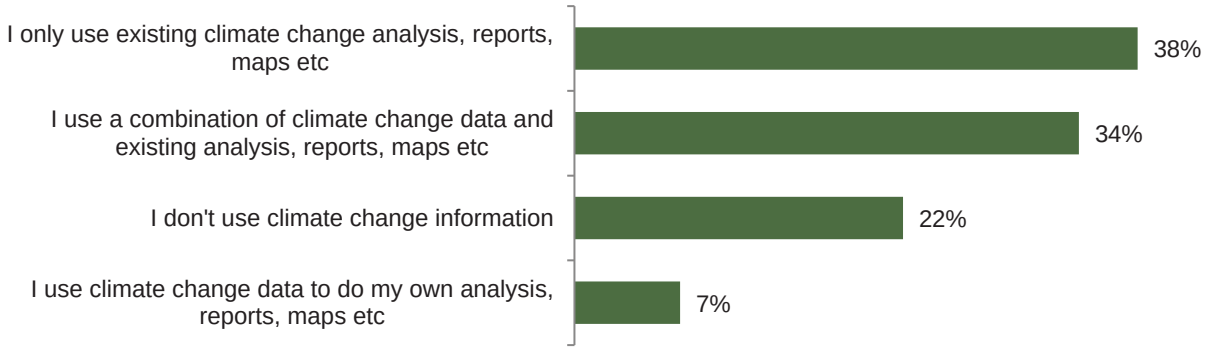

Figure 8 Use of climate change information

Source: NSW Local Government Climate Change Adaptation Survey 2018, Question 13 'Which of the following statements best describes your use of climate change information in your current role?', n = 128.

Of those respondents using data, either in combination with information or to undertake analyses, there were a range of data types that were accessed: most were using excel spreadsheets (52 per cent), followed by Google Earth (39 per cent) and ArcGIS files (33 per cent) (Table 2). These data formats were also the main formats that respondents indicated using in the previous 2015 survey.

Table 2 Climate change data types

Data types	%	n
Spreadsheet (xls, csv files)	52%	28
Google Earth (kml files)	39%	21
ArcGIS	33%	18
ASCII grid	6%	3
NetCDF	4%	2
Other (please specify)	41%	22
Total responses	**100%**	**54**

"LGA data is a real gap … snapshots at this scale would be useful."

(Respondent quote)

These data users were also generally looking at annual or longer time periods (Figure 9), with much of this data viewed as sufficient to meet their needs (Figure 10). Data averaged across regions, LGAs and postcodes was seen as the largest gap in the information available. Indeed, several respondents provided comments to support this, for example: *"Without postcode or LGA data it is difficult to assess whether data supplied at a regional level is sufficient. We assume that experts have determined the boundaries appropriately ... It would be much better to invest in LGA or postcode data for Council purposes."* (Respondent quote)

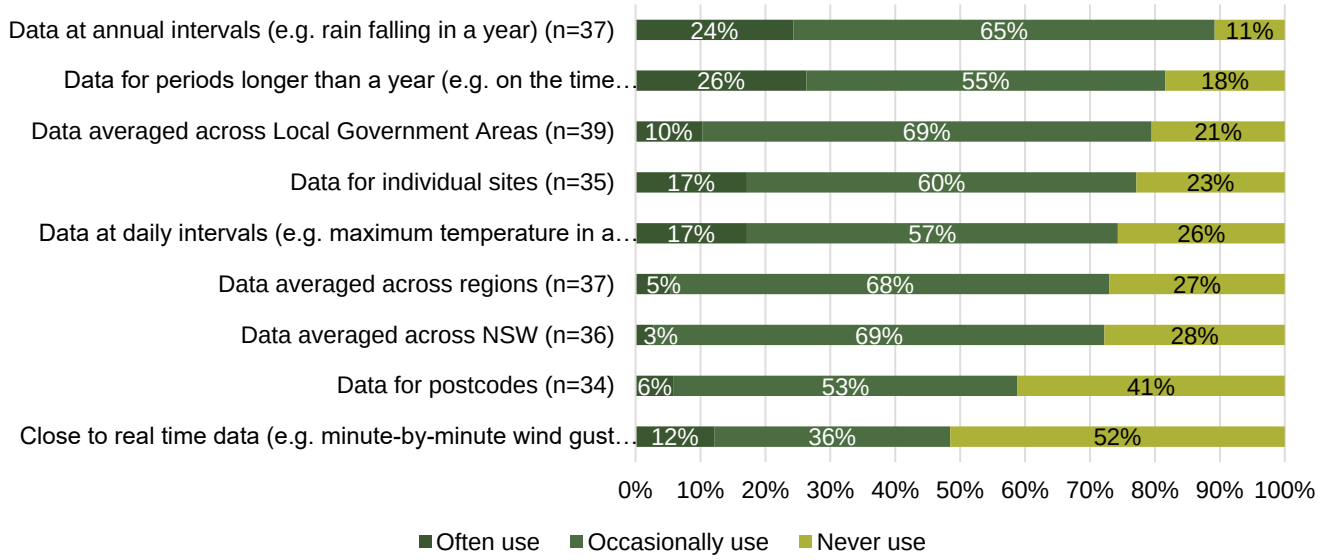

Figure 9 Frequency of data used

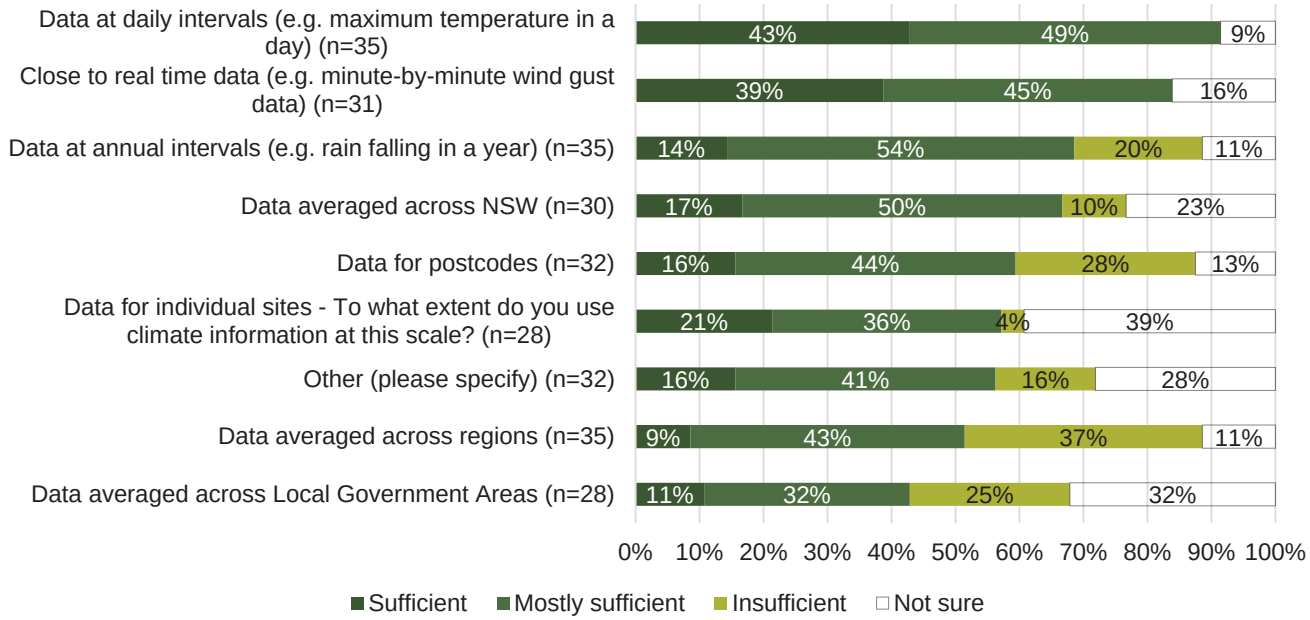

Figure 10 Sufficiency of frequency data

Local government data users mostly use climate change data in the form of spatial maps or basic statistics (88 per cent and 80 per cent of respondents respectively) (Figure 11). These are also generally viewed as sufficient for user needs (Figure 12). It is important to note though that spatial maps received the highest level of 'insufficient' rating from respondents. There were also several comments from respondents that more interactive spatial maps would be useful for presenting climate change information.

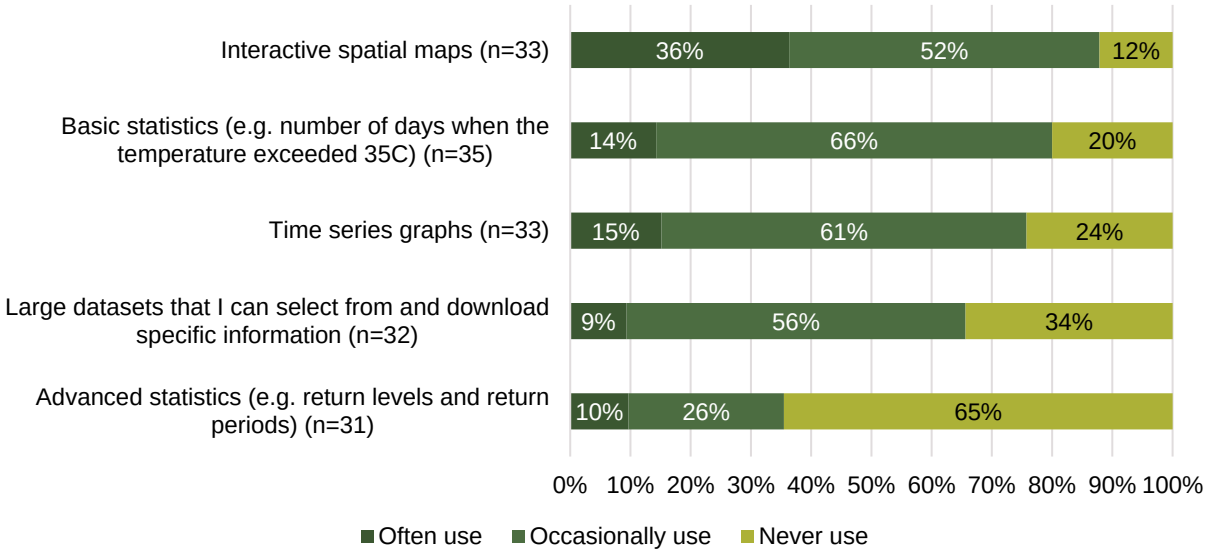

Figure 11 Types of climate information and frequency of use

Source: NSW Local Government Climate Change Adaptation Survey 2018, Question 18 'To what extent do you use climate information in this format?'.

