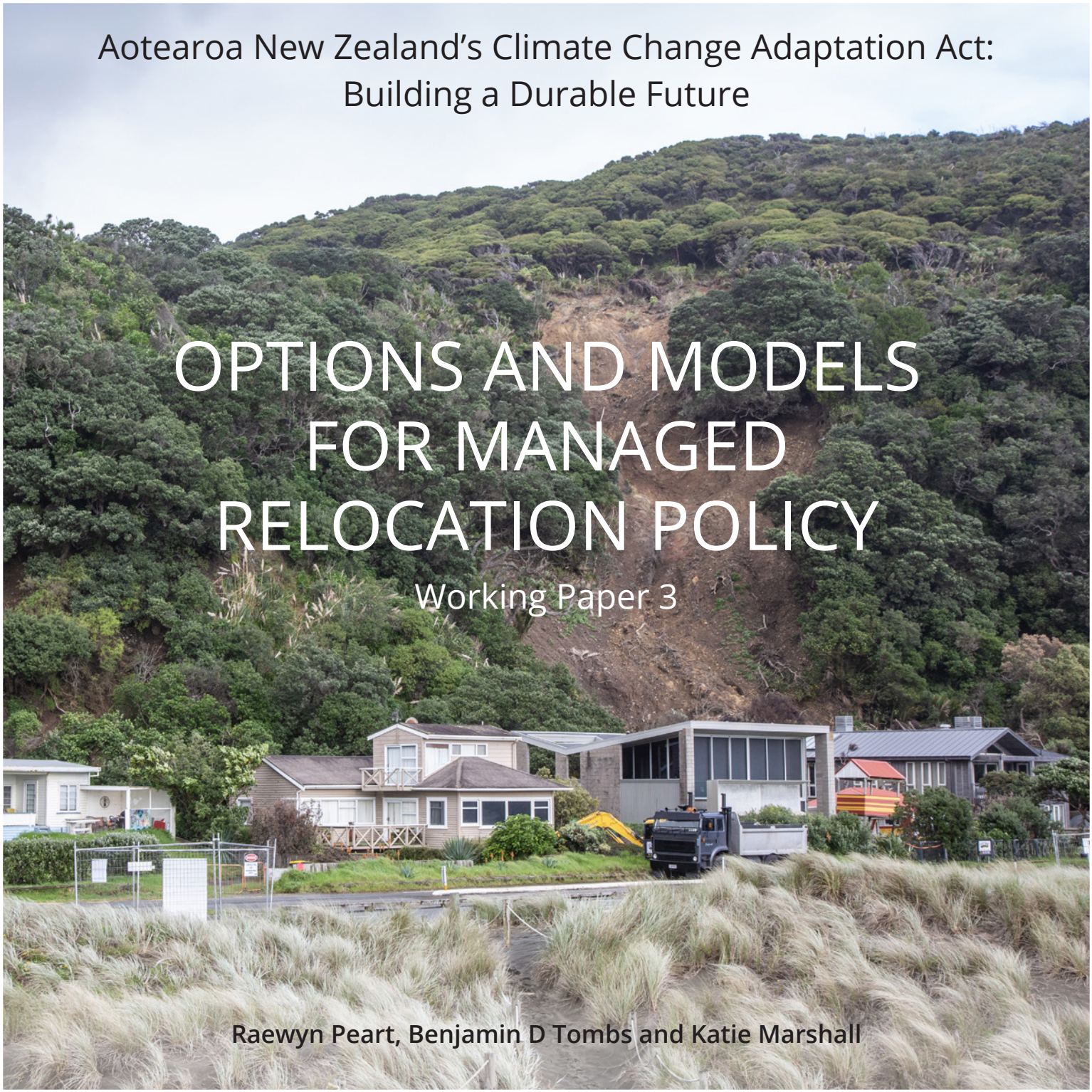
Aotearoa New Zealand's Climate Change Adaptation Act:
Building a Durable Future

OPTIONS AND MODELS FOR MANAGED RELOCATION POLICY

Working Paper 3



Raewyn Peart, Benjamin D Tombs and Katie Marshall

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Abbreviations

CERA	Christchurch Earthquake Regeneration Authority
DAPP	Dynamic Adaptive Pathways Planning
EDS	Environmental Defence Society
Expert Working Group	Expert Working Group on Managed Retreat
LAP	Local Adaptation Plan
LGOIMA	Local Government Official Information and Meetings Act 1987
LIM	Land Information Memorandum
LINZ	Land Information New Zealand
MBIE	Ministry of Business, Innovation and Employment
MFE	Ministry for the Environment
NBEA	Natural and Built Environment Act 2023
NPS-NHD	National Policy Statement for Natural Hazard Decision-making
NPS-UD	National Policy Statement on Urban Development
NSW	New South Wales
NZCPS	New Zealand Coastal Policy Statement 2010
RMA	Resource Management Act 1991
SPA	Spatial Planning Act 2023

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EXECUTIVE SUMMARY

1 Introduction

In June 2022, the Environmental Defence Society (EDS) commenced a project titled *Aotearoa New Zealand's Climate Change Adaptation Act: Building a Durable Future* to develop recommendations for the content of a new Climate Adaptation Act. This was in response to the expressed government intention to develop new law to address the complex and distinctive issues associated with managed relocation such as funding, compensation, land acquisition, liability and insurance.[1]

In February 2023, EDS released its first working paper for the project, titled *Principles and Funding for Managed Retreat*. The paper focused on conceptualising managed relocation and explored what principles might underpin a new system and how it might be funded. Working Paper 2 *Current Legislative and Policy Framework for Managed Relocation*, released in May 2023, described and evaluated the adequacy of the current law and rights-based systems applicable to managed relocation.[2]

This third and last working paper in the series focuses on identifying options for reform. This draws on lessons learnt from national and international case studies, and brings together options into two models for a potential reform package. The final report, which is due in the first quarter of 2024, will contain concrete recommendations for the design of the Climate Adaptation Bill.

The working papers are designed to seek feedback on work in progress as we develop up ideas for incorporation into the final synthesis report. This third working paper seeks feedback on options for managed relocation policy, including comment on which options are preferred and why.

PART ONE: OPTIONS FOR REFORM

In Working Paper Two, which described and evaluated the adequacy of the current law and rights-based systems applicable to managed relocation, EDS identified a number of weaknesses and gaps in the current legal and policy framework. In Part One of this working paper we identify options for addressing such weaknesses and gaps.

2 Identifying, assessing and communicating risk

The effective identification, assessment and communication of information is the foundation of any effective managed relocation programme. Although there is a robust legal framework for the preparation, assessment and communication of regular *national* climate risk assessments, by an independent agency (the Climate Change Commission),[3] there is no similar requirement at a regional or local level. This is a significant gap in the existing legal framework.

There are a number of design characteristics that need to be considered when designing a system for risk assessment and communication: geographic focus, methodology, process, communication of results, responsible agency and funding, frequency and legislative home. We have set out some options in the table below structured around these design characteristics. The options are not exclusive and it is likely that various groupings of them would be chosen as a starting point for system design.

Coastal landslip, Ōrere Point, Auckland

Options for risk assessment and communication

Characteristic	Options
Geographic focus (for sub-national assessment)	• Regional • City/district • Community • Site/business or network-specific
Methodology	• Left to entity undertaking risk assessment • National non-statutory guidance and/or provision of data and tools • National Policy Statement and/or National Environmental Standard (or National Planning Framework under the Natural and Built Environment Act (NBEA)) • Other form of statutory provision (eg Climate Change Response Act, new Climate Adaptation Act, business financial disclosure legislation)
Process	• Technical exercise led by experts • Council led • Iwi/hapū led process • Public/community led process
Communication	• Public release of risk assessment reports • Web-based interactive platforms • Incorporation into regional spatial strategies (under the Spatial Planning Act (SPA)) and regional policy statements/ combined plans (under the Resource Management Act (RMA) and/or NBEA) • Incorporation into Land Information Memorandum (LIM) • Factored into consenting and permitting decisions (under the RMA/NBEA and Building Act)
Timing and frequency	• As needed (including post event) • 6-yearly (to mesh with national risk assessment) • 10-yearly (to mesh with preparation of regional spatial strategies and RMA/combined plans)
Responsible agency and funding	• Central government department (Ministry for the Environment (MFE), Land Information New Zealand (LINZ)) • Independent Crown entity (Climate Change Commission, Earthquake Commission, Environment Protection Authority, new bespoke agency) • Science entity (GNS Science, NIWA) • Regional planning committee (constituted under the NBEA) • Iwi/hapū • Regional Council • City/District Council • Non-statutory bespoke grouping (eg local adaptation planning coalition) • Property owner/business

Legislative home	• None (if non-statutory) • SPA/RMA/NBEA • Climate Change Response Act • Proposed Climate Adaptation Act

3 Preventing development in risk prone areas

Most people would agree that we should not be putting more urban development in high-risk areas. Allowing an increase in the number of people, structures and assets in such areas will only result in more people being exposed to harm (and in the worst cases death), unnecessary damage to property, and ultimately a future and costly requirement to either protect or relocate out of harm's way.

Despite this, as outlined in Working Paper 2, the current legal framework is not well configured to stop development in high hazard zones. Many new homes and associated infrastructure are being constructed in areas prone to coastal erosion, flooding and other hazards.[4] We have set out in the table below some options for better preventing development in high hazard areas. These encompass different iterations of national direction, requirements for the content of regional spatial plans, and requirements and incentives for territorial authorities.

Options for preventing new development in hazardous areas

Level	Options
National direction	• National Policy Statement • National Environmental Standard • Mandate the New Zealand Coastal Policy Statement (NZCPS) and National Policy Statement on Natural Hazard Decision-making (NPS-NHD) as taking precedence over the National Policy Statement on Urban Development (NPS-UD) in the event of conflict
Regional level	• Require regional spatial strategies under the SPA to identify areas not appropriate for urban development due to natural hazard risk (including climate change)
District level	• Amend the RMA/NBEA to mandate refusing subdivision consent in the context of high natural hazards (including climate change) • Delete section 72 of the Building Act • Clarify that councils are liable for negligently consenting in hazardous areas • Require regular reporting by councils on the number of homes and other buildings/infrastructure in high hazard zones

4 Undertaking adaptation planning

A key component of a managed retreat process is adaptation planning which enables a community to design a response to growing natural hazard and climate change risks. A planning approach increasingly used in contexts of uncertainty and risk is Dynamic Adaptive Pathways Planning (DAPP)[5] although other approaches can also be used. The application of adaptation planning by councils has been patchy and there is currently no statutory provision for regional and/or local adaptation planning in Aotearoa New Zealand.

In the table below we have set out a wide range of options in this arena including for the development of an adaptation planning framework, how such planning is to be initiated, what governance and plan-making bodies might be put in place, how technical support might be provided, where resourcing may be obtained for the planning process, and what statutory weight the resultant plan might have.

Options for undertaking adaptation planning

Element	Options
Māori adaptation planning	• Resource iwi/hapū/whanau to undertake planning • Place Māori in plan decision-making roles • Embed te ao Māori and local mātauranga in planning processes
Adaptation planning framework	• National guidance • Broad statutory framework • Detailed statutory provisions
Initiation	• Statutory trigger • Ministerial direction • Council resolution • Iwi/hapū and/or community concern
Governance and plan-making body	• Statutory adaptation committee • Council-mana whenua committee • Councillors
Technical support	• Council technical staff • Technical advisory panel (including members proficient in mātauranga Māori) • Independent consultants • National agency
Resourcing	• Council(s) • Joint central, regional and local government • Central adaptation fund • User pays/targeted rates
Plan status	• Non-statutory • Statutory (with links to the SPA, RMA/NBEA, Climate Change Response Act and/or Local Government Act)

5 Compensating and aquiring properties

Property ownership plays an enormously important role in Aotearoa New Zealand society. However, such high status does not mean that the state cannot 'take' land from property owners for public purposes. Property could be compulsorily acquired for managed retreat purposes without full or any compensation, so long as the acquisition is clearly authorised under statute. However, where the statute leaves room for any doubt, the courts will infer an obligation to pay fair compensation.

Any managed relocation policy will almost certainly require public bodies to voluntarily, and in some cases compulsorily, acquire private properties. However, as we found in Working Paper 2, there is currently a gap in the legislative framework when it comes to powers to compulsorily acquire land, and in providing a framework for compensation which accommodates the circumstances of managed relocation. In the table below we have set out some options for property acquisition more generally, including those related to voluntary acquisition, compulsory acquisition and compensation.

Options for property acquisition and compensation

Element	Options
Voluntary acquisition	Individual property purchase Cluster purchase Advance purchase Land swap
Compulsory acquisition	Public Works Act Local Government Act Climate Adaptation Act
Compensation	Full Capped (eg average house prices) Means tested Time-limited (eg only applies to properties purchased before a certain date) Only owner-occupied

6 Relocating and developing new settlements

The process of relocating people, buildings and infrastructure raises some difficult issues as will providing new settlements for people who have relocated from high risk areas. These include whether a relocation programme should be developed, when and in what circumstances services can be withdrawn, how new settlements might be created, and who should manage the overall process (see table below).

Options for relocating and developing new settlements

Element	Options
Removal of properties and infrastructure	Relocation programme Ad hoc removal and services withdrawal
Development of new settlements in low risk areas	Urban Development Act RMA/NBEA procedures Gifting of land
Management	Council Bespoke national agency

7 Post-relocation land management

Once people have moved from a hazardous area, the land will need to be cleared and arrangements made for its ongoing management. Some options for land status and the overall governance and management of the vacated land are shown in the table below.

Options for post relocation land management

Element	Options
Land status	Reserves Act Climate Adaptation Reserve Māori reservation
Governance/management	Iwi/hapū DOC Local council Co-governance

8 Models for managed retreat policy

In this chapter we ponder what different models of managed relocation policy might look like if we put some of the options described above together. To do this, we have set out below two potential models, one focusing on strong central government intervention, and the other adopting a more decentralised, community-led approach. We include these models, not because we are suggesting that one or the other of them should be adopted, but to provide a 'look and feel' for the various options when combined into a cohesive model. It is also entirely possible that managed retreat policy could transition from a less developed model (such as Model 2) to a more developed one (such as Model 1) over time.

Model 1 contemplates comprehensive government involvement to address managed relocation. It includes the creation of a new national agency (the National Adaptation Agency) with a broad role to support risk assessment and adaptation planning, and to oversee the nuts and bolts of property acquisition and the relocation of people. A specialist branch of the agency (or separate entity) would provide direct support to Māori communities.

Piha South red-zoned property

Key elements of Model 1 Comprehensive nationally-driven approach

Phase	Elements of model 1
Identifying, assessing and communicating risk	• National natural hazard risk assessment exercise undertaken, region by region, by the Climate Change Commission linked to national risk assessments • Local risk assessments undertaken by territorial authorities, with technical and financial support from a National Adaptation Agency • Technical and financial support for iwi, hapū and whanau adaptation planning on Māori land, provided from the National Adaptation Agency, and coordinated by tikanga specialists • Methodology for risk assessment (including assessing compounding and cascading risks, tolerance to risk, and what amounts to 'high risk') set out in regularly updated guidance attached to a National Policy Statement under the RMA/NBEA • Risk assessments made publicly accessible with mandatory inclusion on LIMs • Assessments to be paid 'particular regard to' in all plan-making and consenting under the SPA, RMA/NBEA, Building Act and Local Government Act
Preventing development in risk prone areas	• Regional spatial strategies under the SPA required to spatially map high risk areas • National Policy Statement/National Environmental Standard mandate development in high risk areas as a prohibited activity • In the event of conflict, the avoidance policies in the NZCPS and NPS-NHD take precedence over provisions in the NPS-UD • Councils required to refuse subdivision consent on land within high risk areas under the RMA/NBEA • Building Act prohibits granting of building permits for development in high risk areas • Territorial authorities required to regularly report on number and value of homes, other buildings and infrastructure within high risk areas • Potential liability of councils for negligently consenting homes in high risk zones removed by statute
Undertaking adaptation planning Undertaking adaptation planning *(continued)*	• Statutory framework for adaptation planning provided in Climate Adaptation Act (including national guidance) • All adaptation plans must also meet the requirements of national direction under the RMA/NBEA (including environmental limits which could also effectively be 'risk thresholds'), address how nature will be supported to adapt alongside communities and how cultural connections will be maintained within the risky areas • National Adaptation Agency initiates, or approves commencement of on request by others, (non-Māori) adaptation planning (at either regional, sub-regional or local level) • National Adaptation Agency approves the planning process and final adaptation plan ensuring consistency with national direction and the national adaptation plan • Bespoke processes provided for iwi, hapū and whanau adaptation planning to maintain tino rangatiratanga supported by specialist Māori branch of the National Adaptation Agency • Financial and technical support provided for the planning process through the National Adaptation Agency • Funding sourced from a National Adaptation Fund • Adaptation plans must be 'paid particular regard to' when developing RMA/NBEA/SPA/Local Government Act plans and considering resource consents • Adaptation plans provide the basis for seeking an 'adaptation designation' in the district plan (thereby avoiding new activities that will undermine implementation of the adaptation plans)

Acquiring properties	• Climate Adaptation Act provides powers of voluntary and compulsory acquisition of property for managed relocation with clear criteria for use • Act also provides a set of principles and framework for negotiating compensation when property is acquired (with more details provided in national policy documents developed under the Act) • A bespoke statutory mechanism provides for any acquisition of Māori land which can be only be by agreement and ensures ongoing access • National Adaptation Agency handles all compensation offers and purchase agreements • Compensation for residential properties based on full market value with a cap on maximum amount • Compensation for businesses negotiated individually based on clear criteria such as material hardship and public good • Financial agreements reached with infrastructure providers to support infrastructure relocation and nature-based 'green' infrastructure • Funding made available to councils to support managed realignment (ie providing more room for rivers and the sea) and other measures to support the ability of nature to adapt (on a more generous basis than funding for hard defences) • Grants available to support innovative responses to adaptation by councils, iwi/hapū/whanau and communities including piloting new approaches • Insurance cover made available (and mandatory) in areas slated for managed relocation until property purchase (through a government-backed scheme where private insurers have withdrawn from the market) • Compensation and other funding support is sourced from a National Adaptation Fund which has several funding sources including regular top ups from general taxation, a new stamp duty levied on property transfers, and revenue from the Climate Emergency Response Fund • The New Zealand Claims Resolution Service is expanded to address claims arising from property acquisition for managed retreat
Relocation and developing new settlements Relocation and developing new settlements ***(continued)***	• Areas for relocation are identified in the regional spatial strategy under the SPA • Under the Climate Adaptation Act, the National Adaptation Agency develops detailed relocation plans in collaboration with councils, iwi/hapū/whanau and the community and oversees their implementation • Service providers can apply to withdraw services from areas being vacated, under new provisions in the Local Government Act, and must remove all infrastructure once services are withdrawn and restore the site • Means tested financial support is provided to assist with relocation costs and temporary accommodation is made available for those needing it when in transit between homes (and which can later be repurposed as social housing) • New land is purchased by the Crown, where needed, for the relocation of marae, papakāinga and taonga • Māori Adaptation Agency or Te Puni Kōkiri provides support for the relocation of Māori communities and associated buildings and taonga • Kāinga Ora is tasked with creating new communities under the Urban Development Act where needed • Where feasible, new sites are swapped for vacated sites by ballot, thereby enabling relocatable houses to be moved to safer locations and minimising losses

Post relocation land management	• National Adaptation Agency oversees land clearance, amalgamation of titles by LINZ, and land transfer to the ultimate owner (which could be council, mana whenua or a formally constituted community group) • New land classification in the Reserves Act, of Climate Adaptation Reserve, is the default classification of vacated land • Where land is held under Reserves Act, the council develops a regeneration plan for vacated land in collaboration with iwi/hapū/whanau and the community, and with support from the National Adaptation Agency • Provision is made for land to be declared Māori reserve land in which case hapū lead development of the regeneration plan with financial support from the National Adaptation Agency • Funding support for the implementation of the regeneration plan, including governance and management arrangements, provided from the National Adaptation Fund

Model 2 would see more emphasis put on communities making their own adaptation decisions and with central government playing a low key largely supportive role, rather than leading the process. Adaptation processes would be mainly led by councils (either territorial authorities on their own or combined with other councils), with only broader guidance and some ad hoc funding support from central government. The model is based on the proposition that communities know best, and territorial authorities are the level of government best placed to know the needs of their communities.

