

Tips for Local Government

# CLIMATE CHANGE ADAPTATION



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*Over the course of 2023, New Zealand has been hit by several extreme weather events, and we are on track to having our hottest year on record.*



## Climate change is impacting our country and communities in a big way, and local government needs to be prepared.

This guide contains some of the factors local government should consider when preparing for climate change adaptation, including the implications of maintaining infrastructure, adaptation planning, community engagement, and Māori engagement.

## How climate change is impacting us

Globally, climate change is causing long-term shifts in temperature and weather patterns. We're seeing warming oceans, glaciers and polar ice caps melting, and sea levels rising. Consequently, in Australasia, we can expect to see higher surface air and ocean temperatures, more heat extremes, fewer cold extremes, and changes to rainfall patterns.

In New Zealand, the long-term shifts in weather patterns are expected to vary by region.

For example, there may be less rain in the northeast South Island and in the north and east of the North Island, but more rain elsewhere in the country.

## Rapid onset events vs slow onset events

When we're talking about climate change, we can label its effects under two categories:

- **Slow-onset events** are gradual changes in climate conditions over an extended period, such as changes to rainfall patterns and atmosphere temperatures.
- **Rapid-onset events** are sudden and significant events exacerbated by the slow-onset effects of climate change, such as floods and wildfires.

A good case study for understanding the difference between slow-onset and rapid-onset events is Cyclone Gabrielle. While the cyclone itself cannot be attributed purely to climate change, modelling indicates that climate change increased the level of rainfall by 20–30%. Furthermore, this level of rainfall was not necessarily harmful; rather, the harm arose from its combination with various other risk factors – for example, soil erosion susceptibility, land use, and infrastructure design.

## How climate change is impacting infrastructure

Infrastructure refers to the physical assets owned by councils. This includes infrastructure like water, sewage and stormwater systems, plus public facilities that provide social services to communities, such as schools, hospitals, and libraries.

The estimated value of local governments' assets across the whole country is \$124 billion.<sup>1</sup> Thus, it is critical to think about how local government can, protect, and adapt these assets in response to climate change.

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## Adaptation planning: Having the right regulatory tools to respond to change

Adaptation planning is critical to a community responding to climate change, but it's not easy. Questions have been raised whether local government has the regulatory tools to respond to change. For example, it's not clear if the Public Works Act enables local councils to undertake compulsory acquisitions or initiate managed retreat caused by climate change.

Before the election, a Climate Change Adaptation Bill was being developed that would provide processes and mechanisms for managed retreat, including deciding the degree, type, and extent of central government involvement.

However, as it's currently unclear what the new Government's policy position on this Bill will be, it's unlikely to see any progress until well into 2024.

For now, local government can still facilitate climate change adaptation through alternative modelling strategies, such as Dynamic Adaptive Pathways Planning (DAPP) and Real Options Analysis (ROA). Both models balance decision-making in the face of uncertainty and value flexibility.

## Dynamic Adaptive Pathways Planning (DAPP) and Real Option Analysis (ROA)

Formulating an adaptation strategy should begin with identifying the types of risks present – whether that's sea level rise, wildfires, or fluvial inundation. Next is identifying what is important to the community – buildings, infrastructure, or natural assets. You should consider generic options for adaptation before undertaking any economic analysis.

The essence of Dynamic Adaptive Pathways Planning, or DAPP, is not to invest in adaptation strategies that are irreversible (or very costly to reverse) and may preclude better, longer-term solutions. Rather, the DAPP approach promotes maintaining flexibility in the face of uncertainty. The DAPP model is a useful tool for managing adaptation in the face of both climate and legislative uncertainty, and has been successfully used in Hawkes Bay, Wellington, and other regions.

Real Options Analysis, or ROA, places value on waiting before investing in adaptation to an identified hazard or investing in a more expensive form of adaptation. While ROA deals with economic costs, it doesn't, of itself, determine how costs are funded.

<sup>1</sup> <https://www.lgnz.co.nz/local-government-in-nz/new-section-page/>

ROA highlights the trade-off that needs to be made when adapting to climate change. This is the trade-off between spending too much too soon, in instances where a hazard turns out to be less serious than was initially anticipated, or potentially incurring economic loss if the hazard emerges sooner or more intensely than anticipated.