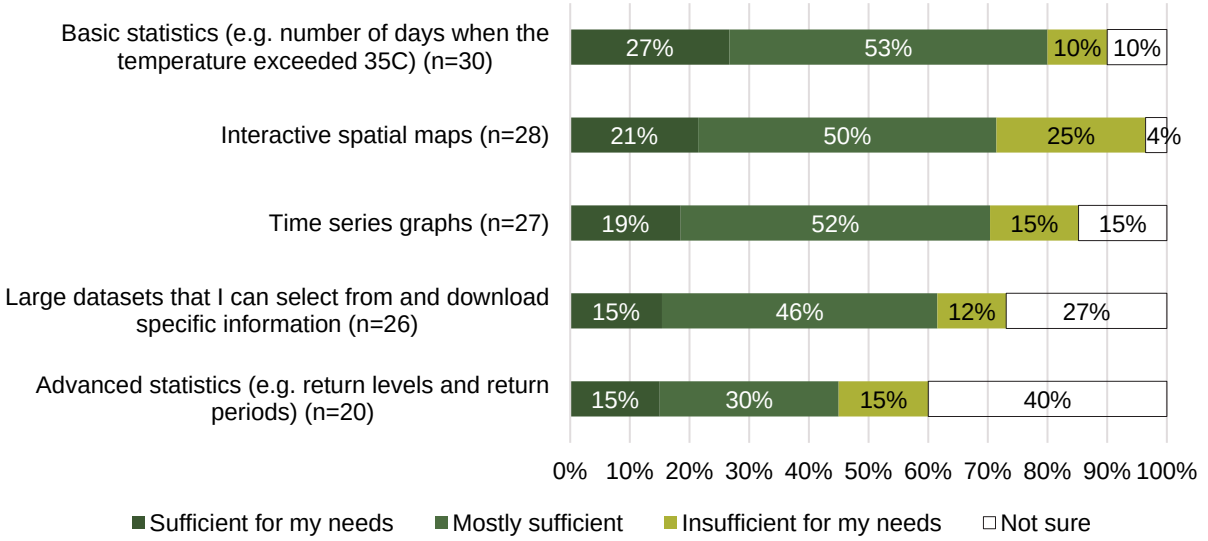

Figure 12 Sufficiency of climate information types

Source: NSW Local Government Climate Change Adaptation Survey 2018, Question 19 'To what extent is the information sufficient?'.

Mostly using climate information on flooding, storms and temperatures

For respondents using any type of climate information product, most (95 per cent) were using it to understand flooding (Figure 13). Climate information was also being used commonly to understand storms (86 per cent) and extreme temperatures (82 per cent), and to a lesser extent bushfire and drought. Sea level rise and air quality were not as common topics of climate information.

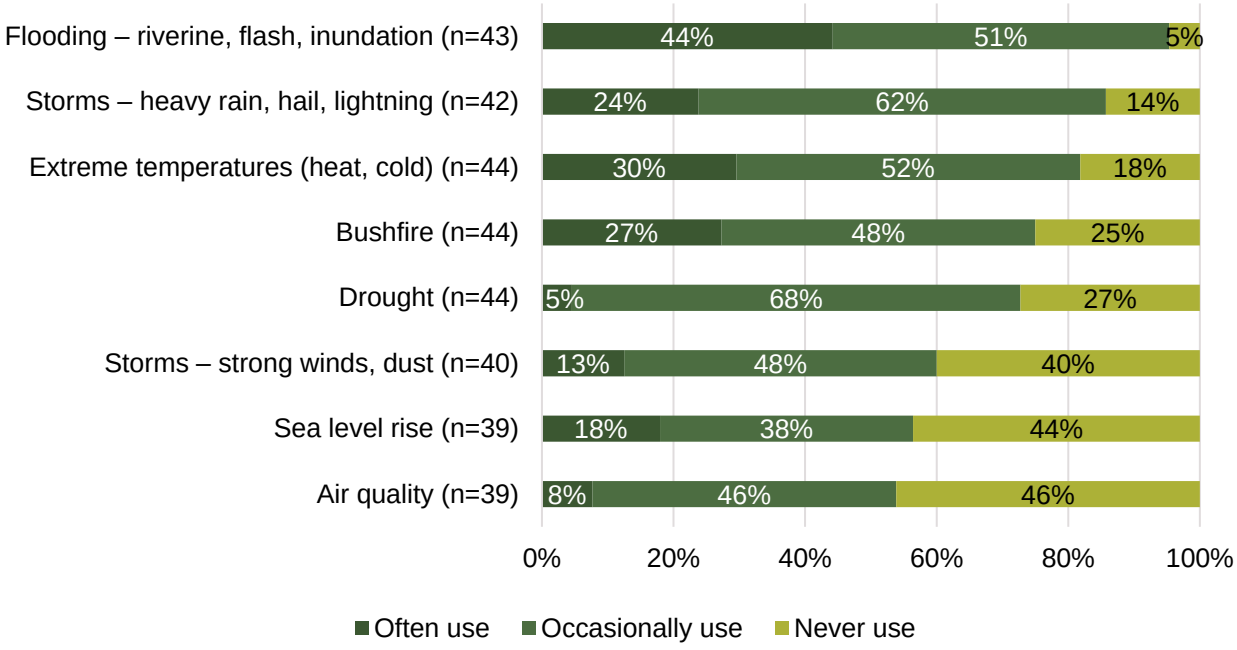

Figure 13 Topics of climate information used

Source: NSW Local Government Climate Change Adaptation Survey 2018, Question 15 'To what extent do you use information on this topic?'.

Better information on storms is needed for local government

Respondents were also asked to assess the extent to which the information provided on these topics was sufficient to meet their needs (Figure 14). The highest levels of sufficiency were for flooding, followed by sea level rise, and bushfire information. Extreme temperatures, coastal hazards and drought information was also viewed generally as sufficient in meeting the needs of users.

Data on storms was viewed as the least sufficient in meeting the needs of local government users. This is a significant finding considering that storms are viewed as one of the most common and significant impacts on local government operations and management, yet the information on this topic is not meeting current needs.

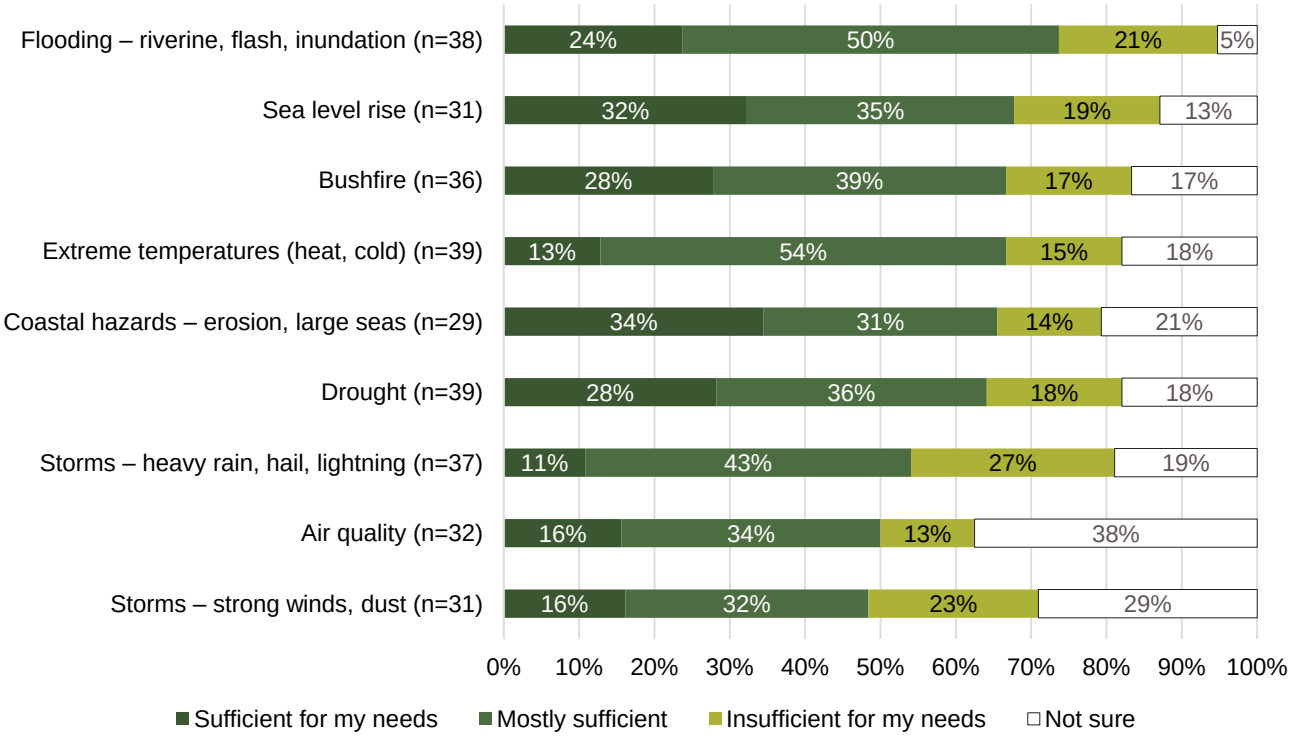

Figure 14 Sufficiency of climate information

Source: NSW Local Government Climate Change Adaptation Survey 2018, Question 15 'To what extent is the available information sufficient for your needs?'.