Emphasis is put on risk identification and communication of information doing the work of helping to avoid development being put in the wrong place. Councils will remain potentially liable in tort for making negligent decisions that ignore this information, and property purchasers will be alerted to risk through its inclusion on LIMs, implementing a 'buyer beware' policy.

Greater reliance is also placed on councils funding a greater proportion of residential property compensation (reflecting the recent shift towards an equal share between governments in the Cyclone Gabrielle property offer) which means that at-risk property owners in poorer communities are likely to receive less compensation. There is no provision for pre-funding such as through the establishment of an adaptation fund or similar. In many respects this model is based on the status quo, but with some strengthened legal tools and increased support provided by central government.

Key elements of Model 2 Decentralised community-led approach

Phase	Elements of model 2
Identifying, assessing and communicating risk	• Methodology for risk assessment (including compounding and cascading risks, tolerance to risk, and what amounts to 'high risk') set out in regularly updated guidance attached to a National Policy Statement under the RMA/NBEA • Regional councils and territorial authorities undertake risk assessments under the current provisions of the RMA/NBEA/SPA • Risk assessments made publicly accessible and mandatory inclusion on LIMs
Preventing development in risk prone areas	• Regional spatial strategies under the SPA required to identify high risk areas • National Policy Statement/National Environmental Standard provide framework for councils to identify areas of high risk in their planning documents in order to provide a policy and rules framework to manage the risks through consenting • Hazard information must be shown on LIMs under LGOIMA to support a buyer beware approach • Territorial authorities required to regularly report on number and value of homes, other buildings and infrastructure within high risk areas • Councils are potentially liable in tort for negligently consenting development in high risk zones

Undertaking adaptation planning	• National non-statutory guidance provided for adaptation planning • Adaptation planning undertaken on the initiative of councils under a broad framework inserted into the Local Government Act • Iwi/hapū and whanau determine own processes for adaptation planning • Councils and and iwi/hapū/whanau can apply to central government for grants, sourced from Vote Environment, to support adaptation planning • Adaptation plans are a matter to 'take into account' in RMA/NBEA/SPA/Local Government Act planning • Funding for implementation of aspects of the adaptation plan, such as building flood defences/seawalls or purchasing land for relocation, is provided by government through MBIE on application
Acquiring properties	• Properties (including Māori land) only acquired on a voluntary basis, by councils, under the Local Government Act • Councils provide 50% of the cost of residential property compensation and central government 50% • Compensation based on national non-statutory guidance (and is likely to be considerably less than full market value depending on the ability of the council to pay) • No compensation is provided to businesses • Service providers can apply to a separate infrastructure fund for financial support to relocate infrastructure • Insurance cover not required and may be withdrawn by private insurers
Relocation and developing new settlements	• Service providers can apply to withdraw services from areas being vacated, under new provisions in the Local Government Act, and must remove all infrastructure once service withdrawn • Te Puni Kōkiri provides support for the relocation of Māori infrastructure and communities • Kāinga Ora is tasked with creating new communities under the Urban Development Act • Where feasible, the new sites are swapped for vacated sites by ballot, thereby enabling relocatable houses to be moved to safety
Post relocation land management	• Vacated land reverts to ownership of the territorial authority or regional council • The council must consult with iwi/hapū/whanau and its community on the future use and management of the land under the Local Government Act • New land classification in the Reserves Act, of Climate Adaptation Reserve, is the default classification of vacated land

Each model has a number of strengths and weaknesses which are discussed in the main body of the report. Model 2 could be seen as a transitional step towards a more comprehensive approach (in Model 1) and may be more applicable to small managed relocation exercises. By providing interim support to councils to get going on adaptation planning, expertise would build up on how best to go about it, as well as a greater depth of knowledge to inform a more rigorous statutory approach which may be applicable to larger projects.

It would also be possible to combine elements of both models, with regional risk assessments undertaken at a national level along with the identification of areas in need of local adaptation planning, and local councils along with their communities doing local level planning and applying for national funding to support it.

PART TWO: SUMMARY OF INTERNATIONAL MODELS

In this part of the report we review a series of international case studies on managed relocation and draw out insights that can help inform policy development in Aotearoa New Zealand.

9 Summary of international models

The following six international case studies were investigated for this project and are described in the body of the report:

1. Room for the River programme (managed realignment), the Netherlands
2. Blue Acres programme (managed realignment), New Jersey, USA
3. Managed realignment in Medmerry, Chichester, the United Kingdom
4. The managed relocation of the small town of Grantham in Queensland, Australia
5. Buy-back and resilience schemes for flood affected homes in New South Wales (NSW) and Queensland, Australia
6. Efforts to relocate Shishmaref, a small indigenous community in Alaska

The case studies were selected for further investigation after an international desk top scan to identify approaches that had achieved some success and were potentially relevant to the Aotearoa New Zealand context. A number of key themes were evident from the case studies.

The success of managed relocation was very dependent on access to a strong and predictable funding source. This was especially important for voluntary buy-back schemes, which if limited by funding, will cause some residents to miss out. In some cases the programme was entirely funded by central government (Room for the River) and in others there was a mix of sources including federal government, state government, insurance and donations. Local councils were not generally expected to fund the programmes, although they were often the key implementers of managed relocation.

Many of the case studies incorporated multi-level governance structures. This required coordination between national/federal (and/or state) government, as the over-arching decision-maker and potentially funder, and local governments which have contextual knowledge about their geographic area. Local government involvement helped ensure meaningful stakeholder and community engagement. In some cases a specialist entity was involved, such as the Queensland Reconstruction Authority.

In the Grantham example, the council took the impetus to relocate the community and had sufficient resources to buy land for the relocated community. However, the council was then strongly supported by the state government in providing access to fast track procedures for rezoning.

All the case studies illustrated the importance of stakeholder and community engagement in managed relocation efforts, and this was also highlighted in the Aotearoa New Zealand case studies included in the main report. In most cases, the relocation process was voluntary (with Room for the Rivers being the exception). In some cases a range of options were funded including relocation or adaption of houses in situ. Whatever the programme, strong social infrastructure was crucial in successfully managing relocation processes.

Nature-based solutions – such as managed realignment highlighted in the Room for the Rivers, Blue Acres and Medmerry case studies – can achieve significant environmental and community gains when undertaken alongside managed relocation. They can reduce hazard risks for the remaining community, create more room for nature, and improve community amenity.

Many of the programmes were of a reasonably small scale and there are questions as to whether the approaches could be scaled up significantly. For example, the Room for the River programme purchased 200 houses, 115 houses were relocated in Grantham, and the Blue Acres programme has purchased only around 1,000 houses over a 28 year period. The NSW flood buy back programme is larger but had approved only 11 per cent of the 5,001 applications for a buy back 20 months after the flood disaster.[6]

10 Conclusions

This working paper canvasses a wide range of options for development of managed retreat policy, while also traversing a wealth of experience both in Aotearoa New Zealand and overseas. Our intent has been to widen the debate as to what might be possible and desirable to include in such policy, and in particular in a new Climate Adaptation Act. We are keen to hear feedback on the options presented.

This is the last working paper in the series. In our final report, due early in 2024, we will be putting forward what we consider to be the best path forward for the country, in terms of developing managed retreat policy. The proposals will strongly focus on the content of the proposed Climate Adaptation Act. We do this work, cognisant that adapting in the face of growing climate hazards is likely to be one of the greatest future challenges facing this country.

Endnotes

1 Ministry for the Environment, 2002, *Adapt and thrive: Building a climate resilient New Zealand: Draft national adaptation plan: Managed retreat*, New Zealand Government, Wellington

2 The working papers, along with other project-related material, can be accessed at https://eds.org.nz/our-work/policy/projects/climate-change-adaptation/

3 Climate Change Response Act 2002, Section 5ZQ

4 See Lawrence J, S Allan and L Clarke, 2021, *Using current legislative settings for managing the transition to a dynamic adaptive planning regime in New Zealand*, Resilience to Nature's Challenges National Science Challenge - Enabling Coastal Adaptation Programme, Wellington, at 1

5 See Lawrence J, M Haasnoot, L McKim, D Atapattu, G Campbell and A Stroombergen, 2019, 'Dynamic Adaptive Policy Pathways (DAPP): From theory to practice', in V A W J Marchay, W E Walker, P J T M Bloemen and S W Popper (eds), *Decision-making under deep uncertainty*, Springer Cham

6 McLeod C, 2023, 'NSW floods: Just 11% of applications approved for buybacks and no homes retrofitted nearly 20 months on', *The Guardian*, 19 October

1 Introduction

Houses behind eroded dunes at Buffalo Beach, Whitianga

In June 2022, the Environmental Defence Society (EDS) commenced a project titled *Aotearoa New Zealand's Climate Change Adaptation Act: Building a Durable Future* to develop recommendations for the content of a new Climate Adaptation Bill. This was in response to expressed government intention to develop new law to address the complex and distinctive issues associated with managed relocation such as funding, compensation, land acquisition, liability and insurance.[1]

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This third and last working paper in the series focuses on identifying options for reform. This draws on lessons learnt from national and international case studies, and brings together options into two models for a potential reform package. The final report, which is due in the first quarter of 2024, will contain concrete recommendations for the design of the Climate Adaptation Bill.

Since the publication of our second Working Paper in May this year, there have been multiple developments on the climate adaptation and related fronts. The Future for Local Government Review Panel released its final report in June.[3] The Māori Affairs Select Committee reported on its briefing on Māori climate adaptation in July[4].

In August, the Expert Working Group on Managed Retreat (Expert Working Group) published its proposed system for te hekenga rauora/ planned relocation.[5] We have attempted to summarise key proposals throughout this working paper but note that the report includes 89 detailed recommendations. We encourage readers to refer to the Group's full report.

At the same time as the Expert Working Group Report was released, the Ministry for the Environment (MFE) issued a discussion document titled *Community-led Retreat and Adaptation Funding: Issues and Options*.[6] This was followed by a public inquiry into climate adaptation initiated by the Environment Select Committee. Submissions closed on 1 November 2023.

In September, MFE released a proposed National Policy Statement for Natural Hazard Decision-making (NPS-NHD) with submissions closing on 20 November 2023. We discuss this document further below. More recently, the buy-out process commenced for homes affected by the North Island floods and Cyclone Gabrielle earlier this year.

The working papers are designed to seek feedback on work in progress as we develop up ideas for incorporation into the final synthesis report. This third working paper seeks feedback on options for managed relocation policy, including comment on which options are preferred and why.

1.1 Shifting political context

This working paper was largely written as the country was in the run up to a general election, creating some uncertainty as to the future of the recently enacted Natural and Built Environment Act 2023 (NBEA) and Spatial Planning Act 2023 (SPA). As this paper was going to print, the newly installed coalition government confirmed its intention to repeal the legislation, and revert to the Resource Management Act 1991 (RMA) while new replacement legislation is drafted.[7] Whatever the outcome, there is now considerable uncertainty as to the statutory framework that a new Climate Adaptation Act will need to interface with. While the future legal landscape remains uncertain, in this working paper we have continued to reference both the RMA and the new NBEA and SPA.

1.2 Methodology and structure of working paper

The material in this working paper draws on our previous analysis in Working Papers 1 and 2, as well as a series of national and international case studies on managed relocation, largely based on desk top studies. A summary of our international case studies is included in Part Two of this working paper. Dr Sasha Maher also undertook an in-depth case study for the project focused on Ōmana ki Umupuia (including the Auckland coastal suburb of Maraetai), which included interviews with 56 residents and non-residents and engagement with Ngāi Tai ki Tāmaki. The case study, which EDS has published alongside this working paper, is available on the EDS website at www.eds.org.nz. Our case study investigations informed a series of spotlights included in this (and previous) working papers and have enriched our thinking about potential solutions.

For this working paper, specifically, we obtained input from Te Ahi Tūtata, the Beca Māori Advisory Service. During July 2023, We also undertook 12 in-depth interviews with planning and climate adaptation practitioners in Aotearoa New Zealand to obtain a more in-depth understanding of practice on the ground. The interviews were undertaken on a confidential basis to encourage frankness. We have reproduced some anonymous quotes from these interviews in this working paper to highlight key points.

The working paper is structured around two parts. The first explores a large number of options for reform, broadly focusing on the steps involved in managed relocation as identified in Working Paper 2. Interspersed amongst the analysis are a number of spotlights profiling adaptation responses in communities around Aotearoa New Zealand. This is to highlight and illustrate particular points but also so we can learn from, and build on, past experience.

Part One concludes with the description of two possible models for managed relocation policy, bundling together different packages of the various options described in the earlier sections. This is to provide a sense of what different options might look like as a package, rather than to suggest that either model is to be preferred, or is the right one for the country. We hope that the models will generate fruitful debate as the government considers the shape of new legislation.

Part Two of the working paper summarises the results of an international review of managed relocation and adaptation responses. It includes projects undertaken in the Netherlands, the USA, the United Kingdom and Australia. One case study particularly focuses on the adaptation challenges facing indigenous communities. We then draw out key themes of relevance to policy development in this country.

Endnotes

1 Ministry for the Environment, 2022, *Adapt and thrive: Building a climate resilient New Zealand: Draft national adaptation plan: Managed retreat,* New Zealand Government, Wellington

2 The working papers, along with other project-related material, can be accessed at https://eds.org.nz/our-work/policy/projects/climate-change-adaptation/

3 Future for Local Government Review Panel, 2023, *The future for local government: Final report*, Wellington

4 Māori Affairs Select Committee, 2023, *Briefing on Māori climate adaptation*, Report of the Māori Affairs Committee, Parliament, Wellington

5 Expert Working Group on Managed Retreat, 2023, *Report of the Expert Working Group on Managed Retreat: A proposed system for te hekenga rauora/planned relocation,* Expert Working Group on Managed Retreat, Wellington

6 Ministry for the Environment, 2023, *Community-led retreat and adaptation funding: Issues and options*, Ministry for the Environment, Wellington

7 New Zealand Government, 2023, *Coalition agreement: New Zealand National Party and ACT New Zealand*, Wellington, 5-6

Part 1: Options for reform

Wooden seawalls, Clarks Beach, Auckland

In Working Paper Two, which described and evaluated the adequacy of the current law and rights-based systems applicable to managed relocation, EDS identified a number of weaknesses and gaps which are summarised in Figure 1. In Part One of this working paper we identify options for addressing such weaknesses and gaps. Our analysis is structured around a framework that is similar to that shown in Working Paper 2 (but slightly simplified) and focuses on a number of key steps required to undertake managed relocation:

1. Identifying, assessing and communicating risk
2. Preventing development in risk-prone areas
3. Undertaking adaptation planning
4. Compensating and acquiring properties
5. Relocating and developing new settlements (when required)
6. Post-relocation land management

Although shown in sequence here, these steps are likely to be iterative and closely connected. For example, the process of assessing adaptation pathways in Step 3, requires an understanding of where people might move to if relocating and what will happen to the land post-relocation (ie Steps 4 to 6).

Weaknesses and gaps in the current legal and policy framework for managed relocation identified in Working Paper Two included:

1. Although there is a robust framework for the preparation and communication of a regular national climate risk assessment, by an independent agency, there is not similar rigour at a regional or local level. Under current law, outside the coastal environment, there is no obligation on any agency to regularly collect and make available natural hazard and climate risk information.

2. The current legal framework is not well configured to prevent urban development in hazard zones. Only the Building Act can be relied on to achieve this through the refusal of building consents, but only when the safety of people is at stake.

3. Councils can refuse to grant subdivision consent (but not other consents) under the RMA when there is a significant risk from natural hazards, but they are not required to do so

4. It will not usually be possible to downzone land in a high hazard zone, to exclude urban development, unless the council offers to purchase the property at market value and the landowner agrees, due to the 'reasonable use' requirement under the RMA.

5. The New Zealand Coastal Policy Statement provides some clear directives on avoiding redevelopment and land use change in coastal hazard areas. However, there is no similar direction for how councils are to address natural hazards outside the coastal environment.

6. The National Policy Statement for Urban Development appears poorly configured to avoid development in high hazard zones. Although it provides for natural hazards as qualifying matters, the regime effectively discourages councils from taking a strategic long-term approach to addressing cumulative and compounding risks.

7. Although the Climate Change Response Act requires the preparation of a national adaptation plan, there is currently no specific statutory provision for regional and local adaptation planning. Local Government can choose to undertake such planning as part of its broad capabilities, but there is no *explicit* provision for implementation including assigning responsibilities and securing funding.

8. No current legislation is well configured for anticipatorily acquiring land exposed to hazard in circumstances of managed relocation. The Public Works Act and Urban Development Act are likely unsuitable. The Land Act (via the Commissioner of Crown Lands) or the Local Government Act (via local authorities) could enable a mechanism for voluntary purchase, but neither would provide a suitable framework for compensation.

9. There is no obligation on councils to protect private property from coastal erosion or to maintain existing coastal protection works. However regional councils may be required to maintain existing flood protection works.

10. With the exception of water services, it is possible for councils to withdraw most services (including roading) from a site facing managed relocation, so long as a proper decision-making process has been undertaken.