The following factors to consider when making this trade-off are:

- **What is the value of waiting?**  
When is it worthwhile to take action to deal with the adverse effects of climate change, and when is it better to do nothing?
- **What is the best combination and timing of options** when investing in adaptation?
- **What is the trade-off between cost and flexibility?**

Economic considerations are important when making decisions around adaptation strategies, but non-economic considerations, such as the value of cultural assets, are also critical. For example, a revetment may prevent a storm surge but block access to a popular beach, and this is why community engagement is essential to the adaptation – understanding its impact on the cultural and social wellbeing of the community is just as important as considering the financial costs.

## Community engagement: How it fits with adaptation planning

Community engagement is critical to adaptation planning.

There are two key ways to consider community engagement and adaptation planning, and how local councils should respond:

### 1) The community's own reactions to climate change adaptation.

Within individual communities, there can be two groups of people: those who are concerned about climate change and the actions required, and those who are not. Councils need to respond to the concerns of both groups. For those worried about climate change, it is important to reassure them that local government is taking climate change adaptation seriously and planning for the long term. Those who are not concerned about climate change are also a critical stakeholder in the engagement process and will need to understand that there will be costs falling on them due to the long-term outlook councils are taking.

### 2) The value of community engagement.

Community engagement can help guide councils with developing decisions that support their long-term outlook for the community. Additionally, some community members may have already considered or implemented adaptation solutions and responses which local councils can build on for the community at large.



## When to start engagement

Where possible, it is a good idea to start engaging with the community on climate change adaptation before you think you need to. This is a more effective approach than only engaging with a community after an extreme weather event has occurred. It is important to bring your community on the journey, hear their ideas and inputs early, and make sure they are aware of the potential consequences of adaptation, such as managed retreat. Speak to those who will feel the effects of climate change first (*e.g., those who live by a coast and may face needing to retreat in future*). Engagement has a flow-on effect; those consulted with first will spread the message to their wider network and broaden the conversation.

Engaging with your community early is crucial to building trust, and shows your community that you understand the seriousness of climate change and the need to adapt to its effects. Engagement can be facilitated in practical ways, such as by inviting a climate science expert to a public forum to get people thinking about climate change and the actions required to respond to it, or hosting webinars, creating focus groups, crowd sourcing, and producing Q&A documents.

It is important to keep in mind that community engagement may be costly, but it can save money long-term, particularly if you are going to undertake DAPP or ROA analysis: you can identify early what adaptation options communities are not willing to consider and exclude those from your analysis.

**Engaging with your community early is crucial to building trust**

## Getting communities to think long-term

Providing information and data about climate change can help people think about its longer-term impacts. There is an opportunity for local government to act as a facilitator of community engagement, allowing community members to consider how climate change will affect their physical assets, alongside the social and cultural impacts on their communities.

A lot of the narrative on climate change adaptation discourse focuses on responding to rapid-onset events exacerbated by climate change (*i.e., natural disasters*), and while it is important to think and prepare for these events, focusing solely on the rapid-onset effects of climate change can also hinder long-term thinking for communities.

Framing the impacts of climate change in the context of new opportunities can be an effective way of looking at climate change adaptation. For instance, a warmer climate means being able to grow new crops that we have not been able to before. Focusing on potential benefits and opportunities, can be a powerful reframing that motivates communities to think long-term and direct adaptation work towards these opportunities whilst also still considering risks.

## Engagement with Māori communities

Māori communities, both at an individual and community level, are hugely diverse in their circumstances and beliefs, and there is no one-size-fits-all approach when it comes to engagement with Māori. However, there are still considerations to keep in mind when engaging with Māori communities.

If a local council has an already-existing strong relationship with mana whenua, engaging on climate change adaptation will be a lot more straightforward: it is just another set of problems and opportunities you are working together to solve.