Information gaps

Some respondents identified gaps in topics of information:

- Flooding data outside of coastal areas (i.e. rural areas)
- Impacts on stormwater
- Extent and scale of impacts for a specific location or ‘flash’ event within larger regional models
- Sea level rise thresholds dependent on local-scale studies by councils – need overarching projections and guidance
- Bushfire risk assessment in the Hunter, Lower North Coast and Central Coast Region is outdated (8 years old)

Most respondents indicated they were using climate change information for the purposes of regional and other strategic level planning (58 per cent), and assessing climate risks to assets, infrastructure and services (56 per cent) (Figure 15). Developing educational and communication materials was also a common use of climate change information.

Using climate change information for procurement, investment decisions and insurance are still not common despite recent shifts to incorporate climate change considerations in investment and financial governance frameworks more broadly.

Several respondents noted other uses of climate change information which included for program design and delivery, and in communicating with colleagues and executives.

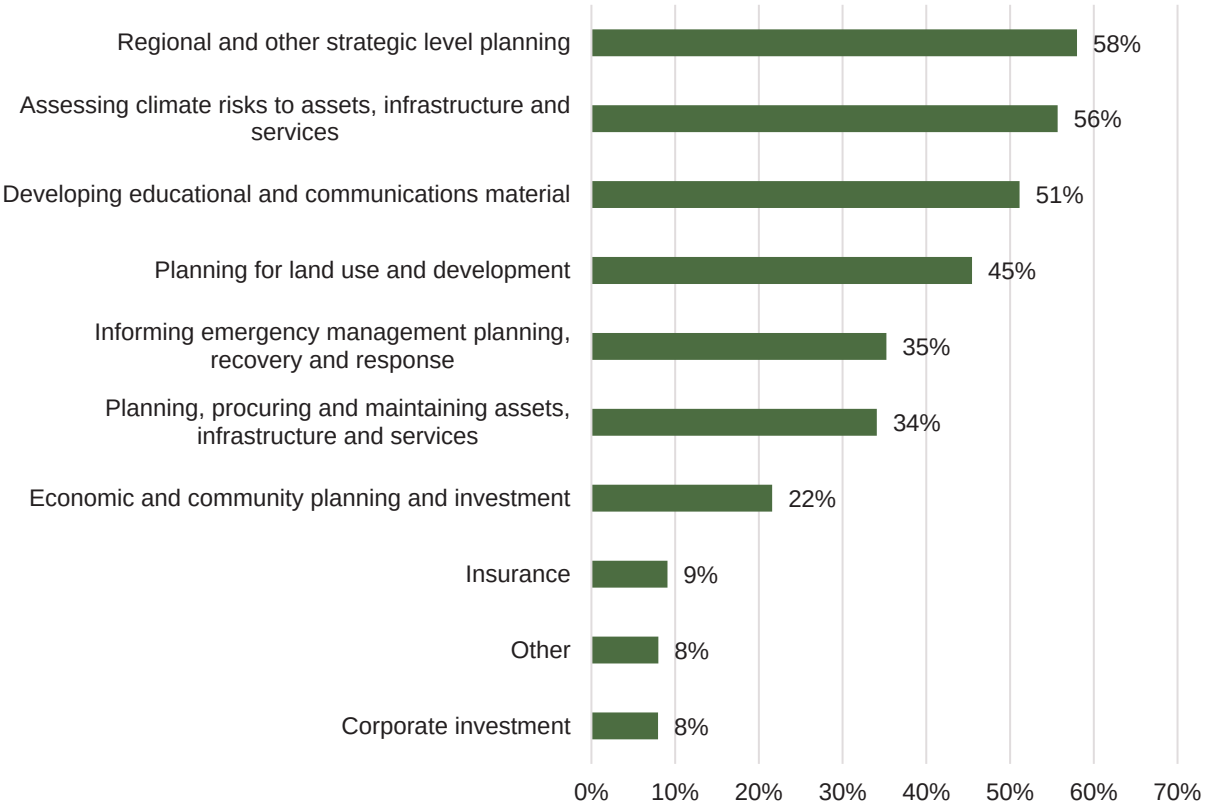

Figure 15 Uses of climate information

Source: NSW Local Government Climate Change Adaptation Survey 2018, Question 18 'For what purpose(s) do you currently use climate change information as part of your role? Please select all that apply.', n = 88.

The Australian Government resources, including CSIRO and Bureau of Meteorology resources, were the most commonly used climate change information with 88 per cent indicating occasional to regular use (Figure 16). This compared to 70 per cent indicating occasional to regular use of the NSW Government's AdaptNSW website. Other common sources of information included technical reports from professionals (80 per cent) and resources from other councils and LGNSW (73 per cent and 57 per cent respectively).

This distribution of information use was similar to the results of the 2015 survey, with most using the Australian Government resources. However, the use of AdaptNSW has increased significantly from 61 per cent of respondents in 2015, to 70 per cent in 2018.

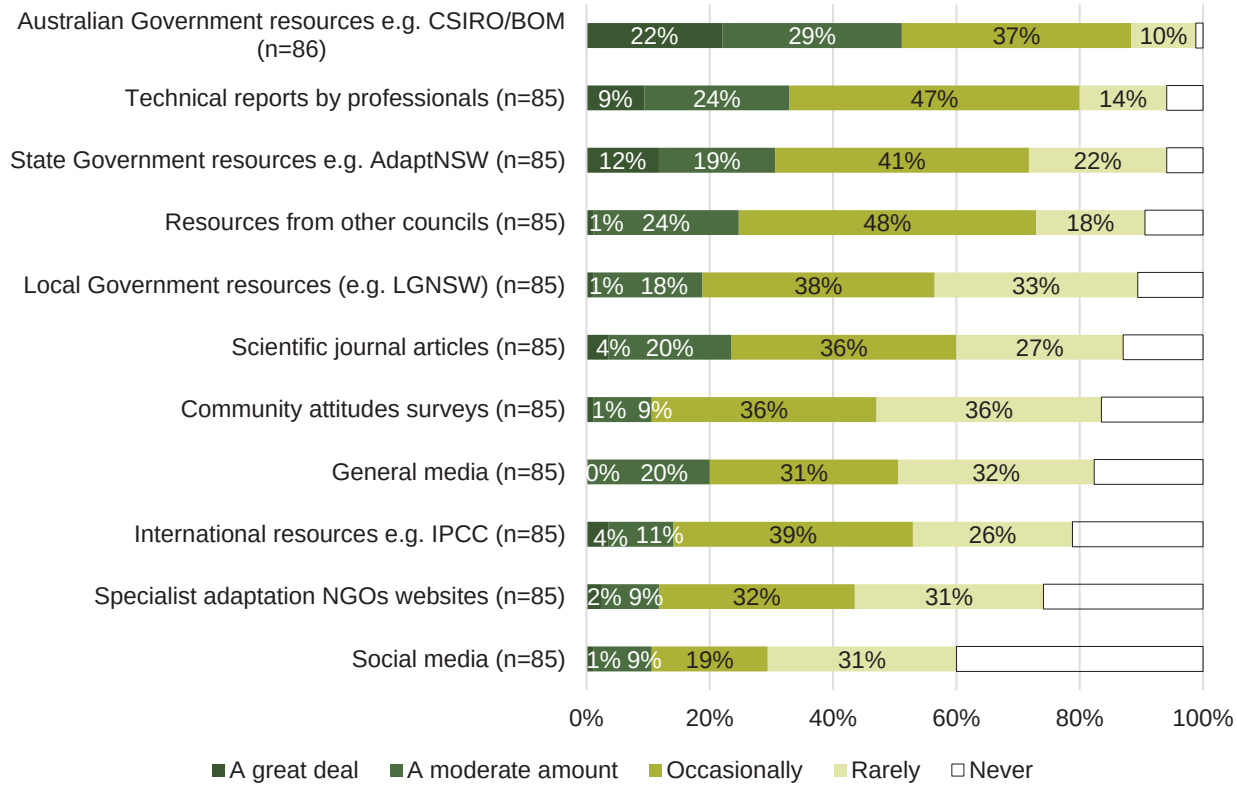

Figure 16 Climate information sources and frequency of use

Source: NSW Local Government Climate Change Adaptation Survey 2018, Question 19 'To what extent do you use the following sources of climate change information in your role?'.

"Sometimes it's hard to extrapolate generalised data to the specific instance and location I need it for"

"Being able to translate the technical information and make it digestible for community and council audiences is difficult"

"There is often a lack of consistency in terminology. A lot of scenarios (RCPs) are confusing …and there is a lack of consistent standards across all levels of governments"

"Sometimes it is an overload of information and finding the key pieces or most valuable information can be overwhelming …. it would be good to have the information more centralised and greater guidance on how the information can be used"

Respondents were asked to provide comment if they had any issues when accessing and using these climate information sources. A total of 32 respondents provided responses identifying some common issues comprising the following (in general order of frequency):

- That general or regional data is hard to translate to specific local government areas
- Inconsistency between various data sources make it hard to assess which ones to use e.g. different Representative Concentration Pathways (RCPs)
- It can be difficult to navigate information sources and assess the quality and currency of data – e.g. where to obtain data, which types, what timeframes
- Technical information can be hard to translate into actual impacts and to communicate to the local government sector and community
- Individual councils do not provide free access to journal articles which would be helpful to better understand climate change issues
- Specific topics are not currently addressed sufficiently in these information sources: wastewater, water, historical data, and impacts from storms.

Capability is growing

40% of respondents did not require assistance to use climate information, compared to only 28% in 2015

For respondents using these climate information sources, 40 per cent stated they did not need assistance, 23 per cent did need assistance, and 37 per cent were unsure (Figure 17).

The need for assistance with using climate information has decreased by 29 per cent between 2015-18 (from 52 per cent in 2015 to 23 per cent in 2018), indicating some increasing internal capability within councils to use climate information.