11. In the context of an emergency there are strong statutory provisions for moving people away from unsafe homes and buildings. However, these are designed to be short term measures and are unsuitable for managed relocation, especially if it is pre-emptive.

12. The Urban Development Act provides a set of powerful tools to undertake urban development in an integrated manner to provide new settlements for those who need to relocate from areas exposed to natural hazards. Such development could also potentially be undertaken under the Land Act, although its provisions are dated and not as well configured for this purpose.

13. The vacated land could be managed by councils and/or other entities such as iwi/hapū under the Reserves Act or by the Department of Conservation under the Conservation Act. Land could also be placed in the Treaty Settlement Landbank. There is currently no specific category of land under the Reserves Act that is focused on restoration and rehabilitation of natural ecosystems.

Figure 1: Summary of weaknesses in the current legal and policy framework for managed relocation

2 Identifying, assessing and communicating risk

Homes affected by a landslip, South Piha, Auckland

The effective identification, assessment and communication of information is the foundation of any effective managed relocation programme. Hazards and exposure and vulnerability to them (ie the components of risk), need to be robustly identified and communicated to relevant stakeholders and the public, in a clear and accessible way. Ideally this should occur ahead of a hazard event occurring. The success of any managed relocation project will largely depend on the extent to which the affected community feel they have been included from the start, that their views are consistently heard, and that they have a stake in the final decision.

Although there is a robust legal framework for the preparation, assessment and communication of regular *national* climate risk assessments, by an independent agency (the Climate Change Commission),[1] there is no similar requirement at a regional or local level. This is a significant gap in the existing legal framework.

There are a number of characteristics that need to be considered when designing a system for risk assessment and communication: geographic focus, methodology, process, communication of results, responsible agency and funding, frequency and legislative home. We have set out some options for these in Figure 2. These are not exclusive and it is likely that various groupings of them would be chosen as a starting point for system design. One particular grouping is proposed in the recommendations of the Expert Working Group highlighted in the spotlight below.

Characteristic	Options
Geographic focus (for sub-national assessment)	• Regional • City/district • Community • Site/business or network-specific
Methodology	• Left to entity undertaking risk assessment • National non-statutory guidance and/or provision of data and tools • National Policy Statement and/or National Environmental Standard (or National Planning Framework under the NBEA) • Other form of statutory provision (eg Climate Change Response Act, new Climate Adaptation Act, business financial disclosure legislation)
Process	• Technical exercise led by experts • Council led • Iwi/hapū led process • Public/community led process

Communication	• Public release of risk assessment reports • Web-based interactive platforms • Incorporation into regional spatial strategies (under the SPA) and regional policy statements/ combined plans (under the RMA and/or NBEA) • Incorporation into Land Information Memorandum (LIM) • Factored into consenting and permitting decisions (under the RMA/NBEA and Building Act)
Timing and frequency	• As needed (including post event) • 6-yearly (to mesh with national risk assessment) • 10-yearly (to mesh with preparation of regional spatial strategies and RMA/combined plans)
Responsible agency and funding	• Central government department (MFE, Land Information New Zealand) • Independent Crown entity (Climate Change Commission, Earthquake Commission, Environment Protection Authority, new bespoke agency) • Science entity (GNS Science, NIWA) • Regional planning committee (constituted under the NBEA) • Iwi/hapū • Regional Council • City/District Council • Non-statutory bespoke grouping (eg local adaptation planning coalition) • Property owner/business
Legislative home	• None (if non-statutory) • SPA/RMA/NBEA • Climate Change Response Act • Proposed Climate Adaptation Act

Figure 2: Options for risk assessment and communication

Spotlight on recommendations of Expert Working Group on risk assessment and communication

The Expert Working Group proposes that *high-level region-wide assessments* be undertaken, using existing information where appropriate, in order to identify and prioritise areas that require adaptation planning (and will be subject to a Local Adaptation Plan (LAP)). The outcome of the assessment is to be included in the regional spatial strategies prepared under the SPA. More detailed area-specific risk assessments are to be undertaken as part of the LAPs.

The region-wide assessments would be undertaken by an expert panel appointed by either a formal committee consisting of the regional council, Māori and territorial authorities (with an option for the Crown to be represented) or the regional planning committee (if established under the NBEA/SPA). The expert panel would include expertise in a wide range of matters related to understanding risk including mātauranga Māori and tikanga. Risk assessments would not be subject to public submission but would be audited by an independent national-level body, potentially the Climate Change Commission.

National direction would provide a framework for the regional assessments in order to standardise methodologies for the assessment of risk, including setting nationally consistent risk thresholds. Such direction would also mandate what risk circumstances require adaptation planning.

2.1 Geographic focus

Risk assessments will likely need to be undertaken at different scales depending on the risk being evaluated and the timing of the risk assessment within planning and consenting processes. A regional level scale appears to make sense in the first instance, at least for a high level risk scan, as it can encompass risks that span multiple districts and rohe. It also coincides with the geographic scope of regional spatial strategies under the SPA, regional policy statements and plans under the RMA, and combined plans under the NBEA. This is the level proposed by the Expert Working Group for a 'first pass' risk assessment.

However, undertaking risk assessment at the regional level will likely not be easy, if the assessment is to be based on existing information (as proposed by the Expert Working Group). This is because of the often patchy and inconsistent data available at a regional level. As we were told by a regional planner:

> Often you don't have the data, or the data is missing in part. Some of the territorials have it and some don't, or it's done based on different assumptions and purposes. So it's like a fruit salad which you can't robustly pull together at a regional level.

More detailed risk assessments will also likely be required for hapū, whanau and communities exposed to significant hazard risk and for property owners and/or businesses seeking to develop land within hazardous areas. They will also be required for large businesses subject to financial disclosure requirements as discussed below. The Expert Working Group recommends that such detailed assessments be undertaken as part of Local Adaptation Plans (LAPs). This makes sense, with such planning encompassing both Māori-led and community-led planning. However, it will likely not be the only circumstance where detailed local risk assessment is required.

Undertaking a more localised assessment of the most significant risks will likely be important, well before any local planning process commences, in order to halt further intensification in high hazard prone areas where the risks are unacceptably high. It will also be important to alert property owners (and prospective buyers and developers) to potential risks as early as possible. As discussed below, stopping further development in hazardous areas will require detailed and robust risk assessments that can stand up in court.

A climate adaptation legal framework will need to make provision for risk assessments to be undertaken at different levels and in a range of circumstances. There may need to be a formal process for determining what geographic scale/focus is adopted, why and when.

2.2 Methodology

Risk assessment is complex. It often has to account for multiple hazards affecting a particular area which may be compounding (when multiple hazards act together to change the level of impact) and/or cascading (where one hazard event generates another or causes a cascade of impacts). Often the relevant information will be missing or not be available at the level of detail required. Gathering new information and undertaking detailed analyses can be costly, time consuming and result in a constant cycle of updating data.

A spotlight on assessing compounding risk in South Dunedin

South Dunedin, a low-lying suburb of Ōtepoti Dunedin near the coast, is within the rohe of Ngāi Tahu. The suburb was built on a former coastal wetland, salt marsh and lagoon system which was infilled during the late 1800s. It currently houses around 13,500 permanent residents and 1500 businesses.[2] The area has long been subject to flooding due to its shallow water table, which in some parts of the suburb lies just 0.4 metres below ground level.[3] Things came to a head, when in 2015, around 175 millimetres of rain fell in 24 hours (exceeding the one-in-100 year flood rain level of 120mm).[4] The resulting floodwaters damaged more than a thousand houses and businesses. Sewage contamination forced many residents to evacuate.[5]

The shallow freshwater aquifer under South Dunedin, is permeable to the sea, and so the water table level rises and falls with the tides. This means that rising sea levels and greater storm surges, under climate change, will cause an ever increasing rise in groundwater levels. There is also evidence of ground subsidence, which will compound the effects of sea level rise and heavy rainfall on the water table level, and a risk of liquefaction in some areas[6].

The natural drainage of the reclaimed area, through the coastal dunes, was blocked off to create a barrier to storm tides.[7] Although providing protection from the sea, this removed any natural drainage from South Dunedin, with the only egress for water after rainfall being the network of stormwater and (through infiltration) wastewater pipes. However, even these cannot drain water away without the aid of pumping stations, because the pipes are low-lying and have minimal gradient.

The infrastructure is aged, subject to leakages, and well overdue for replacement.[8] Wastewater overflows of untreated sewerage into the Otago Harbour occur frequently with heavy rain. The ability of the land to soak up rainwater, as opposed to it being channelled into the stormwater pipes, has been significantly reduced due to the high percentage of impermeable surfaces. Overall, 60 per cent of land in residential areas has been paved over, and this increases to up to 100 per cent in commercial areas.[9]

So how does the council account for these compounding risks? The dynamics of the groundwater system under South Dunedin is complex, and difficult to understand on its own, without adding into the mix the impacts of rising sea levels (and more frequent storm surges) on groundwater, and the performance of aging stormwater and wastewater pipes under heavy (and increasingly intense) rainfall. Determining what will or will not flood requires complex computerised models in the context of basic information not being available. As we were told by one interviewee, "we realised we didn't understand groundwater, and the system generating sea level data and rainfall predictions is only available nationally. So how do we combine these at a decision-taking level, and with a quality and robustness we can stand behind."

As well as assessing compounding and cascading risks, there is also uncertainty on how to assess whether a risk is tolerable or not. As the Earthquake Commission recently stated:

> While Aotearoa New Zealand has well-established approaches for hazard risk management, we lack a nationally agreed approach for assessing and reviewing our risk tolerance. Furthermore, there is no framework (regulatory or otherwise) to understand what is tolerable, intolerable, or acceptable, and there is no consistent, agreed terminology to support this. This often leads to ambiguity in who manages risk and inconsistency in what risks are significant, as well as inconsistent approaches to risk across regions and organisations.[10]

The Earthquake Commission's July 2023 guidance on risk tolerance methodology[11] seeks to address this gap. The Skyline Enterprises carpark application (see spotlight below) is instructive in indicating how the Environment Court has approached the assessment of tolerability of risk. Although the case revolved around risk from rockfall, the discussion around acceptable risk has wider application to climate-enhanced risks.

Seawall, St Clair Beach, South Dunedin

Spotlight on evaluation of tolerable hazard risk, Skyline carpark application, Queenstown

In 2017, Skyline Enterprises applied for a resource consent to construct and operate a multi-level 449-space carpark below Bob's Peak, in order to service a gondola terminal in Queenstown. During the Environment Court hearing of the application, the rockfall risk to users of the carpark was identified as an issue, with large boulders potentially dropping from the peak onto the carpark.[12]

There was some debate, during the hearing, as to the appropriate level of tolerable risk that should not be exceeded by the proposal. The applicant's expert engineering geologist argued that some remedial works on the higher bluffs of Bob's Peak would be sufficient to address the issue. In rebuttal, Dr Massey gave evidence on behalf Otago Regional Council, noting the uncertainty around the time a person would spend at the toe of the slope between the carpark and gondola base station (a matter important to the calculation of the individual risk of being hit by a falling rock).[13]

Dr Massey also argued that the Environment Court "should establish risk criteria for determining the tolerability or otherwise of slope instability-related risk to the site, based on societal acceptance of comparable levels of risk arising from other sources". A suitable starting point, he argued, would be 1×10^{-4} (or 1/10,000) annual individual fatality risk which had been used by Christchurch District Council for slope hazard zones in its district plan.[14]

But as one of our interviewees observed, "they started talking about annual individual fatality risk. But the person most at risk is the bus driver who is in the carpark for the longest time. And what happens if a rock fall hits two buses full of tourists and they get wiped out? I'm not sure how well that is quantified, as if that happened, the consequences would be more than the sum of individual risk. There would be risk to tourism in New Zealand and to the economy. I'm not sure how well that is fully understood."

In the end, the Court declined to define criteria for the tolerability of the risk, noting a "lack of any consultation as would reliably inform the court on community risk tolerance".[15] Instead, consent was granted on the basis of a list of conditions which were found to constitute the "practicable minimisation of the rockfall hazard"[16] avoiding the need to rely on an assessment of acceptable risk.

The case serves to highlight the difficulty in establishing whether risk is tolerable to specific communities, and in assessing whether that risk level has been exceeded. The risks associated with Bob's Peak were recently highlighted in September 2023 when heavy rainfall generated a slip which carried a substantial quantity of mud and forestry debris down the Peak and into the central business area.[17]

There is a wealth of knowledge embedded within hapū, including but not limited to Pūrakau (tribal stories), that can assist with contemporary risk assessment. Such knowledge is drawn from deep observations of the living and non-living world and long experience of managing risk. It is shared via oral methods within whakapapa to enable application to current risk contexts recognising that the future will be different from the past. In post-colonial times, the application of such knowledge has been constrained by the loss of whenua (land), which means that many modern-day marae are in locations that would not likely have been chosen by Māori under traditional Māori risk management decision frameworks.

Traditional risk assessments have not necessarily reflected Māori tikanga or values and therefore have often not met the needs of hapū or whānau. How to ensure risk assessments are more relevant to Māori will require careful consideration.

There is a range of recent guidance on risk assessment more generally[18] but no mandatory approach. This has likely contributed to uneven practices around the country, with councils using varying methodologies to undertake risk assessment, influenced by the availability and quality of data.[19] There is also a lack of standardisation in how infrastructure providers assess and respond to natural hazard risks. As noted by one interviewee:

> Hazard assessment methodologies between different councils vary, so risk assessment in Nelson is different to risk assessment in the Bay of Plenty, depending on what consultant has done the work and the time frames adopted … and the council doesn't know what to ask for even when they do get experts.

There is a firmer framework in place for some businesses. Under the Financial Sector (Climate-related Disclosures and Other Matters) Amendment Act 2021 large financial institutions (including insurers and banks) and large publicly listed companies are now required to publish annual climate-related disclosures. Reporting is against the Aotearoa New Zealand climate standards which are based on the recommendations of the international Task Force on Climate-related Financial Disclosures.[20] These recommendations sought to provide "a voluntary, consistent framework" for "more effective disclosure about the risks and opportunities presented by climate change".[21]

The Expert Working Group has recommended statutory national direction to standardise methodologies for the assessment of risk, including setting nationally consistent risk thresholds. This makes sense. The structure of such national direction will need to be flexible, to allow regular updates as understanding of risk assessment evolves. This could be achieved through reference in such national direction to "taking into account national guidance" in a similar way to the reference in Policy 24 of the New Zealand Coastal Policy Statement (NZCPS) which has enabled MFE to produce regularly updated guidance on coastal hazards and climate change.[22]

National direction could be housed under the RMA, as a national policy statement and/or national environmental standard, or as part of the National Planning Framework under the NBEA. Alternatively it could be placed under the proposed Climate Adaptation Act. The best location will ultimately depend on who is undertaking the risk assessments and what influence they have on other parts of the planning system.

As noted above, in September 2023 MFE released a proposed NPS-NHD and associated discussion document.[23] This is presented as an interim measure until more comprehensive natural hazard direction can be developed over the next few years.[24] Policies 1, 2 and 3 address the assessment of risk. However, this is only in very general, high-level terms (see below).

Proposed National Policy Statement for Natural Hazard Decision-making

Policy 1: When making planning decisions, decision-makers are to determine the level of natural hazard risk as high, moderate, or low.

Policy 2: When determining natural hazard risk, decision-makers are to consider:

(a) first, the likelihood of a natural hazard event occurring (either individually or in combination) and the consequences of the natural hazard event occurring, including potential loss of life, serious injury, adverse effects on the environment, and potential serious damage to property and infrastructure; and

(b) second, tolerance to a natural hazard event, including the willingness and capability of those who are subject to the risk (such as a community, Māori, or the Crown) to bear the risk of that natural hazard (including its cost) and any indirect risks associated with it.

Policy 3: Decision-makers must adopt a precautionary approach when determining natural hazard risk if:

(a) the natural hazard risk is uncertain, unknown, or little understood; and

(b) the natural hazard risk could be intolerable.

1.4 Interpretation

(1) In this National Policy Statement:

high natural hazard risk means a risk from natural hazards that is intolerable

low natural hazard risk means a risk from natural hazards that is generally acceptable

moderate natural hazard risk means a risk from natural hazards that is more than a low risk, but is not intolerable

Significantly there is no definition of "intolerable" which is the key metric for managing risk, particularly when considering managed relocation. No time frame is specified over which risks should be assessed and there is no provision for consideration of how climate change will impact natural hazard risk over time. In addition, there is no hook for the application of more detailed guidance on the assessment of particular risks and addressing those that are compounding and cascading. EDS's submission on the proposal, which raises further issues, can be found at www.eds.org.nz. Overall, the document represents an early first stage in policy-making. It will need to be considerably fleshed out if it is to sufficiently address risk assessment in a managed relocation situation.

2.3 Process

When considering the process to undertake a risk assessment, it is pertinent to consider whether it is largely a technical process, best undertaken by experts in the field, whether it is something that the affected community and/or iwi and hapū should lead, or whether it should be a combination of both approaches. The answer may lie in how the assessment will ultimately be used and what it is intended to achieve. However, all assessments will need to draw on relevant expertise and use sound methodologies.

The Expert Working Group recommended that the regional risk assessment be undertaken by an expert panel and be audited by an independent national-level body, potentially the Climate Change Commission (with this being a new role for the Commission). However, local risk assessments are proposed to be developed as part of the LAP with much more intense community engagement. This is on the basis that such localised processes would have more direct impact on property owners and therefore need greater community acceptance. In addition, information from the community would be required in order to inform vulnerability assessments.

A complicating factor in deciding whether a risk assessment is essentially a technical exercise, or whether it requires community input, is the complex nature of the exercise itself. Hazard assessment is predominantly a biophysical exercise, quantifying and estimating the timing and likelihood of certain things happening (such as coastal erosion, flooding etc). However, assessment of 'risk' also requires an assessment of exposure to the hazard and vulnerability to impacts that may occur. These are partly social matters which likely require some form of interaction with affected communities to be assessed. In addition, when crafting a management response to risks, it is important to understand the tolerance of individuals and communities to the risks affecting them. It is telling that a lack of community engagement prompted the Environment Court to refrain from determining risk tolerance in the Skyline case (described in the spotlight above).