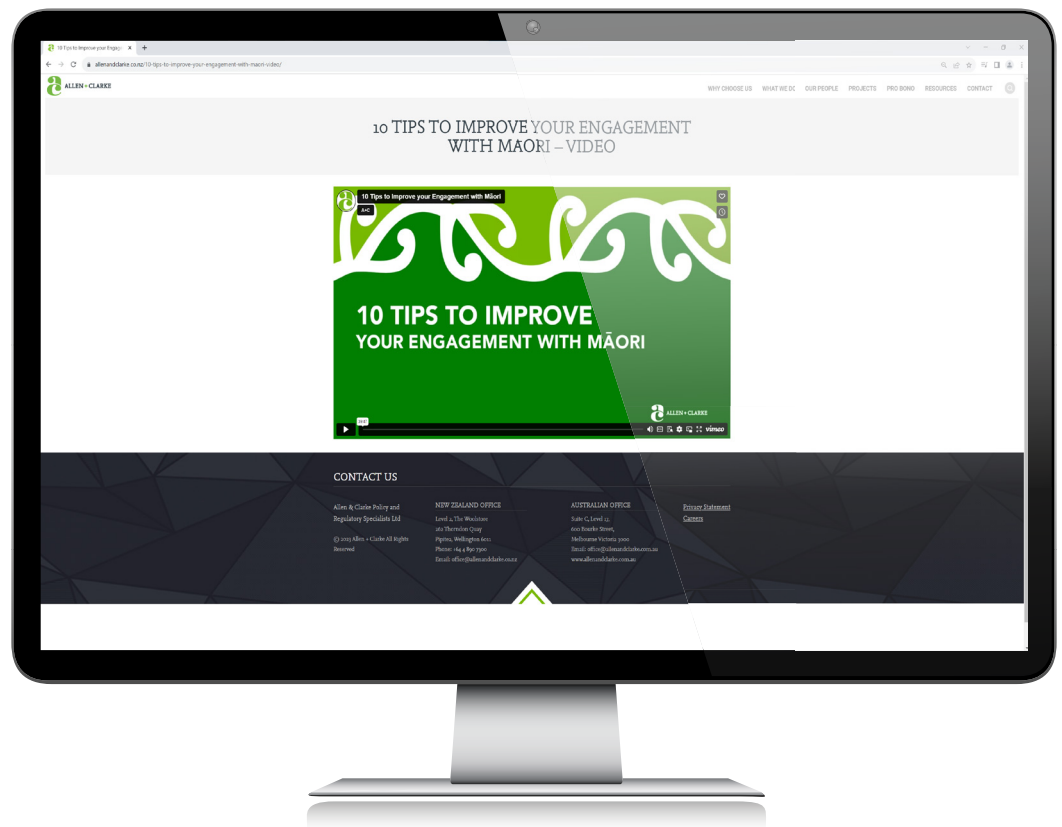
If you do not have an existing or strong relationship with mana whenua, engaging on climate change adaptation is a prime opportunity to forge a connection. It is a chance to demonstrate that you are willing and able to collaborate with mana whenua to benefit everyone in the rohe.

Finally, consider framing your engagement with Māori around the question: "What do we need to do to be good tūpuna?". This question automatically shifts your thinking into the timescales necessary when you're dealing with climate adaptation.

*For more information and suggestions, see our 10 Tips to Improve your Engagement with Māori webinar:*



Click here to see the video



# Finally, here are four top things to remember when working on climate change adaptation:

## 1 Councils do not need to have all the answers.

There will already be passionate and engaged community members thinking about and implementing climate change adaptation solutions, and these people provide invaluable insight and ideas when consulting on adaptation. Rallying these people and inviting their perspectives to the decision-making table not only builds relationships in the community, but also makes community members feel heard, respected, and builds a common set of objectives between stakeholders.

## 3 There is no such thing as engaging too early.

Engaging with communities does not just help with making decisions to overcome a challenge but also serves to build strong and trusting relationships between local government and the community. Providing information early about climate change and potential solutions allows people to make well-informed and thorough decisions – it is never too early to start this process.

## 2 Take your time with deciding on adaptation strategies.

Having strong community engagement means you can make sure all risks are identified and adaptation options are thoroughly discussed, so that you do not invest in solutions that may turn out to be a bad decision. It is important to always be prepared for adverse events that may occur at any time, but long-term effects require long-term solutions – and taking your time with these decisions can be more effective in the long run.

## 4 The value of engagement goes beyond the issue at hand.

The value of forging strong relationships with your community is that you can utilise these relationships in issues beyond climate change adaptation. Engaging with communities on other problems or matters will be easier when you can leverage already-existing connections. Having pre-established trust between council and community allows for a more efficient engagement process and thorough consultation.