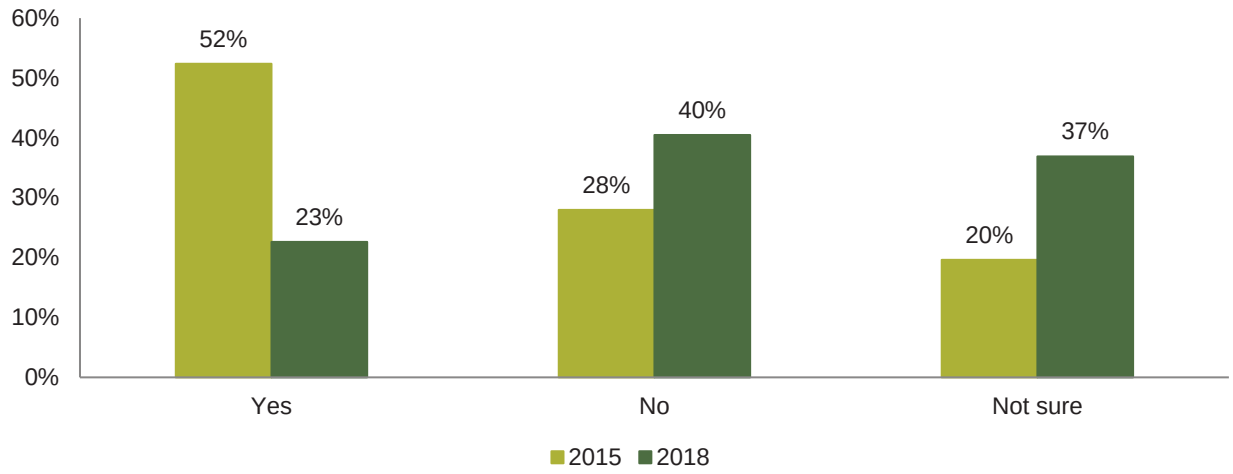

Figure 17 Need for further assistance in using climate information

Source: NSW Local Government Climate Change Adaptation Survey 2018, Question 21 'Do you require further assistance in accessing or using particular climate change information sources?', n = 84.

Respondents who indicated they needed assistance were asked to specify the types of assistance required. The issues generally ranged from an information directory that allowed local government staff to easily and quickly assess what types of information are available from where, and the provision of common standards and requirements for climate change information that would assist them to select and assess quality information types and products. For example, one respondent stated: *"I'm not necessarily exposed to the information unless I specifically look for it. There would be a wealth of information that should be used but I don't know about because I don't have any technical knowledge in this area."*

The other key area of assistance was in translating the information to the local government sector by providing tailored advice, training and case studies or examples on how the data can be used in local government. For example, one respondent stated*: "I would like to know how climate modelling can be incorporated into the development assessment space better … fact sheets and case studies of what other Councils have done would be really useful".*

Preparedness and response to climate impacts

A series of questions were asked to assess the extent to which respondents felt their organisation was prepared for and responding to climate change impacts.

Overall, both mitigation and adaptation activities were described as a high priority for 29 per cent and 23 per cent of respondents respectively, and a medium priority for 35 per cent and 31 per cent (Figure 18).

Mitigation activities were seen as more of a priority than adaptation activities within organisations.

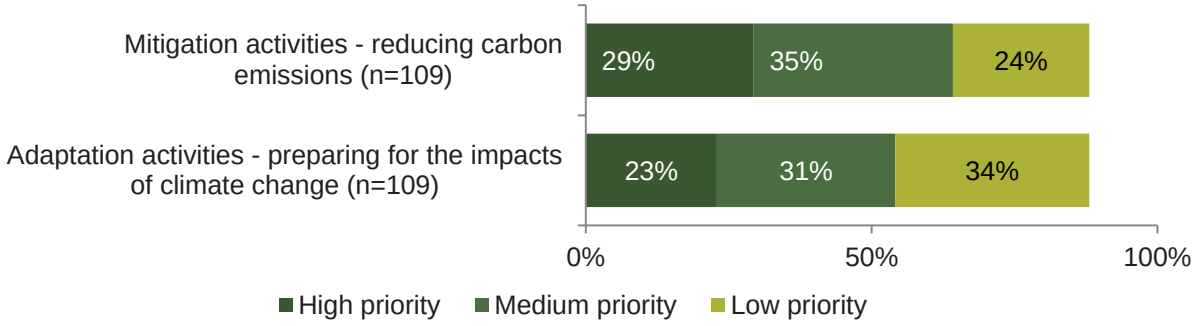

Figure 18 Level of priority of mitigation and adaptation activities

Source: NSW Local Government Climate Change Adaptation Survey 2018, Question 23 'To what extent are climate change mitigation and adaptation activities a priority for your local government organisation?'. N = 109.

In 2015, respondents were asked a similar question on the priority of climate change adaptation activities only. Figure 19Figure 18 shows that the prioritisation of adaptation activities has increased significantly between 2015 and 2018, with high and medium prioritisation increasing from just 27 per cent to 54 per cent over that period.

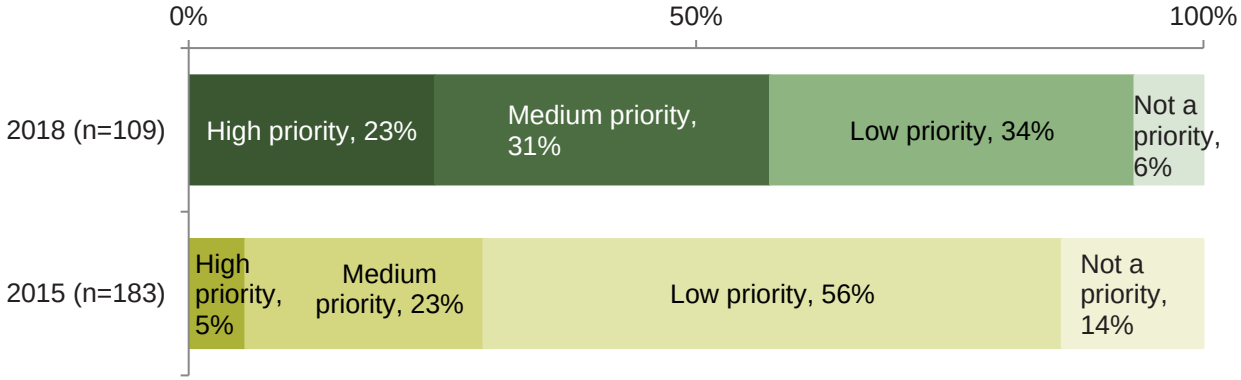

Figure 19 Priority given to climate adaptation activities, 2015 and 2018

Source: NSW Local Government Climate Change Adaptation Survey 2018, Question 23 'To what extent are climate change mitigation and adaptation activities a priority for your local government organisation?'. NSW Local Government Climate Change Adaptation Survey 2015, Question 10 'Thinking about your council and its activities, how much priority does your council give to adapting to the impacts of climate change?'

Mitigation activities, and to a lesser extent, adaptation activities are generally incorporated into a range of common operational plans of local government; most often, community strategic plans (10 year strategy) and operational plans (annual plan) and to a lesser extent, delivery programs (4 year program) and regional priorities (see Figure 20).

The incorporation of climate change responses into organisational plans has increased since 2015, where 71 per cent of respondents indicated formalisation of actions in the Community Strategic Plan, 60 per cent in their delivery program, and 56 per cent in their Operational Plan.

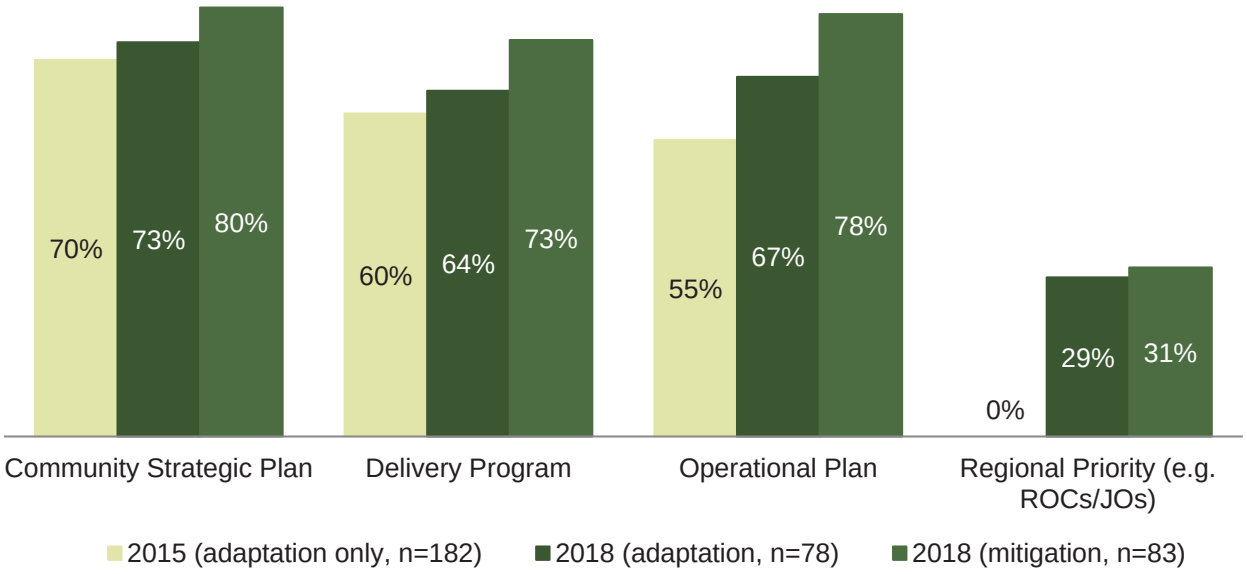

Figure 20 Incorporation of mitigation/adaptation activities in organisational plans

Source: NSW Local Government Climate Change Adaptation Survey 2018, Question 24 'Please indicate which of your local government plans include climate change mitigation and/or adaptation activities'. NSW Local Government Climate Change Adaptation Survey 2015, Question 11 'Are actions about responding to climate change impacts mentioned in your…'.

29 councils indicated they had an emission reduction target

A total of 39 per cent of respondents indicated their organisation had a dedicated emissions reduction target, 44 per cent reported no target, and 17 per cent were unsure (N=109). Of the 42 respondents who indicated there was an emission reduction target, there was a total of 29 councils represented, 42 councils had none and 17 councils were unsure.