There is another reason why early engagement with local communities on risk assessments will likely be important. It goes to the acceptability of the resulting science. In our separately published case study on Ōmana

ki Umpuia, which focused on a relatively well-heeled coastal suburb in Auckland (Maraetai), extensive in-depth interviewing of community members affected by coastal inundation identified significant distrust of local government and climate change science. Overall, the case study highlighted that climate change science can be considered unreliable and debateable, authorities can be seen as open to corruption and untrustworthy, self-sensory knowledge can be considered to be more reliable than science, and even experience of extreme events does not necessarily create openness to change.[25]

All this serves to highlight the considerable challenges that will need to be overcome if communities are to accept the science that will be critical in determining whether they can stay or leave their homes and communities. Community engagement when framing up the brief for a risk assessment, could be helpful in subsequent community acceptance of the results, particularly in matters such as determining how vulnerability is assessed and scored. Insurers could also be helpful in indicating risk circumstances in which insurance cover may be restricted, priced more highly, or withdrawn entirely.

Where a risk assessment affects a Māori community, it will be essential that iwi/hapū and/or whanau are partners in framing up the parameters of any project, including defining the questions to be answered (which will need to reflect a Māori world view) and the information base to be drawn on (which will need to include mātauranga Māori if made available).

2.4 Communication

"It's always beneficial to give people as much info as early as you can and as much certainty as you can is always helpful." (Interviewee)

"A fatal flaw in comms and engagement that I have seen is building up an expectation of 'certainty' of information in the community. More important, I would argue, is the communication that there is inherent uncertainity…but that is okay and decisions shouldn't be held up as there never will be 'certainty'." (Reviewer)

As well as taking care to undertake a robust risk assessment, it will be equally important that the results are communicated in a way that maximises community understanding and acceptance and builds trust in the process. This means that skilled science communicators will likely need to play a strong role in the process, supported by a team of community engagement facilitators, who can guide the community towards a common understanding of the issues. There will need to be effective engagement with Māori, so that iwi, hapū and whanau can provide their data (if willing), and obtain a good understanding of the risks affecting their whenua.

Much may come down to the way data is presented. For example, our interviewees noted:

> When you identify something as hazardous, property owners don't like that at all. So it often seems to come down to not mapping something as a hazard but mapping something as where an assessment is required.

> With our coastal hazard assessment we have definitely had climate denialism. What helped was modelling sea level increments, rather than scenarios, and then having a slider which could select increments of 20cm, 40cm etc. We had it independently peer reviewed which helped a bit but people pushed back saying we had biased peer reviewers.

Such community push back on the science, may reduce, as more weather events impact communities and receive higher profile in the media. But it needs to be recognised that risk communication is a skilled task. In the aftermath of the Auckland floods in January and February 2023, the review of the response (the Bush Report) highlighted how communication teams can become overloaded in a crisis situation by the sheer amount of work required to keep everyone informed.[26] This highlights the benefits of pre-emptive retreat where the response can be planned and undertaken over a much longer time frame.

Publicly releasing all relevant information will be important, as well as presenting it in a form that is easily accessible. Councils have more recently been using web-based tools to enable people to identify risks to their properties and communities in an accessible and visually interesting manner.[27] Transparency, such as through the mandatory inclusion of risk information on Land Information Memorandum (LIM), is also important so that the property market is able to operate on the basis of good information.

As we noted in Working Paper 2, the recent amendments to the Local Government Official Information and Meetings Act 1987 (LGOIMA) will help make information on LIMs more transparent when it comes to hazards, requiring councils to include risk information to the extent that it is known to the local authority.[28] However, it doesn't go so far as to require hazard information to be collected in the first place, a gap which will need to be

filled elsewhere in the system. The Bill has passed its third reading, and the LIM amendments will come into force on 1 July 2025, unless brought in earlier by an Order in Council.[29]

There is also the issue of the status of risk assessments within statutory planning and consenting processes. The Expert Working Group has recommended that regional risk assessments be incorporated into regional spatial strategies prepared under the SPA, although it is not clear what level of granularity can practicably be provided in what are high level strategic documents. The regional risk assessments would also be recognised in regulatory plans prepared under the RMA or NBEA and would be taken into account in consenting and permitting decisions. This makes sense. To the extent that such information is available it should inform decisions on where and how development can take place.

Coastal defences, Prospect Bay, Tāwharanui Peninsula

2.5 Timing and frequency

Risk assessment is often undertaken after a hazardous event has occurred rather than prior to harm occurring. As one of our interviewees explained:

> The only time a thorough risk assessment was undertaken in Christchurch and Kaikōura, was after the earthquakes. We put money into doing a thorough risk assessment after the event, but it's very hard to justify it beforehand. Justifying spending money on something that hasn't occurred is difficult but once it has happened money is thrown at it. There's an irony there.

This serves to further highlight the need to make some risk assessments mandatory (including regional risk assessments). However, other risk assessments will need to be undertaken at different times, including after damaging events have ocurred. In that case, the assessment is often used to determine whether property owners can repair and rebuild their houses in situ, or will be required to move. Where such risk assessments are delayed it can be traumatic for those affected (see spotlight on Matatā).

Spotlight on timing of risk assessment at Matatā

In 2005, after heavy rainfall in the adjacent catchment, several large debris flows hit the small coastal town of Matatā destroying 27 homes, damaging 87 other properties and causing $20 million of damage.[30] Despite this, it was not until 2013, after efforts to find an engineering solution failed, that a formal risk assessment was undertaken.[31] A further refinement of the risk assessment was undertaken in 2015,[32] ten years after the debris flow incident. It wasn't until 2022, 17 years after the incident, that all residents had finally left the high risk area.[33]

Where risk assessments are designed to inform planning documents it makes sense that they are updated according to the same cycle as the plans themselves. This would suggest a mandatory 10-year update to mesh with regional spatial strategies and plans, and with more frequent updates provided for (potentially aligned with the three-year long term planning cycle or six-yearly preparation of the national risk assessment) where significant new information becomes available.

2.6 Responsible agency and funding

"In terms of who should do it, it comes down to money, who has got the money and how well the councils work together. Historically, there has been a lot of antagonism between councils." (Interviewee)

Currently, apart from at the national level (where the Climate Change Commission is tasked with undertaking regular national risk assessments), no one agency is responsible for undertaking risk assessments. Nor is any funding tagged for such assessments. This can be a significant barrier to councils undertaking such work. As we were told by interviewees:

> The cost of doing a risk assessment is very expensive, and there is a lot of uncertainty when mapping areas, which is a limitation.

> District councils typically do not have a huge amount of resourcing.

The Expert Working Group has recommended that regional risk assessments be undertaken by an expert body appointed by either a formal committee consisting of the regional council, Māori and territorial authorities (with an option for the Crown to be represented) or the regional planning committee, if established under the NBEA, which has a similar constitution.

An alternative to this approach would be a nationally-led process to undertake consistent and comprehensive regional risk assessments across the entire country, starting with those regions with the most pressing natural hazard risk issues. As highlighted by Irons and Watts:

> In the case of mapping, it makes far more sense for central government to use its economies of scale and its greater institutional resources to develop mapping methods that are both effective, consistent and based on verifiably reliable data.[34]

Such a national exercise could be led by a central government agency (such as MFE, Land Information New Zealand (LINZ) or the Earthquake Commission), by an independent national body (such as the Climate Change Commission which could create useful linkages between the national and regional risk assessments), or by a science entity (such as GNS Science or NIWA). An advantage of a national exercise would be that agencies such as Waka Kotahi, the Ministry of Education and Te Whatu Ora could more easily provide information from the risk assessments they have undertaken to inform their own portfolio management across the country.

One national exercise would almost certainly cost less than 15 or so separate regional initiatives. In addition, if such an exercise were funded by central government, it would enable regional and local funds to be focused on undertaking more detailed community-specific risk assessments within the framework provided by the nationally-led exercise. A consistent national approach could also help identify and prioritise significant gaps in information that government investment in data gathering and assessment (such as through public good science funding) could help fill.

To the extent that regional and/or local risk assessments are mandated by law, there is also the question of whether some accompanying technical and funding support should be provided to councils. This would help avoid the exercise becoming another non-funded mandate that councils need to deal with in the context of increasingly stretched budgets. The relevant financial contributions of the different bodies to risk assessment could form part of a new funding settlement between central and local government (which would also need to address the other costs of climate adaptation) following the Review into the Future for Local Government.[35] It might also be possible to embed trained personnel in local authorities, for a period of time, to assist with the process.

A national natural hazard risk assessment exercise, undertaken region-by region, could usefully generate consistent data and risk assessments across the country. This would help address the varying levels of resourcing and funding within councils, and the problem that councils facing the greatest risks do not necessarily having adequate funding to address them (for example on the West Coast). It would also be a way to address inconsistent methodologies in assessing risk and would likely be the most cost-efficient option overall for the country.

In terms of local risk assessment, the Expert Working Group has recommended that this be undertaken by a special purpose 'adaptation committee' which would likely include the regional council, the relevant territorial authorities, appropriate iwi, hapū and Māori representation, and an optional Crown representative. This is very similar to the constitution of the regional risk assessment body, although presumably would only include the directly affected territorial authorities and more locally connected Māori representation. It would be important to ensure that such a grouping had the requisite capability to undertake local risk assessments.

2.7 Legislative home

It seems likely that any comprehensive risk assessment process would need to have a statutory basis to ensure that such assessments are in fact undertaken. The current largely discretionary system has led to a patchwork of data and assessments with many gaps. As EDS said in Working Paper 2:[36]

> Given the growing size and urgency of the climate emergency, there could be a legal obligation to prepare and make public regular climate risks assessments at a regional level, potentially in the new Climate Adaptation Act. Such risk assessments could be required to follow national guidance which is regularly updated as new information on climate risks comes to hand. They will need to be comprehensive, addressing all relevant climate risks to communities, and not just focus on council owned and managed assets.

A legal framework for regional and local risk assessment could be housed either under the Climate Change Response Act (to connect to the national risk assessment), the RMA and replacement NBEA/ SPA regime (to connect to planning and consenting), or the proposed Climate Adaptation Act. It would need to be accompanied by clear national direction as indicated above.

Whichever home is chosen, close statutory linkages to other pieces of legislation will be important, as risk assessments will need to have wide utility within the various regimes informing regional spatial planning, district land use planning, resource consenting, building permitting and managed relocation exercises.

Endnotes

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3 Preventing development in risk prone areas

Kaiaua, where homes flooded during the January 2018 storm

Māori place names reflect inherent knowledge of the physical environment which was an integral part of Māori life. For example, 'Tai Tapu' in Canterbury means special tide or sacred coast, potentially indicating that the whenua would rather be a wetland. If we had considered the meaning of the place name and the mātauranga Māori of the hapū, before building and settling in such a place, would we have gone ahead?

Most people would agree that we should not be putting more urban development in high-risk areas. Allowing an increase in the number of people, structures and assets in such areas will only result in more people being exposed to harm (and in the worst cases death), unnecessary damage to property, and ultimately a future and costly requirement to either protect or relocate them out of harm's way. Despite this, as outlined in Working Paper 2, the current legal framework is not well configured to stop development in high hazard zones. Many new homes and associated infrastructure are still being constructed in areas prone to coastal erosion, flooding and other hazards.[1]

"The system will issue consent unless there are good reasons not to. Consent officers will say yes if they don't have sufficient data to say no, or if they said no, they would be challenged in court." (Interviewee)

We were told by interviewees that, in the absence of compelling evidence to demonstrate that a property should not be developed, consent will be granted, and councils often lack the resources to obtain such compelling evidence:

> If you are going to have policies, methods and rules in plans [to stop development in hazardous areas] you need really robust science to underpin them. Everyone attacks the science and that's often where it falls over. Stage 1 is getting the science lined up and for lots of small councils they don't have the money to do that.

> Often councils are dealing with engineers who say the risk is low. If you look at a tsunami, what are the chances of it happening, given the lifetime of the building is 50 years and there is a chance of a tsunami every 1000 years? So when dealing with a low frequency risk with high consequences it's hard to justify not allowing someone to build there.

The three year local government political cycle also makes it difficult for councils to make hard decisions to restrict development that endure (as demonstrated in the Franz Joseph spotlight below).

A spotlight on consenting in flood-prone South Dunedin

As outlined in the spotlight above, South Dunedin is subject to considerable flood risk which will only be exacerbated by climate change. Much of South Dunedin is either only just above the high tide level or below it (see Figure 3). It has been described as "one of Aotearoa New Zealand's most exposed urban areas to the impacts of climate change-related flooding and sea-level rise".[2] However, South Dunedin does not show up as being subject to flood hazard on the Otago Regional Council flood hazard maps, because there are no open water courses in suburb (only underground stormwater pipes) and so technically there is no fluvial flood risk.

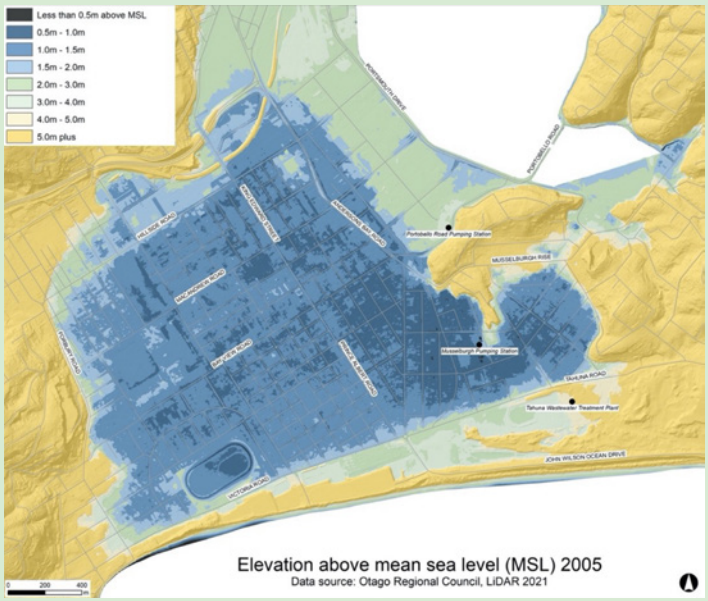

Figure 3: South Dunedin elevation above mean sea level 2005
Source: Dunedin City Council

Despite the evident and growing hazard risk, development has been intensifying within the suburb. A snapshot from the Dunedin City Council's Building Consent map (see Figure 4), shows consented homes since 2016 (and after the 2015 major flood event), and makes it clear that numerous stand-alone homes have been consented within the suburb as well as a large number of more intensive townhouses.

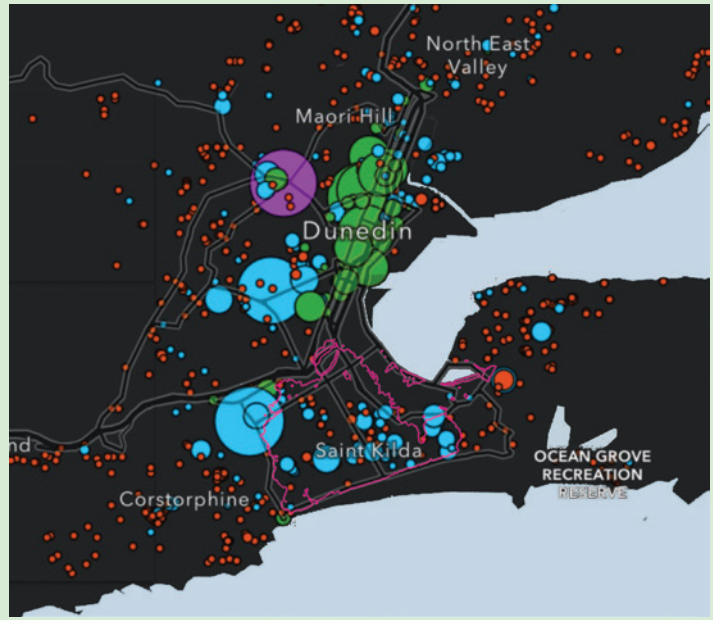

Figure 4: Building consents issued since 2016 in Dunedin
(red – houses, blue – townhouses and other flats/units, green – apartments, purple – retirement village units, pink outline – areas less then 2 metres above sea level) *Source: Dunedin City Council*

More recently, changes to the district plan rules (through Variation 2) have further opened up South Dunedin to intensive development. Its Residential 2 zoning is now designed to provide "for change in the existing urban form to medium density suburban residential living through redevelopment of older and poorer-quality housing stock" and construction of multi-unit developments.[3] This appears to have generated a spike in townhouse building. We were told by interviewees that around 60 per cent of consents issued in South Dunedin during the last 12 to 18 months have been for townhouses (and this predominance of townhouses is evidenced on the Council's building consent map). This consenting of new development seems inconsistent with the Council's more recent proposal to strategically buy up properties in the suburb to facilitate managed relocation (described below).

We have set out on Figure 5 some options for better preventing development in high hazard areas. These encompass different iterations of national direction, requirements for the content of regional spatial plans, and requirements and incentives for territorial authorities to refuse resource consents and building permits.

Level	Options
National direction	• National Policy Statement • National Environmental Standard • Mandate the NZCPS and NPS-NHD as taking precedence over the NPS-UD in the event of conflict
Regional level	• Require regional spatial strategies under the SPA to identify areas not appropriate for urban development due to natural hazard risk (including climate change)
District level	• Amend the RMA/NBEA to mandate refusing subdivision consent in the context of high natural hazards (including climate change) • Delete section 72 of the Building Act • Clarify that councils are liable for negligently consenting in hazardous areas • Require regular reporting by councils on the number of homes and other buildings/infrastructure in high hazard zones

Figure 5: Options for preventing new development in hazardous areas

3.1 National direction

It seems clear that a discretionary approach to preventing development in high-risk areas has not worked, with councils feeling unable to say 'no' unless there is compelling evidence to support such a decision. This raises the potential of using national direction, in the form of a national policy statement and/or national environmental standard, to make it clear that councils must not consent such development.

This is the intent of the proposed NPS-NHD which has been presented as an interim step before more detailed direction is developed. As already noted, EDS has lodged a comprehensive submission on the proposal which sets out how the national direction could be strengthened (which can be accessed at https://eds.org.nz).

As discussed earlier, one matter that still needs clear direction in preventing development, is how to assess risk tolerability, something that is lacking in the proposed NPS-NHD. As one of our interviewees highlighted:

> We need stronger central government rules around consenting in hazard zones. We need to draw the line around risk tolerability, because it's the hardest thing to do, determining what is acceptable risk and to whom. It's about judgement and values. How do you do that?

There is also the issue of the need for hazard zoning to be adaptive in itself. As suggested by one interviewee:

> We need a rolling risk zone, so it's not fixed, so you are not working to a line that you are [hypothetically] safe behind, which seems like a recipe for disaster. We often talk about a timeline, say 2100, and a threshold as though climate change will stop happening then. This risk is we put more into areas which will later become hazard areas. We haven't called them that now but we might need to.

The benefit of a national environmental standard (as opposed to a national policy statement), is that it can have immediate effect on resource consenting and does not have to await plan changes, which can take some years. In the absence of requisite plan changes, resource consent decision-makers need only have regard to national policy statements and do not need to 'give effect' to them.[4] This means that they can be outweighed by other considerations.

Currently the NZCPS has strong avoidance policies in terms of redevelopment or change of land use where it would "increase the risk of adverse effects from coastal hazards".[5] However, these can be over-ridden by provisions in the National Policy Statement on Urban Development (NPS-UD) seeking to intensify urban environments. The NZCPS is identified as a qualifying matter in the NPS-UD that councils may address but aren't required to. And qualifying matters can only be brought into play after overcoming significant hurdles as outlined in Working Paper 2.[6]

Somewhat perversely, the proposed NPS-NHD will not apply to territorial authorities preparing 'intensification planning instruments' which are designed to give effect to the NPS-UD (see below). Ostensibly this is to "minimise disruption and complexity". But this means that the risks of natural hazards will receive less weight in the very areas where they may be most important – where more people are being encouraged to live and work (with associated investment in infrastructure and houses).[7] Although Clause 1.5 (below) might reduce disruption and complexity to current council planning processes, it seems likely to considerably exacerbate them in the future, when properties and people need to be protected and/or moved.

NPS-UD 1.5 Application to intensification planning instruments

(1) In order to minimise disruption and complexity for local authorities, nothing in this National Policy Statement applies to a specified territorial authority (as defined in section 2 of the Act) when it is preparing an intensification planning instrument under section 80F of the Act.

This problem could be rectified by giving priority to the more protective national policy statements – the NZCPS and NPS-NHD. Such conflicts could be addressed in the National Planning Framework, by creating a clear hierarchy prioritising the need to address natural hazards above urban intensification.

3.2 Regional level

At the regional level, another way to help address the problem of new development being consented in hazard zones would be for regional spatial strategies to be more clearly tasked with identifying no-go areas for development, based on hazard risk assessment, as well as identifying safe areas for relocated communities to move to. Currently the strategies must identify and otherwise provide for "areas that are or will be vulnerable to risks" … "arising from natural hazards and the effects of climate change".[8] This could be strengthened by referring to identifying areas that are and are not appropriate for urban development due to natural hazard risk. However, there is a question as to whether more definitive identification of such areas should be left to RMA/NBEA plans where appeal rights for property owners are available.

3.3 District level

As discussed in Working Paper 2, provisions of the NBEA strengthen the ability of councils to downzone land to restrict development due to the hazard risk, which is a positive thing.[9] However, this still leaves the decision to do so as discretionary. We also referred to section 106 of the RMA which states that a consent authority may refuse to grant a subdivision consent if there is a "significant risk" from natural hazards (noting that "significant" is not defined). This could be strengthened considerably by changing "may" to "must". There is a similar provision in section 291 of the NBEA where a consent authority "may" refuse to grant a subdivision consent if it considers "it is necessary to avoid, mitigate, or reduce risks arising from natural hazards". In a similar manner this could be usefully changed to "must".

The Building Act is the last backstop when it comes to preventing buildings in high risk areas. However, existing provisions do not mandate building consent to be withheld when buildings might be subject to significant hazard damage.[10] Instead, there is a waiver and determination process that allows construction of buildings in hazard prone areas on a case-by-case basis. As we noted in Working Paper 2, this enables homes and structures to be built in high hazard zones so long as there is little risk to human life. The building consent system is under review but addressing hazard issues is not a focus.[11] The Act could be made considerably stronger by simply deleting section 72.

Another potentially effective way to dissuade councils from granting consents for development in hazardous areas would be to make it clear that councils will potentially be liable for damages resulting from any poor (and negligent) decision-making in this area.[12] This could be accompanied by clear guidance on how councils can avoid such liability.

Greater transparency, through mandatory reporting on the hazard situation in a district, could also usefully throw light on the impact of council decision-making. As one interviewee highlighted:

> We need to have transparent reporting and accountability that goes on beyond the political cycle. We should be reporting annually on the number of houses in hazard zones, and the number of disasters and their cost, like a stock assessment. If you have a reporting framework that shines a light on it, then you rely on media and the public to seek accountability for making those decisions.

Endnotes

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3 Second Generation Dunedin District Plan, Clause 15.1.1.2

4 Resource Management Act 1991, Section 104(1)(b)

5 NZCPS, Policy 25 (b)

6 See Peart R and B D Tombs, 2023, *Current legislative and policy framework for managed relocation*, Working Paper 2, Environmental Defence Society, Auckland, 31

7 The Discussion Document on the proposed NPS-NHD states that "decision-makers sometimes attribute less weight to natural hazard risk than to other matters, such as the need for new infrastructure and housing" which risks continuing due to this exception

8 Spatial Planning Act 2023, sections 16(1)(b)(i) and 17(1)(i)(i)

9 Peart R and B D Tombs, 2023, *Current legislative and policy framework for managed relocation*, Working Paper 2, Environmental Defence Society, Auckland, 29

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11 See Ministry of Business, Innovation and Employment, 2023, *Options paper: Review of the building consent system*, MBIE, Wellington

12 The legal extent of such liability is currently unclear. Iorns and Watts have expressed doubt as to whether a consent applicant or their successor in title could sue for planning decisions made under the RMA. See Irons C and J Watts, 2019, *Adaptation to sea-level rise: Local government liability issues*, Deep South National Science Challenge, Wellington, 221

4 Undertaking adaptation planning

Shoreline baches at Sandspit

Mātauranga Māori unpicks the nuances and layers within a single concept. Te taiao encompasses whenua (land), wai (water), koiora (all living things) and ahuarangi (climate change over time). Mātauranga requires looking deeper into the interconnectedness of life and cultural concepts and traditions, into local environment and climate, into belief and understanding. It adds richness and depth to adaptation desision-making.

A key component of a managed retreat process is adaptation planning which enables a community to design a response to growing natural hazard and climate change risks. A planning approach increasingly used in contexts of uncertainty and risk is Dynamic Adaptive Pathways Planning (DAPP)[1] although other approaches can also be used. The application of adaptation planning by councils has been patchy and there is currently no statutory provision for regional and/or local adaptation planning in Aotearoa New Zealand.

In Figure 6 we have set out a wide range of options in this arena including for the development of an adaptation planning framework, how such planning is to be initiated, what governance and plan-making bodies might be put in place, how technical support might be provided, where resourcing may be obtained for the planning process, and what statutory weight the resultant plan might have. We discuss these in more detail below.

Element	Options
Māori adaptation planning	Resource iwi/hapū/whanau to undertake planning Place Māori in plan decision-making roles Embed te ao Māori and local mātauranga in planning processes
Adaptation planning framework	National guidance Broad statutory framework Detailed statutory provisions
Initiation	Statutory trigger Ministerial direction Council resolution Iwi/hapū and/or community concern
Governance and plan-making body	Statutory adaptation committee Council-mana whenua committee Councillors
Technical support	Council technical staff Technical advisory panel (including members proficient in mātauranga Māori) Independent consultants National agency

Resourcing	Council(s) Joint central, regional and local government Central adaptation fund User pays/targeted rates
Plan status	Non-statutory Statutory (with links to the SPA, RMA/NBEA, Climate Change Response Act and/or Local Government Act)

Figure 6: Options for undertaking adaptation planning

Spotlight on recommendations of Expert Working Group on adaptation planning

The Expert Working Group proposes that LAPs be prepared for areas identified by the region-wide risk assessment and a prioritisation exercise as requiring adaptation planning. Māori communities would also have the ability to prepare a LAP on their own behalf and the Crown could direct the preparation of a LAP.

The LAP would be prepared by an adaptation committee which would likely include the regional council, relevant territorial authorities, appropriate iwi/hapū and Māori representation and optional Crown representation. There would be intensive community engagement throughout the development of the LAP including through the establishment of a community panel.

The LAP would include an area-specific risk assessment, identification of options for adaptation (including alternative pathways), a confirmed package of adaptation measures (including trigger points), a list of actions for implementation with responsibilities and timings (which will be binding), and review and monitoring (including monitoring signals and triggers). The LAP would also contain a pre-event recovery plan which could be deployed if a hazardous event occurs during the life of the plan. Funding agreements could be developed to support implementation.

The LAP would go through a formal statutory process including notification of a draft, written submissions, hearing by an independent panel and final decision by the adaptation committee. Merits appeals would be available where the adaptation committee did not adopt the recommendations of the independent panel.

An adaptation designation in the RMA/NBEA plan would flow from the LAP to authorise the construction of infrastructure (such as a seawalls or stopbanks) and make any required changes to land use activities and land use rules.

4.1 Adaptation planning for Māori communities

Before considering the various stages of adaptation planning, it is important to consider the specific needs of Māori communities. As we outlined in Working Paper 2, Māori will be disproportionately affected by climate change.[2] However, it needs to be recognised that Māori have been adapting to their environment for centuries. The whakatauākī "ka mate kainga tahi, ka ora kainga rua" speaks to resilience and the Māori appreciation of adaptation. It translates to "when one dwelling place declines, a second one will emerge to take its place" reflecting the need to be ready and prepared for when your home changes. Such lessons from the past can help inform future adaptation pathways for Māori.

Spotlight on enablers of Māori relocation

Relocation and mobility is in the whakapapa of Māori and bringing those stories to light is important when considering and planning for Māori climate adaptation. Through his PhD research, Akuhata Bailey-Winiata studied written records of 51 communities which had relocated or were planning relocation due to a number of different natural hazards. While studying the relocation following the Tarawera eruption, in 1886, Bailey-Winiata identified a number of relocation enablers for the community: *tuku whenua* – gifting of land with no money exchanged; *autonomy and decision-making* – strong leadership and innovation led by their community; *perspectives of lands and infrastructure* – maintaining connections to land; and *availability and opportunity of new site* – whakapapa of new land and ability to sustain the community.[3]

However, there are many barriers that inhibit Māori from adapting with the ease shown by their tupuna, as set out in Figure 7 below. Despite such barriers, iwi, hapū and Māori are actively engaged in discussing and planning for adaptation (see for example 'Te Tāhū o Te Whāriki, Anchoring the Foundation' the Ngāi Tahu Climate Change Strategy).[4] Such efforts could be better supported and resourced to enable Māori to lead adaptation strategies and uphold rangatiratanga. The Māori Climate Platform is an example of an initiative which provides dedicated funding to enable Māori-led climate action planning and solutions.[5]

Barrier	Explanation
Historical dispossession	Colonisation resulted in iwi, hapū and Māori communities being dispossessed of their ancestral lands which disrupted economic livelihoods, cultural practices and traditional knowledge systems.
Limited resources	Iwi, hapū and Māori communities often have limited access to funding and administrative/technical support. This hinders their ability to plan for and implement climate adaptation as well as to fully engage in multiple government policy development processes.
Power imbalance	Māori can lack sufficient power to influence outcomes and ensure their cultural values are respected and included in plans.
Cultural disconnect	Western approaches to adaptation planning, which often prioritise economic and infrastructure-based solutions, can be alien to Māori cultural values which emphasise interconnected cultural, environmental and social approaches.
Institutional barriers	Institutions and decision-making processes can overlook unique Māori perspectives and local mātauranga making it difficult for Māori to effectively participate in adaptation planning. Divisions of opinion within Māori communities can also make it difficult to engage with one voice.

Figure 7: Barriers to Māori adaptation
Source: Adapted from Ministry for the Environment, 2023, Table 3[6]

Spotlight on the elements of a te Tiriti-based adaptation system

Drawing from MFE's discussion document[7] and recommendations of the Māori Affairs Select Committee on adaptation[8] the following elements could found a te Tiriti-based adaptation system:

1. Upholding the Crown's te Tiriti obligations and Māori rights and interests
2. Integrating te ao Māori and mātauranga Māori where it is made available
3. Adequately resourcing iwi, hapū and Māori to participate as they choose
4. Enabling joint, shared or preferably delegated decision-making to Māori, particularly in relation to adaptation strategies impacting Māori land.
5. Fostering positive, collaborative working relationships and enabling robust and deep conversations to be had between Māori communities, the Crown and local government

It is notable that Māori have shown great ability to respond to crises such as when, during the Covid 19 and Cyclone Gabrielle responses, marae opened their doors to feed and house the displaced. Iwi organisations across the country provided essential support and resources to those in need.[9] However, even though marae are willing to open their doors to support displaced whānau and communities during natural hazard events, many marae are susceptible to such events themselves.[10] In line with Point 4 above, central and local government will need to ensure marae and papakāinga are adequately resrouced to improve infrastructure and support hapū to prepare for future climate risks. We address such issues further in the sections below.

4.2 Adaptation planning framework

A summary of several options for providing a framework for adaptation planning is provided in Figure 8. Currently there is no statutory framework for adaptation planning. Guidance currently exists for such planning within the coastal environment[11] and more detailed guidance on DAPP is currently being prepared by MFE. As already indicated, the coastal guidance has a statutory hook in the reference in Policy 24 of the NZCPS to "taking into account national guidance". But this is only when identifying areas of the coastal environment potentially affected by coastal hazards, and not when undertaking adaptation planning itself, which is not specifically referenced in the NZCPS. A key question is whether adaptation guidance should be given statutory recognition.

The advantage of providing non-statutory guidance is that it can be flexible, and be applied in varying ways depending on the circumstances. It also enables innovation, the use of pilot projects to test what works, and learning from doing. For example, Christchurch City Council is treating its coastal adaptation planning project at Whakaraupō Lyttelton Harbour/ Koukourarata Port Levy as a pilot, so it can test the approach before rolling it out to other parts of the city. Such a piloting approach has also been used in France (see spotlights). As one interviewee stated:

Some guidance is useful so long as it does not prevent local creativity and flexibility and allow councils to come up with their own solutions.

Such an experimental approach is likely to be useful as Aotearoa New Zealand does not have a great depth of experience with climate-related adaptation planning to draw on. It also highlights the importance of widely disseminating best practice case studies, including among Māori communities, as proposed by the Māori Affairs Select Committee.[12]

Spotlight on Whakaraupō Lyttelton Harbour/Koukourarata Port Levy adaptation planning

Instead of simultaneously undertaking coastal adaptation planning over the entire district, as some councils have done, Christchurch City Council decided to undertake its planning in sections, initially focusing on the Whakaraupō Lyttelton Harbour/Koukourarata Port Levy area. It also adopted a relatively narrow focus, centred on managing risk to public infrastructure, rather than that affecting private property. In particular, low-lying access roads will likely be threatened by sea level rise and may need to be moved. The project is seen as a way to pilot the Council's approach through a learning by doing approach.[13]

To lead the project, the council has established a Coastal Panel which consists of 13 community and rūnanga representatives. The Panel is tasked with considering the impacts of coastal hazards on communities, agreeing on potential adaptation pathways (taking into account the community tolerance to risk), and making recommendations to Council on preferred options and pathways. It is also tasked with engaging with the wider community on proposed pathways. The Coastal Panel is supported by a Specialist and Technical Advisory Group comprising 12 subject matter experts including a cultural advisor. A Coastal Working Group, comprised of councillors, provides oversight of the programme.[14] We were told the structure is working well.

To date, the Coastal Panel has developed a set of community objectives and has identified six priority adaptation locations where coastal hazards are already having an impact (or will be over the next 30 years) and where there was a high level of public asset exposure. The programme is still in its early stages and is ongoing.

Spotlight on piloting managed retreat on the French Atlantic coast

In 2010, Storm Xynthia battered the French Atlantic coast along with other parts of Western Europe. The combination of a storm surge, high tide and large waves caused flood defences to fail and over 50,000 hectares of land was flooded. There were an estimated 10,000 evacuees, £1.5 billion in property damage and 47 deaths.[15]

Following the storm, the French government developed a 'National Strategy for Integrated Coastline Management' which had a strong focus on managing coastal erosion. One of its recommendations was to adopt managed retreat and it called on the Ministry of Ecology to conduct experimental programmes to test how this could be implemented.[16] Five pilot sites, each with different coastal typologies, received a combined €600,000 from central government to explore managed retreat measures over a two year timeframe.[17] The main objective of these experiments was to explore different governance options and to contribute learnings to the drafting process of national guidelines for policy makers. National seminars were organised to communicate experiences from the pilots and a shared platform was established.[18]

An evaluation of the impacts of the pilots found that they had several positive impacts.[19] Overall, the pilots reinforced the legitimacy, credibility and practicality of undertaking managed retreat on the ground. In particular, they enabled "collective learning" and the "gradual acceptance of relocation". They also helped create a community of researchers and managers with new knowledge on relocation and enhanced the "political legitimization and credibility of this measure".[20]

Of course, the disadvantage of providing only non-statutory guidance for adaptation planning is that it can be ignored, potentially leading to processes around the country with differing robustness and quality. A halfway house would be to provide a statutory 'peg' for adaptation planning guidance, say in national direction under the RMA/NBEA, or similar direction under the proposed Climate Adaptation Act. The guidance could be something to 'have regard to' or 'take into account'. It could be regularly reviewed to incorporate lessons from growing practical adaptation planning experience on the ground.

An alternative would be to provide a more robust statutory framework for adaptation planning. This could be in the form of a broad framework, as is provided for local board plans under the Local Government Act.

Under that Act, section 48N sets out the purposes of local board plans and some matters that it must include (such as a statement of default levels of service and an indicative board budget). The process for developing the plans is left open with the local board able to "follow whatever processes it considers appropriate" to give effect to the purposes of the plan and meet the consultative requirements under the Local Government Act.[21]

A similar approach could be provided for in the proposed Climate Adaptation Act, with a purpose and minimum content set out for plans (including setting clear objectives and targets), and with a tag to regularly updated planning guidelines. But councils could be left with considerable autonomy to determine how to go about the planning process depending on the needs of their communities. This would be more in line with current practice, where each council is adopting a slightly different approach. It may also enable the process to be better tailored to meet the needs of different iwi/hapū and whanau.

> "There is a need for clear adaptation objectives for local adaptation planning areas and adaptation targets as part of any climate adaptation planning so that ongoing monitoring can report on progress against objectives." (Reviewer)

Alternatively, a detailed planning framework could be provided for in the Climate Adaptation Act, similar to that for the development of RMA plans, and this is essentially the approach proposed by the Expert Working Group. LAPs would have mandated content and go through a formal statutory process including public notification, written submissions and hearing by an independent panel. There would also be limited merit appeal rights. This approach would provide greater certainty as to content and quality and enables the plans to be given considerable statutory clout when implemented.

Whatever approach is taken to providing a framework for adaptation planning, it is important that there is clear guidance on how iwi, hapū and whanau are to be engaged in, or given the lead for such planning.