The respondents were asked to provide details of the target, which are summarised in the box below and include both direct and indirect targets. There was a total of 24 councils who provided these details. In some cases, multiple responses were provided for a single council that varied, or respondents indicated they were unsure of what the target was, or that it was under review following recent council mergers.

Emissions Reduction Targets

- Net zero emissions by 2025
- Carbon neutral by 2022, 60% emissions reduction based on 2015 levels
- 10% emissions reduction by 2012, based on 2004 levels
- 30% emissions reduction by 2020, based on 1995 levels
- 20% emissions reduction by 2020, 50% by 2030 and 100% by 2045, based on 2000 levels
- 45% emissions reduction (per capita) by 2023, 3% per annum reduction from 2008 levels
- 40% emissions reduction by 2030, based on 2011 levels
- 70% emissions reduction by 2030, based on 2006 levels
- 20% emissions reduction by 2010, based on 1996 levels
- 20% emissions reduction by 2020, based on 2005 levels
- 30% emissions reduction by 2020, 70% by 2030 and net zero by 2050, based on 2006 levels
- 30% emissions reduction by 2025, based on 2004 levels
- 30% greenhouse gas reduction by 2025, 30% water consumption reduction by 2025, 30% reduction in transport emissions by 2025 *(no baseline date provided)*
- 1% per annum *(no baseline or target date provided)*
- 50% emissions reduction by 2025, 100% by 2030 *(no baseline date provided)*
- 15% reduction in council energy use *(no baseline or target date provided)*
- Year on year reduction *(no %, baseline or target date provided)*
- Generate 100% of council's electricity needs by 2023
- 30% renewable energy target by 2030

29 councils had a climate change risk assessment, 34 had emissions/ energy reduction plans, 28 had climate change adaptation plans

A total of 44 per cent of respondents indicated they had a climate change risk assessment, 40 per cent had a carbon emission or energy reduction plan and 38 per cent had a climate change adaptation plan. Of the 51 respondents, there were a total of 29 councils that indicated they had a climate change risk assessment, 34 had a carbon emissions or energy reduction plan and a further 28 had a climate change adaptation plan. A total of 19 indicated they had none of these plans in place.

If any of the plans had been published, respondents were asked to provide a link to the plans. A total of 26 weblinks were provided to published plans, noting that many of the weblinks provided connection to more than one climate plan.

Respondents were also asked to provide details of whether the plans had been endorsed by council (Table 3). While the majority (50 per cent) of respondents indicated the carbon, emissions or energy reduction plans had been endorsed, only 39 per cent and 20 per cent of respondents respectively indicated that climate change adaptation plans and risk assessments had been endorsed. Overall there was a high level of uncertainty over whether the plans had been endorsed by council.

Table 3 Endorsement of plans by council

Endorsed by council	Carbon, Emissions or Energy Reduction Plan (n=50)	Climate Change Risk Assessment (n=51)	Climate Change Adaptation Plan (n=51)	Other (n=20)
Yes	50%	20%	39%	40%
No	26%	33%	25%	20%
Not sure	24%	47%	35%	40%

Source: NSW Local Government Climate Change Adaptation Survey 2018, Question 26 'Please indicate which plans have been endorsed by council'.

Interestingly, previous surveys indicated higher rates of climate change risk assessment. In 2015, 70 per cent of respondents, or 92 councils, indicated they had a climate change risk assessment.

From the comments provided in this survey, the decline may be due to the fact that many respondents noted their risk assessments and plans were outdated or under review, particularly for recently amalgamated councils. This reflects the fact that there was Commonwealth funding available to undertake climate change risk assessments between 2008-10 and NSW Statewide Mutual delivered a risk assessment program to members between 2009-14.

Barriers and enablers to climate responses

Previous surveys identified a list of key barriers and enablers for local government responses to climate change. Respondents were asked to rate each item in terms of the extent to which it was impeding or supporting local government.

The top five rated barriers (ranked a 'great deal', 'a fair amount' and 'a little') were: a lack of assigned funding (91 per cent), lack of staff capacity (89 per cent), inconsistent approaches across different levels of government (81 per cent), a lack of political will (78 per cent), and a lack of staff capability (77 per cent) (Figure 21).

Issues related to climate information, legislation/regulation, and the clarity of the role of local government were not viewed as significant barriers.

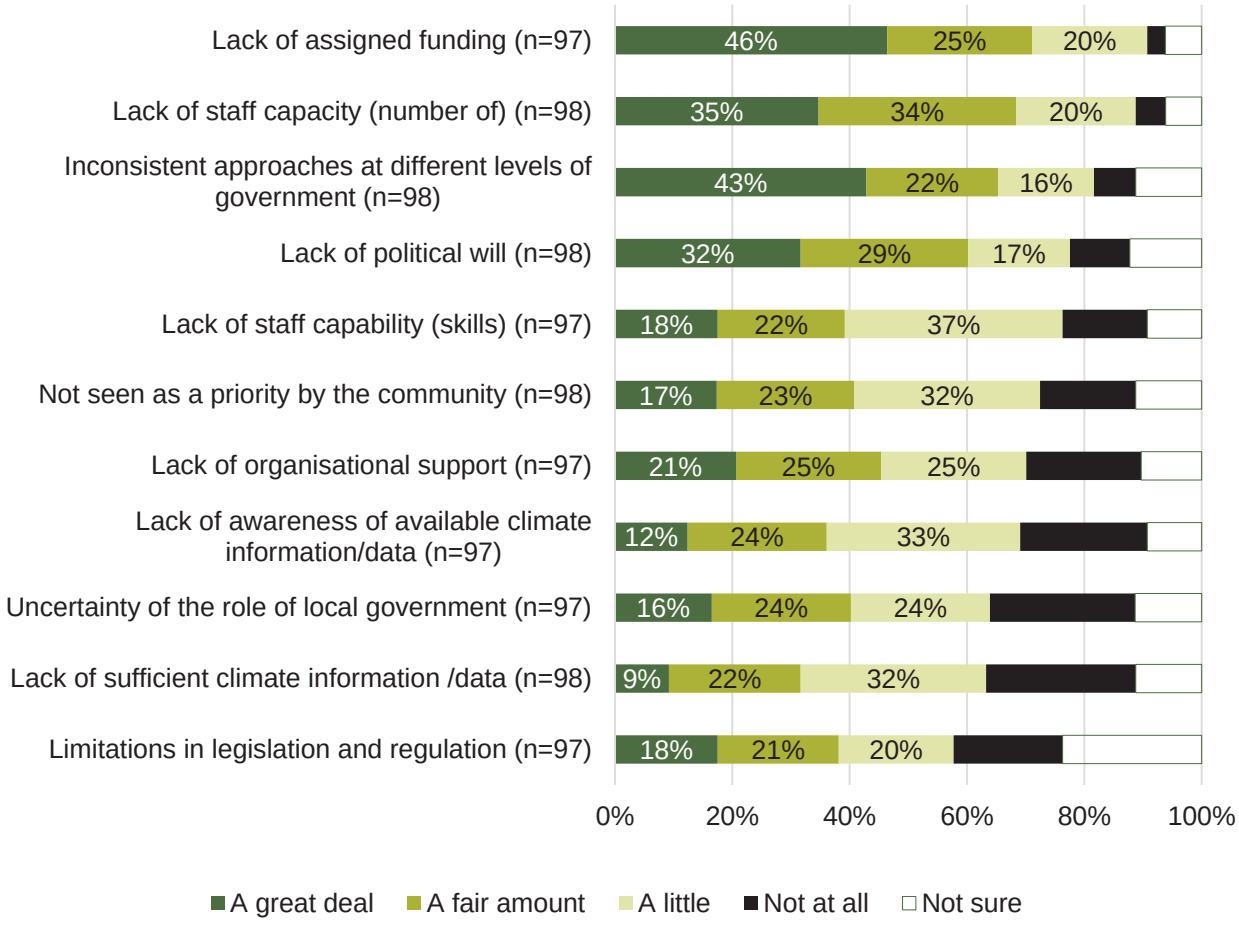

Figure 21 Extent that identified barriers impede responses to climate change

Source: NSW Local Government Climate Change Adaptation Survey 2018, Question 32 'Previous surveys of NSW local government identified this list of key barriers influencing their ability to respond to climate change. To what extent do each of the following issues currently impede your organisation's response to climate change impacts and risks?'.

Much of the ranking of barriers remained consistent between the 2015 and 2018 surveys (NB: only comparable barrier categorisations have been analysed). The only areas of significant change were an increase in perceptions that the lack of organisational support was a barrier, and a decline in the barriers of legislation/regulation, climate information and staff capability (Table 4).

Table 4 Ranking of barriers to climate responses, 2015-18

	2015 Survey			2018 Survey			Change	
	%	n	Rank	%	n	Rank		
Lack of organisational support	58%	98	9	45%	44	5	+4	▲
Lack of assigned funding	84%	140	1	71%	69	1	0	–
Lack of staff capacity (number)	81%	136	2	68%	67	2	0	–
Limitations in legislation and regulation	64%	107	7	38%	37	9	-2	▼
Lack of climate information	53%	88	10	32%	31	11	-1	▼
Lack of political will	75%	126	4	60%	59	4	0	–
Uncertainty of the role of local government	61%	102	8	40%	39	7	+1	▲
Not seen as a priority by the community	65%	109	6	41%	40	6	0	–
Lack of staff capability (skills)	68%	113	5	39%	38	8	-3	▼
Inconsistent approaches at different levels	77%	128	3	65%	64	3	0	–

Respondent quotes…

"The current Executive generally do not give climate change any current priority nor do they appear to be promoting a culture of looking forward to how climate change will affect the organisation. There is some ad hoc attention to climate change aspects e.g. SLR or mitigation by individuals/teams, however, it is not a whole-of-Council priority and those that do deal with it have limited capacity to progress and promote it due to resources of time and competing work demands."

"Lack of political will, funding and community push-back are major limitations. We have a very high rate of incoming retirees with no interest in future adaptation as it does not affect them. Also a lack of organisational will from staff who view adaptation as additional burden and process impacting their work loads."