Guidance should also emphasise the importance of developing a deep understanding of the history of the affected land. As our Ōmana ki Umupuia case study concluded:

> Greater understanding of place-based history is critical to acknowledging tangata whenua when designing and implementing an engagement and planning process. Cultural injustices need to be acknowledged and must not be repeated... Relevant knowledge will include understanding of areas that may not contain designated, cultural heritage sites but are, for example, part of the broader history of land confiscation and colonisation... Managed retreat can be an opportunity to redress past injustices and environmental harm.[22]

Option	Pros	Cons
Non-statutory framework	Flexible and can be applied in different ways to different situations	Can be ignored leading to varying approaches and quality around the country
Guidance with a statutory 'peg' under a national policy statement (RMA/NBEA)	Still retains some flexibility and can be readily updated as new information becomes available	Lacks direct statutory status and could still result in varying approaches around the country
Broad framework under Local Government Act or Climate Adaptation Act	Still allows flexibility while providing a firmer legislative framing	Ensures minimum requirements are met (eg for process and content)
Detailed framework under the Climate Adaptation Act	Ensures consistency and quality. Enables the plans to have more statutory clout.	One size may not fit all and the framework may need to be regularly updated as practice evolves.

Figure 8: Options for an adaptation planning framework

Any adaptation planning framework will also need to provide for the needs of nature. As we said in Working Paper 1:

> Natural systems do possess some innate capacity to adapt to climatic and environmental change. However, this will be inadequate in many cases due to the impacts of land-use change, habitat fragmentation and ecological degradation. Ecological resilience in the face of climate change requires active support. Opportunities to support biodiversity adaptation in Aotearoa New Zealand include: removing physical barriers to adaption such as seawalls and stopbanks (in some cases termed 'managed realignment'); protecting and restoring natural processes and ecosystem health (such as through pest eradication and creating habitat connectivity);

protecting habitat (such as creating more protected areas); and species-specific approaches (such as translocations).[23]

The necessary level of formality for the planning process will depend, to some considerable extent, on the statutory weight to be given to the resultant plan. A plan with more statutory import, particularly when it comes to impinging on private property rights, will need to go through a more rigorous statutory process.

But it remains an open question as to whether this relatively new, dynamic and adaptive type of planning lends itself (at least in the first few years) to a rigid statutory framework similar to that applied to RMA statutory plans. As can be seen by the various spotlights on adaptation processes in this chapter, councils are tailoring the DAPP planning approach to their particular circumstances. This highlights that one size may not adequately fit all but leaves open the question of how many 'sizes' might need to be provided for. As one interviewee highlighted:

> I think there are principles in DAPP that could be in law, about not creating lock in, not creating path dependency that doesn't enable you to make flexible choices over time as conditions change … One of the problems is that we have had people not quite understanding what DAPP is and isn't. It's not a recipe, it's an approach. It's a framework to identify a range of options and you stress test them against different futures.

Sea defences at Haumoana, Hastings

4.3 Initiation of planning process

Currently, climate adaptation planning is triggered by different drivers. Often it follows a particular hazard event, or series of events, which garner the public and council's attention. Such events don't even need to be in the area concerned. As recently stated in a joint regional and unitary council document, "Cyclone Gabrielle has been a wake-up call for everyone."[24]

Adaptation planning can also follow on from a technical risk assessment which highlights a risk that needs to be addressed. In some cases, the risk has long been known, but new knowledge about the likely exacerbation due to climate change means it can no longer be ignored. The key question in a future adaptation planning system is what should be the trigger for such planning.

There are a number of options here. There could be a statutory trigger, and this is what has been proposed by the Expert Working Group, which recommends that LAPs be mandatory where a prior mandatory region-wide risk assessment and prioritisation exercise identifies an area as requiring adaptation planning. The Group also proposes that a Ministerial direction could trigger the Crown to require such planning, as could a request from a local decision-maker or iwi/hapū. Such direction would be through an Order-in Council.

A key question in policy design is whether the initiation of adaptation planning should require such formalised central government sign off, or whether councils, iwi/hapū/whanau and communities should be able to initiate adaptation planning processes themselves. There is a strong argument for some form of compulsion and/or inducement for councils to undertake such planning, if they have failed to do so when their

communities are facing heightened risk. This would not necessarily need to be in the form of regulation, but could include such things as making available central government funding to support such planning initiatives (subject to specified criteria). But without any such policy, adaptation planning will be left to the vagaries of the political system, and the respective strength of various council budgets, with some areas likely to be well served with such planning and others missing out. There is also the issue of the ability of councils to respond to accelerating change. As one interviewee told us:

> Councils need to be told they have to do it. Councils need to be told it is a requirement and you need to start doing it and here is a framework and some guidance.

4.4 Governance and plan-making body

Clear governance arrangements for adaptation planning processes will be important, particularly when it comes to the requisite roles of central, regional and local government and iwi/hapū. As EDS highlighted in Working Paper 2,[25] responsibilities for managing natural hazards under the RMA are unclear, leaving it to the regional policy statement to determine who is responsible for which hazards. A spotlight in that paper, of the Bay of Plenty Regional Policy Statement, indicated that responsibilities for different kinds of natural hazards can be split between councils,[26] potentially making an integrated approach to managing the cumulative impacts of different hazards on one location, problematic. Several interviewees highlighted this issue:

> Responsibilities are split and we are muddling through.

> It would be really helpful to have really clear governance arrangements that are linked explicitly to funding.

The Expert Working Group has recommended that a statutory adaptation committee provide governance over adaptation planning as well as acting as the plan-making body. As already indicated, this would be constituted of members from the regional council, applicable territorial authorit(ies), appropriate iwi, hapū and Māori representation, and with an option for a Crown representative. For Māori-led planning there would be a Māori decision-maker.[27]

A range of governance models have been adopted by councils. In the Whakaraupō Lyttelton Harbour/Koukourarata Port Levy adaptation planning project (described in the spotlight above) the Council established a coastal panel to oversee the project consisting of community and rūnanga representatives. The panel has recommendatory powers only with the Council retaining final decision-making authority.

For the coastal adaptation pathways planning project on the Coromandel Peninsula (see spotlight below) a co-chaired joint council and mana whenua committee was established and given delegated authority to approve the plans. Four coastal panels oversaw the development of localised coastal adaptation plans.

Spotlight on the Coromandel Peninsula Coastal Adaptation Pathways project

In April 2019, the Thames Coromandel District Council initiated a three-year long shoreline management planning project for the Coromandel Peninsula, with the assistance of Royal HaskoningDHV. The project adopted a community-led DAPP planning approach. It was overseen by a co-governance committee, which was jointly chaired and comprised four representatives each from the Council and Pare Hauraki, and which had delegated authority to approve the resultant coastal adaptation plans. Four coastal panels were set up for specific areas with membership sought from mana whenua, community boards, community organisations, businesses and general citizens. Each panel oversaw the development of a series of more localised coastal adaptation plans within their area. The governance committee and panels were supported by a technical advisory group.[28] In addition, wide public engagement was sought.

Each coastal adaptation plan, which covered a focused local area (eg Cooks Beach, Buffalo Beach north and Wharekaho Estuary), included an evaluation of the risk, the identification of adaptation options and the development of an adaptation strategy. For example, at Cooks Beach the adaptation strategy is:

> to maintain and rehabilitate the dunes through planting native species and managing access. With 0.2m of sea level rise, it is predicted that roads and some properties will begin to be affected by 1% AEP [annual exceedance probability] storm events. At this point, hazard affected properties should be raised, existing defences should be maintained and soft engineering measures could be taken to close gaps in the natural defences … with 0.6m of sea level rise, in the longer term, flood events (larger than and including 5% AEP events) are predicted to affect many properties and other assets, particularly at the eastern end of the beach. This is likely to trigger the need for retreat.[29]

The Council is in the process of developing an implementation plan through its long-term planning process under the Local Government Act. This will prioritise locations where short- and medium-term actions need to be taken as well as areas where further information is required. Actions include developing a plan change to place limits on inappropriate development and subdivision in hazard zones. The implementation plan will enable council resources and funds to be allocated to the prioritised actions.[30] A ten-year review process is envisaged, to align with the timing of the long term plan.

The susceptibility of the Coromandel Peninsula to climate-exacerbated hazards was highlighted during Cyclone Gabrielle in February this year when all major arterial routes out of the Peninsula were closed due to flooding, slips and other hazards.[31]

In the case of the South Dunedin Future project (see spotlight below), governance is jointly provided by the planning committees of the Dunedin City and Otago Regional councils, with the day-to-day operation of the project being driven by a City Council project management team. It is therefore a much more strongly council driven project than the others, albeit through a partnership between the regional and city council, and with rūnanga membership of council planning committees. This reflects the large vulnerable population and significant urban infrastructure affected by the hazard risk.

Spotlight on the South Dunedin Future programme

The South Dunedin Future programme is a joint initiative between Dunedin City Council and Otago Regional Council focused on addressing flooding and climate changes issues in South Dunedin. Governance of the programme is provided by the Dunedin City Council and Otago Regional Council planning committees, each which have two voting rūnanga positions for Ngāi Tahu. In this way, the governance arrangements for the South Dunedin project provide for the hapū (Kāti Huirapa Rūnaka ki Puketeraki and Te Rūnanga o Ōtākou).[32]

The project is supported by a council executive steering group, programme coordination group and project management team (which drives the programme day by day). A Programme Advisory Group, which currently operates on an informal, ad hoc basis, includes mana whenua, community, academic/technical and central government representatives. This provides periodic advice but has no decision-making role.[33]

The South Dunedin Future programme has a range of strategic objectives which not only seek to reduce the risk from flooding and other natural hazards, but also to ensure there is a just transition and no-one is left behind, lost natural environments are restored, cultural connections to places of significance are re-energised and urban form is improved so that South Dunedin is a better place to live.[34] The programme appears to be somewhat siloed from the consenting arm of Dunedin City Council which is still approving new residential units in the area (as described in the spotlight above) thereby potentially undermining these objectives.

Many South Dunedin residents blamed the council, which operated the aging stormwater system, for damage arising from the 2015 flood. Because of this low level of community trust in the Council, the Dunedin Future programme started off with a three year period of very extensive public engagement including holding more than 90 meetings and hui, as well as numerous face to face meetings.[35]

The importance of including mana whenua around the decision-making table, in order to ensure their concerns are addressed, was highlighted by events at Matatā, where the Whakatāne District Council and Bay of Plenty Regional Council strongly drove the process. (see spotlight below).

Spotlight on Māori engagement in hazard adaptation at Matatā

Matatā is a small coastal town of around 600 people. Situated on the east coast of the North Island, it is the meeting point of Ngāti Rangitihi, Ngāti Awa and Ngāti Tūwharetoa ki Kawerau and their respective hapū. It has a predominantly Māori population (60%) and is home to three marae. Significant wāhi tapu are located at Matatā including battlefields and ancestral burial caves.[36]

After debris flows damaged properties and infrastructure at Matatā, in 2005, the Whakatāne District Council embarked on a process to determine a response. With assistance from the Bay of Plenty Regional Council and technical experts, it developed a debris flow risk management plan which identified a range of options. In 2006, the Council proposed to install a 17-metre high debris dam in the catchment, in order to protect 57 houses located on the coastal fanhead.

Te Rangatiratanga O Ngāti Rangitihi formally objected to the proposal on the grounds that the site was sacred and the dam would damage

wāhi tapu.[37] It later became apparent that the Council had failed to make contact with Ngāti Rangitihi before deciding to go ahead with the dam and this likely meant that it was not fully informed as to the significance of the wāhi tapu sites.[38]

As it turned out, by 2012 the Council had determined that the debris dam was no longer feasible due to uncertainty as to its effectiveness, a doubling of estimated constructions costs, and the likely considerable cost of ongoing maintenance. It looked to retreat options instead. However, if mana whenua had been part of the initial adaptation planning body, Māori interests and concerns would have been an integral part of the initial scoping and assessment of options, and the dam option may have been excluded earlier. This could have helped avoid six houses being rebuilt in the high risk area, in reliance on the initial engineering solution, but which then needed to be removed once managed relocation was decided upon.

Alongside mana whenua, it will also be important for any planning body to include voices for nature. This could comprise representatives from an environmental NGO and/or the Department of Conservation. This will be particularly important to ensure that the environmental impacts of any protection strategies being considered are fully taken into account. As EDS highlighted in Working Paper 1:

> From an ecological perspective, the adaptation response which is adopted in the face of climate and other risks is particularly significant. A resort to hard protection structures such as sea walls, groynes and breakwaters will often result in 'coastal squeeze' and adverse effects on indigenous species, ecosystem functioning and associated ecosystem services. It can also serve to raise community expectations around the provision of hard protection in the future. Many effects will be irreversible in practice, as the cost of fully rehabilitating areas impacted by hard structures will likely be prohibitively high.[39]

Our interviews elicited considerable support for the idea of using community panels to drive adaptation planning, something that was also picked up by the Expert Working Group. As interviewees highlighted:

> It needs to be citizen-led not expert-led. Climate change is a shared problem so let's get together to solve it, with the council facilitating it, supporting it and providing funding and experts in support.

> Most councils have established community panels where representatives from the local community and iwi come together and are supported by a technical advisory group to go through a process to develop options or pathways and make recommendations on preferred pathways to go back to council. The aim is to get buy in from the community and to get them to shape what the area should look like in the future. The council is the facilitator and enabler of the process.

A key question is what role community panels should have. Should they be in the driving seat of plan-making, as in the Coromandel Peninsula and Whakaraupō Lyttelton Harbour/Koukourarata Port Levy examples, or should they be used primarily as a community engagement tool, as contemplated by the Expert Working Group. A third option would be to use the panels to co-create adaptation plans alongside councils. Which option is most appropriate may depend on local circumstances. The precise composition of adaptation governance and plan-making bodies might best be left flexible so arrangements can be tailored to the affected locality. However, it will be important to ensure that enabling flexibility does not result in a failure to adequately address climate risks, or prolonged conflict over which process to use.

4.5 Technical support

Whoever is in charge of the adaptation plan-making process it is clear that considerable technical support will be required. Much of this currently resides in the private sector in the various consultancy companies. Some will be available within the relevant councils, recognising that regional councils hold much relevant technical expertise, but that territorial authorities have a closer nexus to affected communities. In addition, councils generally have closer relationships with mana whenua, although in some cases such relationships are 'broken'.

As can be seen from the spotlights on various adaptation planning processes, technical advisory panels are commonly used to support the plan-making body (particularly where this is a community-based coastal panel). This enables the relevant technical expertise from councils, central government, universities, scientific institutions and the private sector to be assembled in one place to support the project. It will be important that this includes cultural knowledge as well as ecological expertise.

Given the general lack of experience and expertise in Aotearoa New Zealand with adaptation planning, it may make sense to assemble a skilled body of people in a small national agency, which could then deploy its expertise to assist adaptation planning processes around the country. This could be housed in an existing agency (such as the Climate Change Commission, Environmental Protection Agency or MFE) or be a stand-alone entity.[40] An alternative would be to draw together experts from key

consultancies. Experts could be embedded within councils for the duration of the adaptation planning process. This would facilitate a two-way learning process, where the national experts would benefit from on-the-ground experience. This could also help to share learnings across councils and draw on international best practice. As one interviewee noted:

> It would be good if someone from the national level came in to help council, which has people already on the ground, to go through the process.

A national expert entity or similar could also support and build on the work of the Aotearoa Climate Adaptation Network, which currently has over 200 members from 50 different councils, and holds regular webinars and annual hui to who share experiences on climate adaptation. As we were told by one interviewee:

> The network provides invaluable learning from others who are doing the same thing. However it could be improved. It is a voluntary network run by a few of us.

There are also international networks of climate adaptation specialists that could be drawn on such as the network of Climate Adaptation Science Centers operating under the auspices of the US Geological Survey.[41]

4.6 Resourcing

However adaption planning is undertaken, it is clear that it will require considerable resourcing, not only to undertake the planning process itself but also to implement the provisions in adaptation plans. In Working Paper 2, we included a spotlight on the development of the Clifton to Tangoio Coastal Hazards Strategy.[42] Although the process successfully developed a plan, it encountered difficulties when seeking funding for implementation and effectively ground to a halt at that point.

Our interviewees highlighted the resourcing challenges some councils are facing when contemplating adaptation planning:

> For a start, we don't have people on the ground. We don't have a policy planner in our council.

> There needs to be some funding mechanism to help councils to undertake research and engagement programmes.

> Local government is best placed to support the local community but they can't do it alone. They don't have the skills and resources and sometimes they don't have the willingness or motivation to act.

The Expert Working Group proposes that the funding source should match the level at which decisions are made, but with central government providing grant funding for specific planned relocation projects and/or specific costs based on an ability of local government to pay basis.[43] In addition, the Group suggests that funding agreements might be reached in terms of implementing actions in the plans, similar to how implementation agreements are provided for under the SPA, which are to identify funding sources for implementation amongst other things.[44] Targeted rates may be one source of local funding, being already used for some protection works benefiting private landowners (eg Waihi seawall).

Financial support could be provided through the establishment of a national adaptation fund from which councils could access funds to undertake adaptation planning (including undertaking the requisite local risk assessments) as well implementation of the plans. This would replace the current ad hoc funding arrangements. Such an approach was supported by the Future for Local Government Review Panel which recommended the establishment of an intergenerational fund for climate change which would support climate change adaptation efforts across the country.[45] As stated by one interviewee:

> If there was a fund linked to criteria it would drive councils to do more adaptation planning than at the moment … Creating a fund would be helpful in getting the ball rolling.

Access to such funding could be on the basis of meeting certain criteria, including minimum requirements for the process to develop adaptation plans (including adequate engagement with iwi/hapū) and consideration of the full range of adaptation options including managed retreat. Adequate measures to assist nature to retreat along with people should also be a requirement. Funding to implement adaptation plans could also be linked to criteria as to their content and quality. There could be a specific fund targeted at iwi/hapū-led adaptation planning. As interviewees stated:

> You could put rules around how funding was dispersed and put in place guardrails to guard against maladaption.

> They come up with a plan and it then goes up to central government for some process they have tied to funding and implementation with clear rules around the split of funding. This needs to be clearly tied to affordability across a region.

Inevitably, demand for funding will outstrip supply which means that criteria for determining funding priorities will need to be developed. These will need to ensure that preference is given to funding managed

retreat, where this is the most cost-effective long-term solution for the community, rather than shorter-term protection works that may be maladaptive. Protection works often provide only short- or medium-term protection (and can sometimes make the problem worse), are usually expensive and require costly ongoing maintenance, and often have negative cultural and environmental impacts. The spotlights below on natural hazard adaptation in Westport and Franz Joseph highlight these issues which future adaptation policy will need to address.