The top-rated enablers for climate change responses in local government (ranked as ‘a great deal’, ‘a fair amount’, and ‘a little’) comprised: understanding liability risks (81 per cent), leadership (including GM/senior management support 82 per cent, and mayor/councillor leadership 75 per cent), assigned staff responsibilities (74 per cent), and external involvement (from partners 74 per cent, and funding 71 per cent).

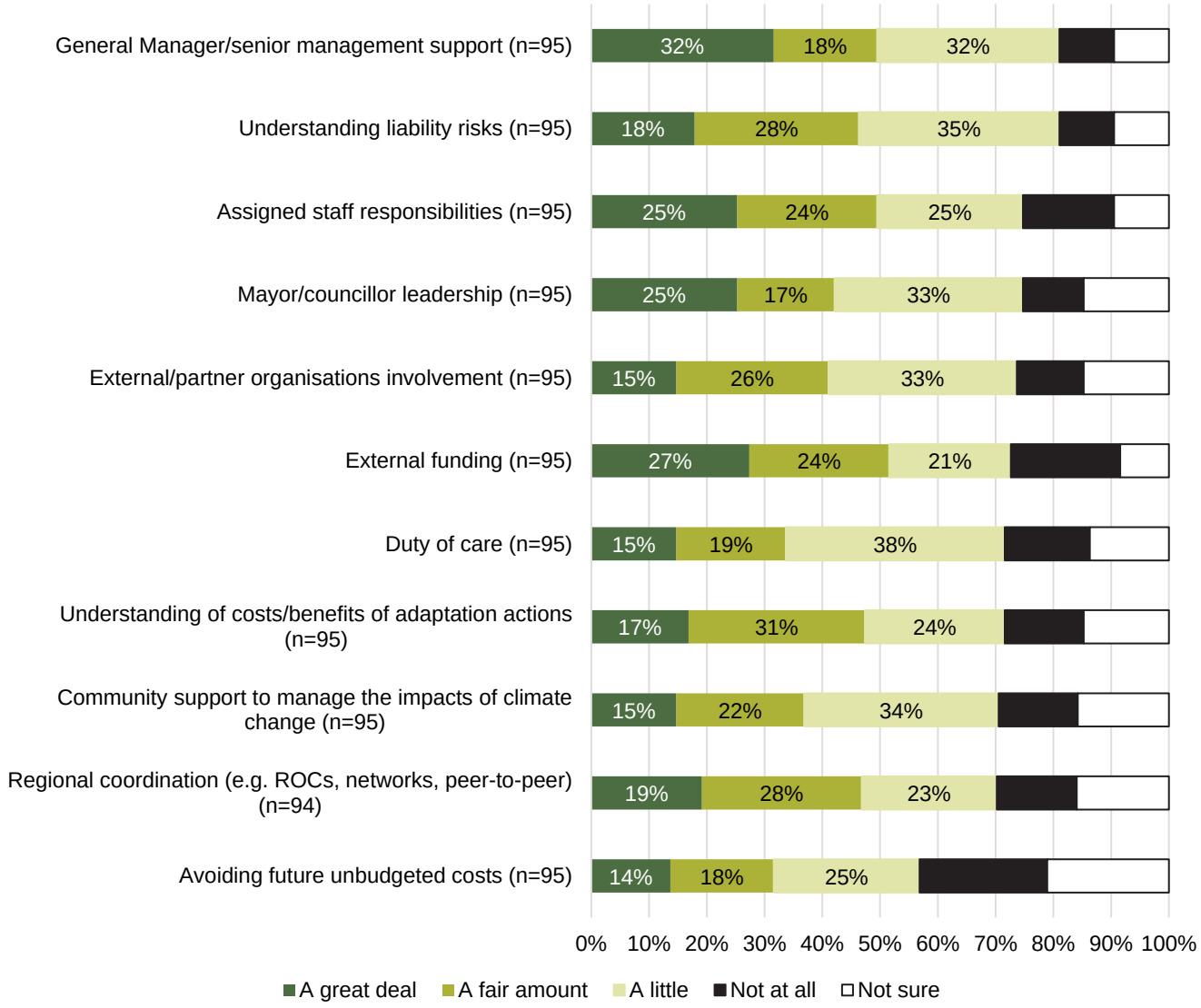

Figure 22 Extent that previously identified enablers help responses to climate change

Source: NSW Local Government Climate Change Adaptation Survey 2018, Question 33 'Previous surveys of NSW local government identified this list of key enablers influencing their ability to respond to climate change. To what extent do each of the following issues currently enable your organisation’s response to climate change impacts and risks?

The ranking of enablers maintained some consistency between the 2015 and 2018 surveys (NB only comparable categorisations have been analysed). The areas of significant change were an increase in perceptions that external funding and support and assigned staff responsibilities were viewed as enablers. Leadership, avoiding future budgeted costs and duty of care all decreased in terms of being seen as enablers (Table 5).

Table 5 Ranking of enablers to climate responses, 2015-18

	2015 Survey			2018 Survey			Change	
	%	n	Rank	%	n	Rank		
General Manager/Senior Management support	96%	162	1	49%	47	2	-1	▼
Mayor/Councillor leadership	90%	151	3	42%	40	7	-4	▼
Assigned staff responsibilities	83%	139	5	49%	47	2	+3	▲
External funding	87%	146	4	52%	49	1	+3	▲
External agency support	74%	124	10	41%	39	8	+2	▲
Duty of care	82%	138	6	34%	32	10	-4	▼
Avoiding future unbudgeted costs	81%	136	7	32%	30	11	-4	▼

Respondent quotes…

"ROCs and initiatives such as GSC and 100 Resilient Cities has greatly assisted the progress of the climate change agenda of local government as well ... It also helps to have the community will to push councillors."

"Unless there are programs from the State that have seeded funding to assist local government it is hard. Smaller councils struggle to prioritise climate change as it competes with operational deliverables."

The 2018 survey also asked respondents to rank the supporting actions that are most to least helpful to progress local government actions in relation to climate change (Figure 23). The most helpful actions comprised: coordination of efforts at state and regional scales, provision of high quality and localised climate information, assistance to manage the impacts of climate change on assets, infrastructure and services, statutory planning support and capacity building.

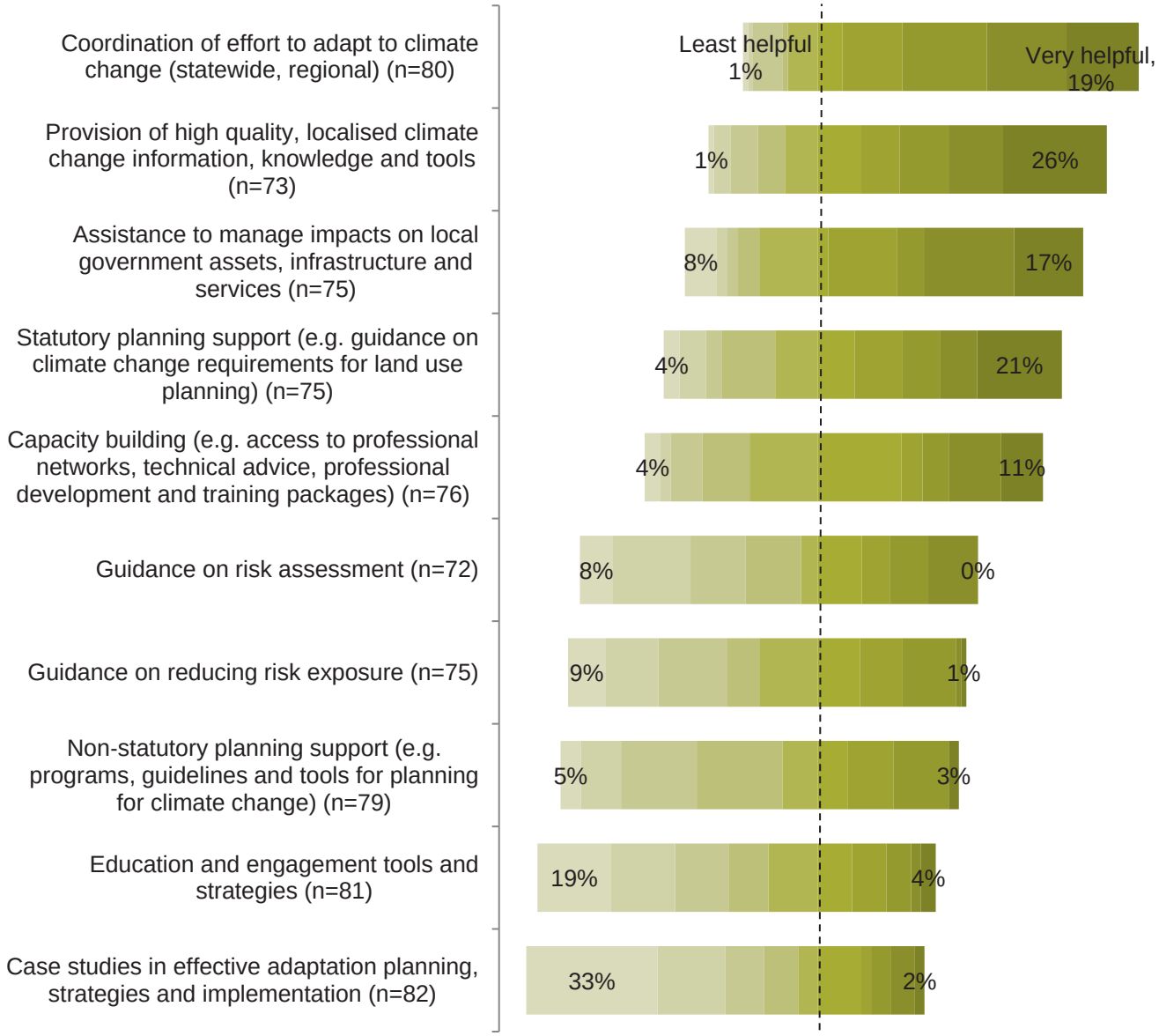

Figure 23 Ranking of most supportive actions

Source: NSW Local Government Climate Change Adaptation Survey 2018, Question 34 'Previous surveys identified this list of supporting actions that help local government respond to climate change. Please rank the following actions from 1 being most helpful to 10 being least helpful for your organisation.