The spotlights also illustrate the problem of relying on ad hoc funding for adaptation measures, which is often granted in the wake of a disaster event, and not based on carefully thought out criteria which could be applied to a national adaptation fund. In the case of Westport, for example, there was concern amongst central government agencies (including Treasury) that central government providing ad hoc funding for flood protection works could create a precedent with associated significant fiscal and moral hazard risk.[46]

In Franz Joseph, the nationally funded stopbank solution appeared to ignore the significant earthquake risk the town was also facing, as well as the broader cascading risk to the country's tourism industry. Both spotlights indicate the urgent need for stronger criteria as to how government funds adaptation. The current approach appears to be incentivising short-term solutions, which focus on addressing single risks, rather than implementing more robust and holistic long-term solutions. There is also a risk that most of the available funds will go to those places where disasters have already occurred, rather than to pre-emptive relocation initiatives.

Whakaari White Island where the twenty tourists who died in the 2019 eruption were not informed about the forseeable eruption risk

Both case studies highlight the limitations of relying on local decision-making which can be dominated by the vocal few, unless there is strong national direction, and funding arrangements that are based on rigorous criteria and high-quality analyses of the options.

Spotlight on the Westport Recovery Plan

Westport, a town of some 4,600 people, is located on a low-lying narrow floodplain surrounded on all sides by a combination of the Buller and Orowaiti rivers and the sea.[47] The population is aging with incomes just 68 per cent of the national mean. GDP has been declining over the past decade.[48] In 2018, cyclone Fehi devastated the area and, in 2021 and 2022, the town experienced further flooding from heavy rains. The July 2021 event resulted in over 2,000 people evacuating and 563 properties (23 per cent of the town's total housing stock) being damaged. Insurance claims reached $88 million.[49]

Flooding of the town has been exacerbated by high tides surging up the Buller River and into the Orowaiti lagoon. Such surges, and the current high groundwater level, will increase with the rising seas caused by climate change. These factors, along with ongoing land subsidence, will exacerbate future flooding events meaning that much of Westport will be unsafe for people to live in without intervention. As recently stated by the Department of Internal Affairs, "Westport is one of the most vulnerable communities exposed to flood hazard in New Zealand".[50] And this is not the only risk affecting the town which is also vulnerable to seismic risk (with a 75% probability of the Alpine Fault rupturing during the next 50 years), liquefaction, coastal inundation and tsunami.[51]

It is notable that despite this serious situation, weak district plan rules still allow development in Westport's flood prone areas, thereby further exacerbating the current high natural hazard risk.[52] In addition, although central government has contributed around $100 million to flood response and recovery in the Buller district since 2020, the funds have been largely spent on immediate disaster recovery and infrastructure repair rather than on reducing future hazard risk to the community.[53]

In response to this growing risk, the Buller District Council, West Coast Regional Council and Te Rūnanga Ngāti Waewae jointly developed a business case for central government co-funding to construct flood protection works and other risk mitigation measures. The main element of the proposal was the construction of a ring bund around urban Westport (see Figure 9). The Buller District Council proposes to enable new buildings and alterations to existing buildings within the area protected by the bund in its proposed district plan, on the basis that the bund will sufficiently reduce the natural hazard risk.[54] However, this would increase the number and value of properties at risk in the event that the bund no longer provided sufficient protection.

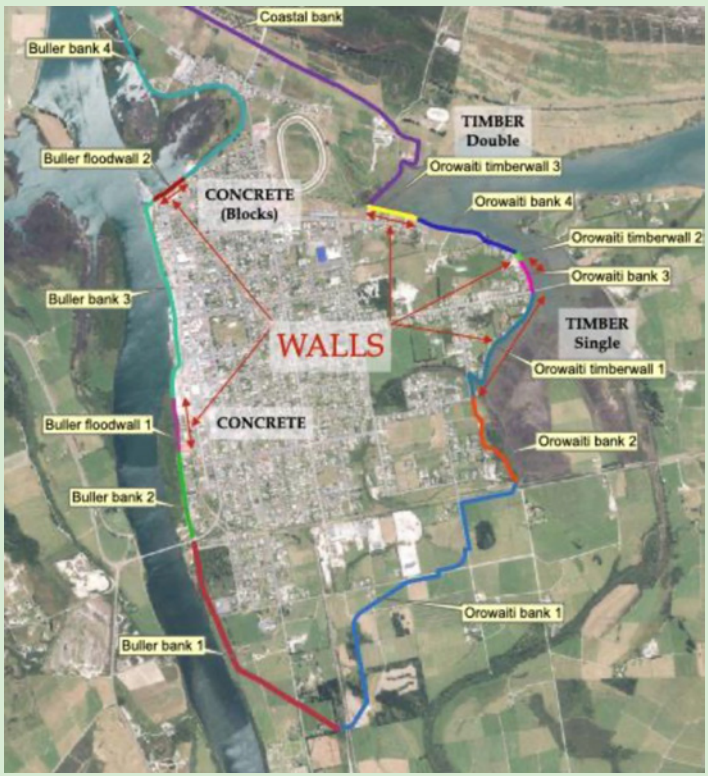

Figure 9: Proposed ring bund around Westport Source: Buller District Council, West Coast Regional Council and Ngāti Waewae Arahura, 2022, *Co-investment in Westport's resilence*, Westport, 48

Although the joint business case acknowledges that "It feels as though retreat is likely to happen at some unspecified time in the future", and it identifies "several areas of land outside the flood zone where Westport might grow in the future", it only includes initial and tentative steps in that direction. The business case looks to undertake a feasibility study of the land where a new community might be established (at Alma Road).[55]

The business case acknowledges that Buller District Council "does not have the resources to draft a development plan – let alone a 'structure plan' for the Alma Road area. Nor does the Council have the resources to undertake the level of infrastructure planning necessary for a high quality, resilient and sustainable 'community-centred' development".[56] This highlights the likely necessity of considerable central government support to help at least smaller councils to undertake the necessary planning to move down the pathway of managed retreat.

The difficulties of relying on an engineering solution to the significant risk issues facing Westport was highlighted in a review of the Business Case, undertaken by the Department of Internal Affairs in 2022, which contracted Tonkin and Taylor to consider the technical feasibility of the ring bund. The Department usefully summarises the conclusions of that feasibility assessment in Table 2 of its assessment report, which includes the following points:[57]

- Conceptually, the ring bund around urban Westport functions as a 'bathtub'. For smaller (more frequent) flood events it should provide protection by keeping the water out. However, failure of the wall during a large flood event would result in the town being rapidly inundated with water (as happened in New Orleans during Cyclone Katrina).[58] This exacerbates the residual risk to life and property for the larger events above the 'do nothing' scenario.

- The ring bund will increase peak flood levels at the Buller Bridge by 600mm, significantly increasing the risk of a bridge blockage and overtopping of the Westport flood defences upstream of the bridge. This would have significant implications for evacuation as the bridge is the only route out of town for a large flood event. (Notably in Hawkes Bay six bridges were destroyed by raging floodwaters due to the heavy rain caused by Cyclone Gabrielle).[59]

- The protection proposals are not resilient to seismic events [which have a high risk of occurring within the lifetime of the protection works] and the proposal is not 'multi-hazard resilient' (ie being solely focused on overland flood risk).

- The seven 'protect' options considered prior to the selection of the current proposal were different iterations of the same conceptual design (full encirclement of Westport). The proposal had not

considered a wider spectrum of protect options (such as partial or targeted protection).

One of the deficiencies with the ring bund solution, is that it does not address other natural hazard risks, including those from the Alpine Fault and flooding from rising groundwater which will be exacerbated by sea level rise and increasingly heavy rainfall events. To address the groundwater flooding issue, the joint business case proposes an investment of $12 million into stormwater pumps with $8 million of this sought from central government.[60] However, no government funding was provided for this aspect of the plan, leaving residents within the bund still vulnerable to such flooding. And such flooding may presumably be exacerbated, if the floodwaters rising within the town have reduced natural outlets for dispersal once the town is encircled by defences, on the principle that what keeps water out will also keep it in.

Despite such concerns, in June 2023, central government approved funding of $22.9 million to support natural hazard adaptation in Westport including $15.9 million for the proposed ring bund. Only $750,000 (3%) of the total was earmarked to pursue managed retreat options, including $500,000 towards a development plan for Alma Road and $250,000 for a feasibility study into strategic land purchase at Alma Road or other low risk sites.[61] It was not clear whether further money would be forthcoming to assist with the purchase of land at a relocation site, and no money was specifically set aside to assist owners of flood-risk properties not proposed to be within the bund walls (such as the recently developed Snodgrass neighbourhood), although some general flood relief funding may be available. Interestingly, a case study on Westport in order to "explore co-investment for flood resilience" is identified in the National Adaptation Plan as a critical action.[62]

The adaptation planning process has been a far cry from a best practice DAPP approach. As *Newsroom* Journalist Marc Daalder highlighted in his article on Westport,[63] there had been little community engagement on adaptation options before funding was sought and obtained from the government. This was ostensibly because the councils wanted certainty on what the final plan would look like before going to the community (as opposed to the community being involved in the development of the plan itself). The communication blackout also appears to have affected private property owners whose land may be required for the construction of bund walls. As West Coast Regional Councillor and Westport resident Frank Dooley was reported as acknowledging, "From the point of view of our residents, it's a total lack of communication".[64]

Perhaps more worrying, is that such a large sum of public money has been granted in the absence of any engagement with the local community, or with the broader general public (the taxpayers) who are footing the lion's share of the bill. The money has also been provided without the development of any longer term plan for the future of the town. As the Mayor of Westport was recently reported as stating:

> At the moment, there is no master planned spatial plan for where a future Westport would grow or should grow or any levels indicating where we should or shouldn't build cognisant of the risks that we now know about.[65]

Spotlight on managed relocation of Franz Josef

Franz Josef is a small town of around 500 people located adjacent to the Waiho River. Its proximity to the Franz Josef glacier and the Te Wahipounamu World Heritage site has meant that the town is strongly reliant on tourism for incomes and jobs. In the year to March 2017, the town had 263,000 visitors and 553,000 visitor nights.[66] Ngāi Tahu is recognised as tangata whenua of the area and Runanga o Makaawhio is the local rūnanga.

The Waiho river brings down tonnes of gravel and sediment from the rapidly eroding Southern Alps, which has raised the riverbed next to the township by around a metre every five years.[67] This has meant that parts of Franz Josef are either lower or at the same level as the riverbed (including the developed northern end of the town). Large stopbanks have been built in an attempt to protect the town from flooding, but their effectiveness is continually eroded by the rapid aggradation of the riverbed. This means that flood risk is ever increasing.[68]

As it turns out, it is the stopbanks themselves that are the main cause of this rapid aggradation, as they constrict the ability of the river to discharge its load over the Waiho fan.[69] Climate change is likely to only make this situation worse with more intense rainfall events. One estimate is that, in 30 years' time, the riverbed will be six metres higher and the town will have effectively become part of it.[70]

In March 2016, the river broke its banks severely flooding the Scenic Circle Hotel and the town's wastewater treatment ponds. Over 100 tourists had to be evacuated.[71] There was another flood in 2019 where the river burst its banks and flooded the rural Waiho Flat community. In 2021, the Ministry of Business, Innovation and Employment (MBIE) approved $9 million from the Provincial Growth Fund to strengthen and raise the stopbanks on the north side of the Waiho river as part of the government's Covid-related shovel ready projects.[72] A further $3 million contribution was expected from ratepayers.

The actual work was then delayed due to a legal stoush between the insurer of the Scenic Circle Hotel and the council, with the insurer claiming $30 million in damages and alleging that council work on the stopbank (which may have lacked the requisite consent) had worsened the flood impact on the hotel.[73] The legal proceedings have only recently been settled.

Similar to the case in Westport, the stopbank project has not factored in the fact that flood risk is not the only natural hazard challenge the town is facing. In the case of Franz Josef, the town has been built right over the Alpine Fault. This is the most active land fault in the country and there is a 70 per cent likelihood that the fault will rupture within the next 50 years. When it does go the impact is likely to be very large, with an 82 per cent chance that the quake will greater than magnitude 8.[74]

Downtown Franz Joseph which spans the Alpine Fault and is also threatened by flooding from the Waiho River

With the town's petrol station, fire station, police station and community hall located right on the edge of the fault, and with houses, hotels and retail stores (including the town's supermarket) sitting in a high hazard area, the impacts of the Alpine Fault moving will almost certainly be disastrous for the town. As a Victoria University study warned, "Parts of Franz Josef could disappear into eight-metre wide crevasses".[75]

Despite this evident serious risk, the Westland District Plan does not identify any 'fault avoidance zone' to prevent new or intensified development locating in the high-risk area. This is despite technical work undertaken in 2011 to map such a zone, which indicated that it would run right across the centre of the township, including an area where tourism accommodation actually straddled the fault scarp (see Figure 10).[76]

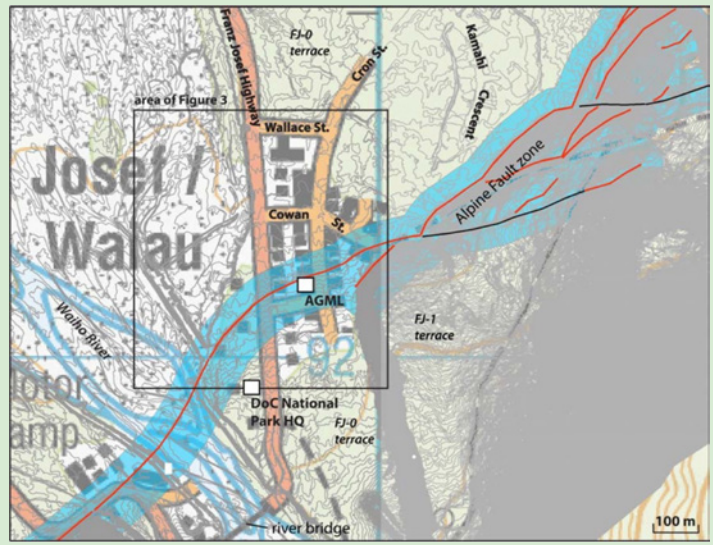

Figure 10: Fault avoidance zone mapped for Franz Josef in 2011 (red line - reverse fault, blue shading – proposed fault avoidance zone, AGML – Alpine Glacier Motor Lodge) Source: Langridge R M and J G Beban, 2011, *Planning for a safer Franz Joseph-Waiau community, Westland District: considering rupture of the Alpine Fault*, GNS Science, Wellington, 19

In response to the study, the Westland District Council initiated Plan Change 7 to create a fault avoidance zone where no new buildings could be constructed and work on existing properties would be constrained. It affected around 30 properties.[77] After hearing submissions, the council adopted the plan change in 2015, but property owners appealed the council's decision to the Environment

Court. When a new council was elected in 2016, it quickly dropped the plan change. In explaining this move, councillors were reported in the media as stating:[78]

> It should never have been there in the first place. Let people make their own decisions and get on with their lives.
>
> There are fault lines around the country. When it eventuates is bad luck.

A subsequent report described the likely cascading impacts on Franz Josef when the fault ruptures. As well as the direct effect on affected properties:

> A rupture event could also result in a range of potential cascading effects including liquefaction, lateral spread and minor to catastrophic landslides, which could potentially inundate the town and/or the Waiho or Callery Rivers. Consequentially, the river(s') flow could be dammed, allowing water to build up to the point at which it presents an additional flooding hazard.
>
> The impacts on the township could therefore include significant injury and potentially loss of life, as well as significant damage to property and the environment. Road access to and from Franz Josef could be closed from months to a year, due to bridge collapse and landslide inundation of the routes to the north and/or south. This would affect local tourism, with flow-on effects in the Region and nationally.[79]

When considering the community's appetite to bear such risk, it is interesting to ponder whether tourists, if they were fully apprised of the risk, would choose to spend the night in Franz Josef. One of the claims in the wake of the 2019 Whakaari White Island eruption, which killed 20 tourists, was that they were not given any warning about the eruption risks and so could not make an informed decision as to whether they wanted to take the risk or not. The eruption, although not predictable, was foreseeable[80] as is the case with the rupture of the Alpine Fault.

It was only recently, in August 2023, that work on the stopbank strengthening project was formally put on hold so there could be a rethink about the best solution for the town.[81] A risk reassessment had indicated that the town may have only 20 years left in terms of flood protection as the rate of river aggradation appeared to be increasing.[82]

There is now a proposal to remove the stopbanks on the south bank of the river to allow it to flow into its natural alluvial fan to the south, while the town is gradually moved north and away from the river and fault line. Around 60 to 70 people live on the south side of the river, and the cost of buying them out was costed at $22 million in 2017, so the council has again turned to central government for the requisite funding. There is the prospect of repurposing the $9 million of national funding set aside for the stopbank work which fortuitously has not yet been expended.

4.7 Status of adaptation plans

Adaptation plans could be non-statutory (as is the situation now) or could have some statutory status. If they have statutory status there could be a sliding scale of importance, from being something to be only considered in other decision-making, to being determinative of what will happen.

The benefit of non-statutory plans is they can be flexible and tailored to community needs. They can also include thinking 'outside the square'. However, there is no certainty that non-statutory plans will be implemented. A future council could decline to implement parts of the plan, particularly when it comes to the more expensive and contentious issues such as managed relocation. As one interviewee highlighted:

> The plan will have no statutory weight so the next council can choose not to implement what is in the plan. Local government is not structured to make expensive long-term decisions as everyone wants to keep rates low and get re-elected.

There is also the issue of monitoring the plans, in order to identify when triggers are being approached, which may necessitate managed retreat. As one interviewee explained:

> It's such a can of worms. Even if you know what the indicators are you want to measure, we are finding it a really resource heavy piece of work. And how do you set them at the right time? Even if we want to measure certain things, who in council measures it? And how does that link back to the adaptation plan which might be 10 years old and sitting on the shelf. And who realises that it is a threshold in the coastal adaptation plan, that has no statutory weight, and does something about it?

All these issues indicate that some form of statutory recognition for adaptation plans would be helpful, including a statutory obligation to monitor them against indicators and triggers.

The Expert Working Group has recommended a strong statutory status, to the effect that adaptation plans would override plans under the RMA/NBEA through the mechanism of an adaptation designation. The designation would negate the need for a resource consent for adaptation works such as a seawall or floodbank. It could also authorise changes to land-use activities and the application of specific rules to manage land use.[83] Giving adaptation plans such strong import has been coupled with a robust and semi-judicial process for their finalisation, as described earlier.

One potential issue with the Expert Working Group's approach to implementation of the LAP, is that this would not necessarily need to comply with the environmental protections under the RMA/NBEA, including environmental bottom lines and national direction (such as the NZCPS). This would be through the use of an 'adaptation designation' which would take precedence over the SPA and RMA/NBEA in authorising works. This is a particular issue with coastal protection works, which can have very significant environmental impacts, as EDS set out in Working Paper 1.