Conclusion

The 2018 NSW Local Government Climate Change Adaptation Survey illustrates that the adaptive capacity of local government continues to increase, reflected in the expanding awareness of climate change and specific impacts, the growing use and capability in applying climate change information, and the formalisation of climate change responses in local government strategic planning documents.

Experiences of climate change impacts have increased markedly between the 2015 and 2018 surveys (an increase of 23 per cent). At the same time, perceptions that there are no impacts and the extent of uncertainty around climate change has decreased since 2015, indicating growing acceptance of climate change and its impacts across the sector.

Many respondents are experiencing the impacts of climate change on council operations and management. Storms and flooding remain the most common impacts identified by local government, consistent between 2015 and 2018. Heat and drought are viewed as the most extreme impacts. Impacts on council assets and infrastructure are seen as the most common and also having the greatest extent of impact.

It is evident from the results that most local government respondents (79 per cent) are using some form of climate change information to support their responses, particularly for better understanding the impacts of flooding, storms and extreme temperatures. While the rates of respondents requiring assistance with information use decreased since the 2015 survey, some further improvements were suggested including more consistent guidance and information standards to help in assessing the quality and appropriateness of climate change data.

Adaptation activities are continuing to be embedded and incorporated in local government strategic documents and plans. However, there is some sense that the focus on climate change risk assessment has waned since a spike in efforts and support opportunities around 2010. For some councils, assistance is required to update and maintain the currency of climate change risk assessments.

Other areas that warrant continued or expanded support for local government include: fostering leadership internally; access to external funding streams; and guidance on incorporating climate change into land use planning. Strong and consistent leadership on these issues at state and regional scales are seen as key drivers in ensuring appropriate responses from local government.

Appendix A: Online Survey Questionnaire

NSW Climate Change Adaptation Survey

Local Government NSW (LGNSW) has partnered with the NSW Office of Environment and Heritage (OEH) in ongoing research on local government's ability to make well-informed, long-term decisions and implement actions that enhance resilience to climate change (see details here).

This latest survey in the series monitors understandings of climate change across local government, any actions and processes to prepare for and respond to impacts, and the ways in which climate information is used by local government practitioners.

We would really appreciate your feedback by completing this survey. Your feedback will be used to inform the design and delivery of climate information resources and support.

Note: *The survey will take approximately 20 minutes to complete. Taking part in the survey is completely voluntary. Any information provided will be kept confidential and responses will only be used in an aggregated and deidentified form.*

If you have any queries or concerns about the survey, please contact:
Denise Anderson, Senior Policy Officer LGNSW denise.anderson@lgnsw.org.au
Louise Askew, Social Scientist OEH louise.askew@environment.nsw.gov.au

1 Which local government organisation do you work for?

- ○ Council
- ○ County Council
- ○ Joint Organisations (JOs)
- ○ Regional Organisations of Councils (ROCs)

2 Which Council do you work for? (please select from the dropdown menu)

3 Which Regional Organisation of Councils (ROCs) do you work for? (please select from the dropdown menu)

4 Which County Council do you work for? (please select from the dropdown menu)

5 Which Joint Organisation do you work for? (please specify below)

6 Which area of the organisation do you represent?

- ◯ Councillor
- ◯ General Manager/ Director
- ◯ Infrastructure and Property
- ◯ Recreational Facilities
- ◯ Planning and Development
- ◯ Environment or Natural Resource Management
- ◯ Community Services
- ◯ Sustainability
- ◯ Economic Development
- ◯ Corporate Services
- ◯ Water and Sewerage
- ◯ Other (please specify)

7 How long have you worked in this area of the organisation (and in predecessor organisation if an amalgamated council)?

- ◯ Less than 1 year
- ◯ 1-2 years
- ◯ 3-5 years
- ◯ 5-9 years
- ◯ 10 years or more

8 What is your role title?

Climate Change Impacts

The following questions ask for your feedback on climate change and weather event impacts on your local government area and organisation.

9 How much impact is climate change having on your local government operations and management currently?

- ◯ A great deal of impact now
- ◯ A fair amount of impact now
- ◯ A small impact now
- ◯ No impact currently, but will in the future
- ◯ No impact currently, and will not in the future
- ◯ Not sure

10 When do you think climate change will impact your local government operations and management?

- ◯ Within the next year
- ◯ Between 1 and 5 years from now
- ◯ Between 6 and 10 years from now
- ◯ After 10 years from now
- ◯ Not sure

11 To what extent are the following climate events impacting on your Local Government Area(s)/region?

	No impact now, and will not in the future	No impact now, but will in the future	A small impact now	A fair amount of impact now	A great deal of impact now	Not sure
Drought	◯	◯	◯	◯	◯	◯
Bushfire	◯	◯	◯	◯	◯	◯
Flooding – riverine, flash, inundation	◯	◯	◯	◯	◯	◯
Storms – heavy rain, hail, lightning	◯	◯	◯	◯	◯	◯
Storms – strong winds, dust	◯	◯	◯	◯	◯	◯
Coastal hazards – erosion, large seas	◯	◯	◯	◯	◯	◯
Sea level rise	◯	◯	◯	◯	◯	◯
Extreme heat	◯	◯	◯	◯	◯	◯
Extreme cold	◯	◯	◯	◯	◯	◯

Other (please specify):

12 Overall, to what extent do you think climate events have (or will) impact on the following aspects of your Local Government Areas and operations?

	No impact now, and will not in the future	No impact now, but will in the future	A small impact now	A fair amount of impact now	A great deal of impact now	Not sure
Assets and infrastructure – e.g. roads, services, water, parks	○	○	○	○	○	○
Service delivery	○	○	○	○	○	○
Legal liability	○	○	○	○	○	○
Staff attendance, performance	○	○	○	○	○	○
Public safety, health and well-being	○	○	○	○	○	○
Environmental health – e.g. water, air quality	○	○	○	○	○	○
Water supply/demand	○	○	○	○	○	○
Types of land uses	○	○	○	○	○	○
Major industries, business operations	○	○	○	○	○	○
Demand for emergency services	○	○	○	○	○	○
Biodiversity, landscape health	○	○	○	○	○	○

Other (please specify):

Climate change information

Climate change information includes climate change **data** (e.g. rainfall, temperature) and summary **information** (e.g. projections, maps). These questions ask about how you use climate change data and information in local government, if there are any gaps and improvements.

13 Which of the following statements best describes your use of climate change information in your current role?

- ○ I use climate change data to do my own analysis, reports, maps etc
- ○ I only use existing climate change analysis, reports, maps etc
- ○ I use a combination of climate change data and existing analysis, reports, maps etc
- ○ I don't use climate change information

14 Which climate change data types do you commonly use? Please select all that apply.

- ☐ ArcGIS
- ☐ ASCII grid
- ☐ NetCDF
- ☐ Google Earth (kml files)
- ☐ Spreadsheet (xls, csv files)
- ☐ Other (please specify)

15 Please rate the following **topics** by the extent to which you use related climate change information and whether the available information is sufficient for your needs. You can leave responses blank where not applicable.

	To what extent do you use information on this topic?	To what extent is the available information sufficient for your needs?
Drought		
Bushfire		
Flooding - riverine, flash, inundation		
Storms - heavy rain, hail, lightning		
Storms - strong winds, dust		
Coastal hazards		
Sea level rise		
Extreme temperatures (heat, cold)		
Air quality		

Please explain your response and identify any gaps:

16 Please rate the following by the extent to which you currently use these **scales** of climate change information and whether the available information at these scales is sufficient for your needs. You can leave responses blank where not applicable.

	To what extent do you use climate information at this scale?	To what extent is the available information sufficient for your needs?
Data for periods longer than a year (e.g. on the time scale of droughts)		
Data at annual intervals (e.g. rain falling in a year)		
Data at daily intervals (e.g. maximum temperature in a day)		
Close to real time data (e.g. minute-by-minute wind gust data)		
Data for individual sites		
Data for postcodes		
Data averaged across Local Government Areas		
Data averaged across regions		
Data averaged across NSW		

Please explain your response and identify any gaps:

17 Please rate the following by the extent to which you currently use these climate change information **formats** and whether the information available in these formats is sufficient for your needs. You can leave responses blank where not applicable.

	To what extent do you use climate information in this format?	To what extent is the available information sufficient for your needs?
Basic statistics (e.g. number of days when the temperature exceeded 35C)		
Advanced statistics (e.g. return levels and return periods)		
Large datasets that I can select from and download specific information		
Interactive spatial maps		
Time series graphs		

Please explain your response and identify any gaps:

18 For what purpose(s) do you currently use climate change information as part of your role? Please select all that apply.

- [ ] Informing emergency management planning, recovery and response
- [ ] Assessing climate risks to assets, infrastructure and services (e.g. roads, parks, water)
- [ ] Planning, procuring and maintaining assets, infrastructure and services
- [ ] Planning for land use and development
- [ ] Regional and other strategic level planning (e.g. coastal, flooding, water management)
- [ ] Economic and community planning and investment
- [ ] Corporate investment
- [ ] Insurance
- [ ] Developing educational and communications material
- [ ] Other (please specify)

19 To what extent do you use the following sources of climate change information in your role?

	Never	Rarely	Occasionally	A moderate amount	A great deal
Australian Government resources (e.g. CSIRO, BOM)	○	○	○	○	○
International resources (e.g. IPCC)	○	○	○	○	○
State Government resources (e.g. AdaptNSW)	○	○	○	○	○
Local Government organisation resources (e.g. LGNSW)	○	○	○	○	○
Resources from other councils	○	○	○	○	○
Specialist adaptation NGOs websites (e.g. C40, 100 Resilient Cities, ICLEI)	○	○	○	○	○
Social media (e.g. blogs, twitter)	○	○	○	○	○
General media (newspapers, TV, radio)	○	○	○	○	○
Community attitudes surveys, polls	○	○	○	○	○
Technical reports by professional associations	○	○	○	○	○
Scientific journal articles	○	○	○	○	○

Other (please specify)

20 Please describe any issues you have experienced when accessing and using these climate information sources.

21 Do you require further assistance in accessing or using particular climate change information sources?

- ◯ Yes
- ◯ No
- ◯ Not sure

22 What type(s) of assistance do you need (please specify the types of assistance and source of climate information)?

Preparedness and response

The following questions seek feedback on the extent of preparation and types of responses your local government organisation is taking on climate change.

23 To what extent are climate change mitigation and adaptation activities a priority for your local government organisation?

	Not a priority	Low priority	Medium priority	High priority	Not sure
Mitigation activities - reducing carbon emissions	◯	◯	◯	◯	◯
Adaptation activities - preparing for the impacts of climate change	◯	◯	◯	◯	◯

24 Please indicate which of your local government plans include climate change mitigation and/or adaptation activities (leave boxes blank if not applicable).

	Community Strategic Plan	Delivery Program	Operational Plan	Regional Priority (e.g. ROCs/JOs)
Includes mitigation activities	☐	☐	☐	☐
Includes adaptation activities	☐	☐	☐	☐

25 Does your organisation have any emissions reduction targets?

- ○ Yes
- ○ No
- ○ Not sure

26 Please specify the emissions reduction target(s) below:

27 Does your organisation have any of the following specific climate change actions, plans or policies? Please select all that apply.

- [ ] Carbon, Emissions or Energy Reduction Plan
- [ ] Climate Change Risk Assessment
- [ ] Climate Change Adaptation Plan
- [ ] None of the above
- [ ] Other (please specify)

28 If the plans have been published, please insert a link to the documents below.

29 If the plans have not been published, please enter the year they were completed.

Carbon, Emissions or Energy Reduction Plan	
Climate Change Risk Assessment	
Climate Change Adaptation Plan	
Other	

30 Please indicate whether the plan(s) have been endorsed by council.

	Yes	No	Not sure
Carbon, Emissions or Energy Reduction Plan	○	○	○
Climate Change Risk Assessment	○	○	○
Climate Change Adaptation Plan	○	○	○
Other	○	○	○

31 Please provide any further details on the plan(s) below (e.g. timeframe of the plan(s), whether it was prepared by external consultants, how it was funded)

Barriers and Enablers

The following section asks for feedback on the barriers and enablers for your local government organisation in adapting to climate change.

32 Previous surveys of NSW local government identified this list of key barriers influencing their ability to respond to climate change. **To what extent do each of the following issues currently impede your organisation's response to climate change impacts and risks?**

	Not at all	A little	A fair amount	A great deal	Not sure
Lack of assigned funding	○	○	○	○	○
Lack of staff capacity (number of)	○	○	○	○	○
Lack of staff capability (skills)	○	○	○	○	○
Limitations in legislation and regulation	○	○	○	○	○
Lack of awareness of available climate information/data	○	○	○	○	○
Lack of sufficient climate information /data	○	○	○	○	○
Lack of political will	○	○	○	○	○
Not seen as a priority by the community	○	○	○	○	○
Inconsistent approaches at different levels of government	○	○	○	○	○
Lack of organisational support	○	○	○	○	○
Uncertainty of the role of local government	○	○	○	○	○

Other (please specify):

33 Previous surveys of NSW local government identified this list of key enablers that enhanced their ability to respond to climate change. **To what extent do each of the following currently help your organisation's response to climate change impacts and risks?**

	Not at all	A little	A fair amount	A great deal	Not sure
Mayor/councillor leadership	○	○	○	○	○
General Manager/senior management support	○	○	○	○	○
Understanding of costs/benefits of adaptation actions	○	○	○	○	○
Understanding liability risks	○	○	○	○	○
Assigned staff responsibilities	○	○	○	○	○
Duty of care	○	○	○	○	○
External funding	○	○	○	○	○
Regional coordination (e.g. ROCs, networks, peer-to-peer)	○	○	○	○	○
Avoiding future unbudgeted costs	○	○	○	○	○
External/partner organisations involvement	○	○	○	○	○
Community support to manage the impacts of climate change	○	○	○	○	○

Other (please specify):

34 Previous surveys identified this list of supporting actions that help local government respond to climate change. **Please rank the following actions from 1 being most helpful to 10 being least helpful for your organisation.**

☐	Assistance to manage impacts on local government assets, infrastructure and services
☐	Capacity building (e.g. access to professional networks, technical advice, professional development and training packages)
☐	Provision of high quality, localised climate change information, knowledge and tools
☐	Coordination of effort to adapt to climate change (statewide, regional)
☐	Guidance on risk assessment
☐	Guidance on reducing risk exposure
☐	Statutory planning support (e.g. guidance on climate change requirements for land use planning)
☐	Non-statutory planning support (e.g. programs, guidelines and tools for planning for climate change)
☐	Education and engagement tools and strategies
☐	Case studies in effective adaptation planning, strategies and implementation

Feedback and further information

The following section asks a few final questions on information sources and whether you would like to participate in further research.

35 What is your level of awareness of the following climate change related resources?

	Not heard of it	Heard of it, but not accessed it	Have accessed it	Access it regularly
AdaptNSW website (OEH)	○	○	○	○
Building Resilience to Climate Change Grants Program (OEH/LGNSW)	○	○	○	○
Integrated Regional Vulnerability Assessment, Enabling Regional Adaptation (OEH)	○	○	○	○
Local Government Guidance for Assessing Climate Risks (OEH)	○	○	○	○
'Learning to Adapt' training and workshops (EIANZ)	○	○	○	○
Urban Green Cover Technical Guidelines (OEH)	○	○	○	○
Climate change resources on the LGNSW website	○	○	○	○
Presentations from OEH	○	○	○	○
NSW Adaptation Research Hub (OEH)	○	○	○	○
Sustainability Snippets (LGNSW)	○	○	○	○
Commonwealth roles and responsibilities paper (COAG)	○	○	○	○
National Climate Change Adaptation Research Facility (NCCARF)	○	○	○	○
Intergovernmental Panel Climate Change (IPCC) reports	○	○	○	○
Climate Change Action Planning Workshop package (LGNSW)	○	○	○	○
NARCliM (NSW and ACT Regional Climate Modelling project) (OEH)	○	○	○	○

Please detail any other resources you use and why:

36 Where did you hear about this survey? Please select all that apply.

- [ ] LGNSW Weekly
- [ ] Letter to General Manager
- [ ] Sustainability Snippets
- [ ] Email from LGNSW
- [ ] Email from OEH
- [ ] AdaptNSW newsletter
- [ ] Other (please specify)

37 If you are interested in receiving further information or participating in more detailed research on this topic, please provide your contact details below.

Name	
Email Address	
Phone Number	

Thank you for completing this survey.
Your feedback is greatly appreciated.

Appendix B: Respondent councils

Table 6 Number of survey responses from NSW councils, 2018

Name of council		
	%	n
Willoughby City Council	4%	7
Lake Macquarie City Council	4%	6
Tweed Shire Council	4%	6
Albury City Council	3%	5
Inner West Council	3%	5
Penrith City Council	3%	5
Queanbeyan-Palerang Regional Council	3%	5
Blacktown City Council	3%	4
Mid-Western Regional Council	3%	4
Parramatta Council, City of	3%	4
Waverley Council	3%	4
Wollongong City Council	3%	4
Blue Mountains City Council	2%	3
Clarence Valley Council	2%	3
Coffs Harbour City Council	2%	3
Hornsby, The Council of the Shire of	2%	3
Northern Beaches Council	2%	3
Sydney, Council of the City of	2%	3
Bathurst Regional Council	1%	2
Bayside Council	1%	2
Byron Shire Council	1%	2
Campbelltown City Council	1%	2
Central Coast Council	1%	2
Cessnock City Council	1%	2
Dubbo Regional Council	1%	2
Eurobodalla Shire Council	1%	2
Gwydir Shire Council	1%	2
Mid-Coast Council	1%	2
Mosman Municipal Council	1%	2

Shoalhaven City Council	1%	2
Snowy Monaro Regional Council	1%	2
Strathfield Municipal Council	1%	2
Wagga Wagga City Council	1%	2
Wingecarribee Shire Council	1%	2
Woollahra Municipal Council	1%	2
Armidale Regional Council	1%	2
Ballina Shire Council	1%	1
Balranald Shire Council	1%	1
Bega Valley Shire Council	1%	1
Berrigan Shire Council	1%	1
Canada Bay Council, City of	1%	1
Canterbury Bankstown Council	1%	1
Cumberland Council	1%	1
Edward River Council	1%	1
Forbes Shire Council	1%	1
Georges River Council	1%	1
Glen Innes Severn Council	1%	1
Goulburn Mulwaree Council	1%	1
Greater Hume Shire Council	1%	1
Hay Shire Council	1%	1
Inverell Shire Council	1%	1
Kempsey Shire Council	1%	1
Kiama, The Council of the Municipality of	1%	1
Ku-ring-gai Council	1%	1
Leeton Shire Council	1%	1
Lismore City Council	1%	1
Lithgow Council, City of	1%	1
Liverpool City Council	1%	1
Liverpool Plains Shire Council	1%	1
Maitland City Council	1%	1
Moree Plains Shire Council	1%	1
Murray River Council	1%	1
Murrumbidgee Council	1%	1
Muswellbrook Shire Council	1%	1
Nambucca Shire Council	1%	1

Newcastle City Council	1%	1
Orange City Council	1%	1
Parkes Shire Council	1%	1
Port Macquarie-Hastings Council	1%	1
Port Stephens Council	1%	1
Randwick City Council	1%	1
Richmond Valley Council	1%	1
Ryde, Council of the City of	1%	1
Shellharbour City Council	1%	1
Singleton Council	1%	1
Snowy Valleys Council	1%	1
Tamworth Regional Council	1%	1
Temora Shire Council	1%	1
Upper Hunter Shire Council	1%	1
Upper Lachlan Shire Council	1%	1
Uralla Shire Council	1%	1
Warrumbungle Shire Council	1%	1
Wollondilly Shire Council	1%	1
Yass Valley Council	1%	1
Other (please specify)	0%	0
Total gave answer	**100%**	**161**
Total did not give answer		**19**
Total		**180**