We note that the Expert Working Group recommends that the adaptation designation not override Part 1 of the NBEA,[84] which includes the purpose of the Act and the system outcomes. However, that Part does not include the national planning framework or environmental limits which are critical to maintaining and improving the quality of the natural environment. We suggest that any protection works be required to obtain resource consent under the RMA/NBEA in the normal manner, alongside any adaptation designation, to ensure they are given proper environmental scrutiny. Given that many of these works will be planned for the future there should be ample time for consent to be obtained. There are also fast track procedures that can be used if needed.

Other options for the statutory status of adaptation plans include linking them to (rather than overriding) regional and district plans, linking them to national adaptation planning under the Climate Change Response Act, and/or providing adaptation plans with recognition under the Local Government Act with a consequent closer linkage with council annual planning and budgeting. These are not necesssarily alternatives, as adaption plans could have interfaces with multiple pieces of legislation.

In terms of RMA/NBEA plans, these could incorporate local adaptation zones where the rule status is determined by specified triggers. For example, once coastal erosion reached a certain point a new and more restrictive rule status could automatically apply to development within the zone.

Given the relative newness of adaptation planning in Aotearoa New Zealand, a stepwise approach might make sense, where adaptation plans are given legal recognition if they meet specified criteria, and are then paid particular regard to under RMA/NBEA processes. As more experience and capability is built up, the legal recognition could later be strengthened along with the application of a more formal planning process. A formal 10-yearly review cycle could ensure that early planning was updated as necessary.

Another variation along this theme would be to provide two tracks, one where the process is strongly mandated and the resultant plans have strong statutory effect (like the model proposed by the Expert Working Group) and another track where the process is left more fluid and the plan has less influence. A council could choose which track to adopt depending on the local context, or national criteria could determine which track is to be used.

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5 Compensating and acquiring properties

Various sea defences at Milford Beach, Auckland

Property ownership plays an enormously important role in Aotearoa New Zealand society. As we noted in Working Paper 2:

> The importance placed on the ownership of land in Aotearoa is highlighted by the indefeasibility of title, where the registered owner of land (as shown on the property title) is protected against all claims that are not so registered, as well as a state guarantee as to the accuracy of the registered rights. No other form of property right is backed up with such state protections. [1]

However, this high status does not mean that the state cannot 'take' land from property owners for public purposes. The Supreme Court has confirmed that "New Zealand law provides no general statutory protection for property equivalent to that given by the eminent domain doctrine under the Fifth Amendment to the United States Constitution, under which taking of property without compensation is unconstitutional and prohibited."[2]

This means that property can be compulsorily acquired for managed retreat purposes in Aotearoa New Zealand, without full or any compensation, so long as the acquisition is clearly authorised under statute. However, where the statute leaves room for any doubt, the courts will infer an obligation to pay fair compensation.

Any managed relocation policy will almost certainly require public bodies to voluntarily, and in some cases compulsorily, acquire private properties. However, as we found in Working Paper 2, there is currently a gap in the legislative framework when it comes to powers to compulsorily acquire land, and in providing a framework for compensation which accommodates the circumstances of managed relocation.

The Public Works Act 1981, which is the prime legislative tool currently available, is unlikely suitable due to its current limited scope (ie focused on public works) and compensation provisions (which set compensation at market value at the time the property is transferred). A tailored regime setting out compensation provisions for managed relocation is almost certainly required. This could be achieved either through amending the Public Works Act to explicitly provide for managed relocation (with appropriate compensation provisions), amending the Local Government Act in a similar manner, or providing for acquisition in a new Climate Adaptation Act.

These are not exclusive options and it may be that several pieces of legislation may need to come in to play. As stated by the Expert Working Group:

> While we do not think the PWA [Public Works Act] is fit for purpose to implement planned relocation, it will still be relevant in the context of risk reduction. For example where acquisition of land is necessary to build flood defences (a public work) then the PWA process should be used.[3]

The potential problem with this approach is that the line between managed relocation and flood defence may not always be clear cut, particularly if managed retreat of some properties is the mechanism through which better flood defence is provided for others. There is also the potential for funding inconsistencies and injustices within local communities, if those who lose their land under the Public Works Act (such as for the construction of a stopbank) receive compensation based on fair market value while those who lose their land under the Climate Adaptation Act (for managed retreat) receiving only partial or zero compensation, depending on the compensatory framework. Overall, this suggests that any acquisition powers in a Climate Adaptation Act will need to have broad application.

Special considerations will need to apply to Māori land. The different types of such land include Māori customary land, Māori freehold land, Māori reservation land, general land owned by Māori, Treaty settlement land and marine and coastal areas (Takutai Moana).[4] In Working Paper One we discussed the inherent connection of Māori to land. By acknowledging and accepting that the whenua is a foundational aspect of Māoridom, it is possible to appreciate the improtant role of Māori in protecting the whenua for future generations.

Māori are uniquely placed in this respect, having established protocols via tīkanga and other frameworks and values such as kaitiakitanga, to look after the land. These enable the people to both adapt on the land and determine management and protection of taonga (including land) into the future. It is a framework that is consistent with the concepts of community-led adaptation.

> "The special status of Māori land recognises the relationship of Māori with their whenua and gives rise to customary interests beyond those of general land ownership. Māori should retain ownership of their land, but Māori and the Crown will need to explore measures to ensure risks can still be reduced."[5]

Special consideration will need to be given to Māori land that is particularly vulnerable to climate change impacts. If communities are forced to relocate from such land due to climate hazards, Māori will need to retain ownership and an ongoing conection to the land (including access). Treaty settlement land will need to be addressed on a case by case basis. Much of the returned land has been of low value, and is of high risk of climate related impacts, locking Māori into marginal land with a limited ability to derive an income from it. Consequently, at risk Māori communities can often not afford insurance premiums, that are ironically higher than other parts of the country if they are able to access insurance at all.

In Figure 11 we have set out some options for property acquisition more generally, which we discuss further below, including those related to voluntary acquisition, compulsory acquisition and compensation.

Element	Options
Voluntary acquisition	Individual property purchase Cluster purchase Advance purchase Land swap
Compulsory acquisition	Public Works Act Local Government Act Climate Adaptation Act
Compensation	Full Capped (eg average house prices) Means tested Time-limited (eg only applies to properties purchased before a certain date) Only owner-occupied

Figure 11: Options for property acquisition and compensation

Spotlight on the recommendations of the Expert Working Group on property acquisition and compensation

The Expert Working Group has developed detailed recommendations on a potential compensation scheme for managed retreat. The Group recommends that the Public Works Act not be used to implement planned relocation but that powers of acquisition be coupled with powers to pay compensation in new legislation. In addition, the Expert Working Group recommends that for compensation:

- Principal places of residence be treated differently to second homes, commercial buildings and short term rental properties, and market value be used with a cap
- Payment to commercial properties be based on need

- Payment to residential rental properties be less than owner-occupied properties but more than commercial properties
- No compensation be provided for second homes
- Full compensation be provided for not-for-profit owned buildings
- Compensation for land be provided on the same basis as under natural hazard legislation

For iwi, hapū and Māori owned property, case-by-case negotiations would be held, with a starting point of full compensation.

The Group recommends that a 'one-stop' advisory service be established for affected communities, and that the scope of the New Zealand Claims Resolution Service be expanded to include issues associated with managed relocation. It contemplates central government mainly paying for property compensation. The report canvasses different methods of raising the required funding including a special levy and taxation and suggests that periodic deposits could be made into a dedicated fund as currently occurs for superannuation with the New Zealand Superannuation Fund known colloquially as the 'Cullen Fund'.

5.1 Voluntary acquisition

There is a wide variety of approaches that could be used to voluntarily acquire property for the purpose of managed relocation and we canvass just a few in this section. They build on a series of spotlights which profile different ways that acquisition has been approached.

To date, virtually all property acquisition for managed retreat in Aotearoa New Zealand has been undertaken on a voluntary basis, albeit sometimes with an implicit threat of compulsory acquisition in the background. This has even been the case even when compulsory acquisition powers have been available (such as through special legislation in Christchurch) and some property owners have declined the voluntary offer (as in the Christchurch red-zone). This serves to highlight how reluctant governments have been to force people out of their homes and emphasises that voluntary acquisition is likely to be the main (although not necessarily the sole) approach in future managed relocation efforts.

One project where voluntary acquisition has been particularly successful is Project Twin Streams, in West Auckland (see spotlight), where considerable effort was put into clear communication and providing a supportive environment for affected property owners to decide whether or not to take up the offer. This was coupled with a carrot, in the form of a buy-out offer that was effectively higher than market value, because it didn't take into account the flood risk which council had tagged onto the affected property LIMs. The carefully thought-out communication strategy in the Project Twin Streams project can be contrasted with some of the early communication to Christchurch red-zone residents where, as the Controller and Auditor-General reported:

> Some early decisions about the future of residential areas, such as the red zoning of areas, were announced through the media before all property owners had been contacted and informed about the decisions. This caused distress to some homeowners.[6]

Spotlight on voluntary purchase for Project Twin Streams, West Auckland

Project Twin Streams was an ambitious project, which sought to address stormwater and flooding issues within a large catchment in West Auckland, housing over 100,000 people. The project focused on restoring natural stormwater flow paths, by removing properties from flood plains, and improving river quality through replanting riparian margins. It also sought to improve public amenity including through the creation of 8.5 kilometres of walkways and cycleways. All this required the purchase of around 80 residential properties. A flexible approach was taken to property acquisition, with some initially targeted properties being later dropped from the project, due to financial or practical considerations.[7]

The project was funded by a $39 million grant from Infrastructure Auckland of which $19 million was allocated for property purchases. In acquiring the properties, Waitakere City Council decided not to use the compulsory acquisition powers in the Public Works Act, but to only purchase on a voluntary basis. In order to achieve this, the Council focused on engaging the right skills for the negotiating team, and providing clear communication to property owners so they could "reach their own understanding of how the decision to purchase was really the only practical option".[8] A flexible approach was adopted to meet the needs of each specific property owner. This included, in some cases, making arrangements to rehouse people.[9]

Each owner was informed that, after contact had been made by the council team, an indicator would go on the LIM showing that the property was in the flood zone. Negotiations were then undertaken over price, which was based on the market price prior to the LIM tagging, which potentially reduced the market value.[10] The fact that

the owner was able to potentially get a higher price by selling to Council, than would then be available on the market, acted as a further inducement to sell.

One of the broader benefits of the project has been the mobilisation of the community which has been actively involved in community planting days, learning activities, art events and community and rongoa gardens. In total, 885,085 native trees and shrubs had been planted since the project commenced in 2003, and 70,000 volunteer hours have been donated to streamside improvement.[11]

As well as reducing flood risk and increasing water quality, the project has improved community amenity and strengthened community cohesion. It is an example of how targeted voluntary purchase, done well, can achieve a broad range of benefits in a cost-effective manner.

Fortunately, in the case of Project Twin Streams, the bulk of the targeted property owners agreed to sell, and the council was able to proceed with its flood reduction works. However, if more property owners had refused the offer, the council may have been left with a disconnected assortment of properties that would have stymied strategic river works. In the New Jersey Acres Programme (see spotlight below), this problem was addressed by only offering buyouts to clusters of homes, on the basis that the purchase would only go ahead if all home owners in the cluster agreed.

Spotlight on cluster purchase in New Jersey

The New Jersey Blue Acres Programme aimed to reduce flood-risk, by establishing inter-connected restorations areas that provided greater space for flood waters, thereby reducing risk to remaining homes. An interesting aspect of the programme is that it required clusters of homes to be purchased at the same time (to provide a cohesive restoration area) rather than properties being bought one at a time. As the buy-outs were all voluntary, it required groups of home owners to collectively agree to be bought out, presumably bringing into play group pressure on any holdouts. See Part Two of the working paper for a more in-depth description of this case study.

Another approach to purchasing properties is to start well in advance and purchase them on the open market when they come up for sale. This could work particularly well in places where there is high property turnover, and avoids the need to persuade people to leave their homes, as they have effectively already decided to go. Such an approach has been proposed for South Dunedin (see spotlight below). Strategic purchase of properties, well in advance of managed retreat, also enables the council to implement a broader range of adaptation responses. However, care would need to be taken to ensure that the purchases do not artificially elevate the market value of the properties above a price that factors in flood risk and normal market demand.

Spotlight on proposed advanced property buyout, South Dunedin

As highlighted in the South Dunedin spotlight above, the suburb faces severe and increasing flood risk from rising groundwater, and some residential properties will eventually not be habitable. It is also the case that half the properties in South Dunedin have been sold at least once in the past 10 years (see Figure 12).

One option that is being explored by the Dunedin City Council is to strategically buy up properties in the suburb when they come up for sale on the open market. It could then rent some of them out, in the short- to medium-term, to help recoup costs (and potentially keeping the same residents in situ as many properties are already rented). As the flood risk becomes worse, the council could then remove the houses to create hard or soft (ie nature-based) flood protection infrastructure.

The Council could also buy up properties in safer higher areas (ie on the marine terraces) and use them to create additional housing options through more intensive townhouse development. In this way the urban form of the suburb could be gradually transformed with minimal disruption to residents. As more and more properties are bought up by Council, residents would be gradually shifted into more intensive and safer housing, without having to leave the suburb. The developed properties could be resold by the Council as a further way to recoup the initial property purchase costs.

The Council has approached central government for support for a five year purchase scheme, costed on the basis that 65 properties will be purchased a year on the open market, at a projected cost of some $132 million. The advantage of this approach is that no-one will be forced out of their homes and it will likely save ratepayers and taxpayers money in the long term.[12] As Dunedin mayor Jules Radich explained:

> If we start acquiring property today, it will give us more options tomorrow, meaning we'll be better placed to build a new pipe, expand a pipe, or move a house whatever is required to make South Dunedin a safer and better place to be... Our proposal is proactive and ambitious ... [and] will require support from central government.[13]

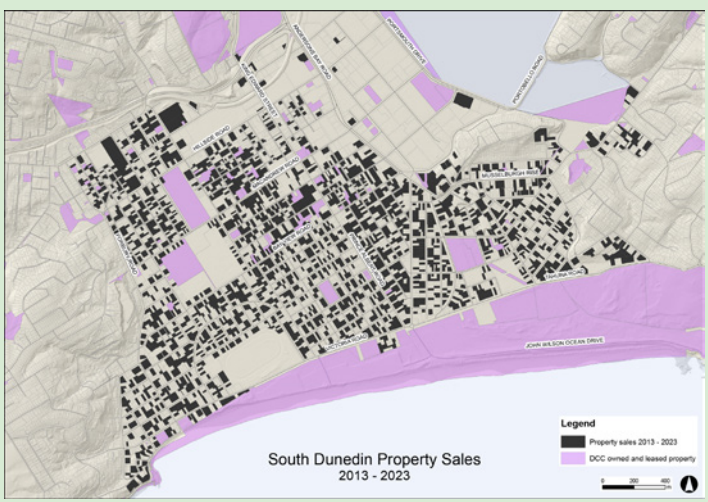

Figure 12: South Dunedin property sales 2013-2023
Source: Dunedin City Council

The concept of 'climate leases', which we canvassed in Working Paper 1, is another way that property purchase can be undertaken well in advance of the need for managed retreat. Under that approach, property owners sell their freehold interest in the land, and are granted a time-bound leasehold interest which enables them to continue to live in the property while it is still safe to do so. The lease could also be sold to another party if the incumbent wished to move.[14] There are likely to be a number of challenges with applying this approach[15] and it may be more appropriate where there is some certainty about the timing of the natural hazard risk being faced, such as with coastal erosion, and a pre-determined trigger when the property needs to be vacated.

Yet another approach to voluntary purchase is the use of land swaps, where property owners can swap their risky land for another similar plot nearby. Such an approach enabled the Queensland town of Grantham to be quickly moved after serious flood damage (see spotlight below). A similar approach was used in Aotearoa New Zealand, during the 1970s, after the Ōhiwa spit rapidly eroded and houses started falling into the sea. The Crown offered to swap property titles at Ōhiwa for vacant sites at Matatā, enabling the threatened houses to be moved to new sites. The offer was voluntary, with about 10 property owners taking it up.[16]

Such an approach might be particularly appropriate, in a managed relocation situation, where most houses are able to be relocated (such as when they are built on piles rather than concrete pads). In such a case, support may be required to cover removal and reinstatement costs. Alternatively, if relocation occurs after damage from a natural hazard event, insurance payouts could be used to construct replacement houses on the new sites.

Spotlight on land swaps in Grantham, Queensland

In 2011, a flash flood inundated the small town of Grantham during the wider Queensland and New South Wales (NSW) floods. After concluding that it did not make sense to rebuild the town in its current flood-prone location, the council bought a new site on a hillside adjoining the town, and rezoned it for urban use (under fast-track reconstruction legislation). Owners of properties damaged in the flood were eligible to participate in a lottery which enabled them to swap their current property for one of a similar size in the newly developed area. The specific site was determined by the lottery. Residents were required to remove all their existing buildings before vacating their damaged land. The cost of reconstruction on the new site was largely paid by insurance.[17] See Part Two for a more in-depth description of this case study.

Another potential inducement for property owners to voluntarily sell is to withdraw services and/or adopt a user pays charging system for those that remain. An offer to buy out could be accompanied by clear communication as to what services will continue to be provided in the area after managed relocation has been undertaken, and at what cost (assuming the remaining property owners may be required to cover the full cost of continued service provision). The expense incurred by Christchurch City Council, in continuing to service those remaining in the red-zone (as highlighted in our spotlight in Working Paper 2), demonstrated the very high cost per

property of continued service provision to a few.[18] As one interviewee highlighted:

> In terms of removing services like water and roads, good direction early is important so that people know there is a possibility that services would be reduced or removed.

Voluntary purchase may be further incentivised by the withdrawal of insurance cover. Already the country's largest insurer IAG (which operates the NZI, State and AMI insurance brands) has indicated that it will not provide *new* insurance for flood-prone and landslip-threatened homes rated as either category 2 or 3 after the Auckland Anniversary floods and cyclone Gabrielle. It will also not *renew* insurance on category 3 homes and the worst of category 2 homes, although cover will continue until owners are bought out under the government/local government buy-out offer.[19] Such an insurance withdrawal will make it very difficult for many home owners to stay in their homes or sell, as if there is a mortgage, insurance cover is a condition of the loan which would then be breached.

This highlights the importance of aligning insurance cover with the timing of managed relocation, so that insurance is ideally maintained before managed relocation is effected, but can then be withdrawn once a buy-out offer has been made and the house is either moved or demolished (and hopefully maintained if the house is rented out for a period).

> "Compulsory acquisition of private property *before* a natural event is significant, serious and politically risky. It may be that a voluntary programme, coupled with other levers in the market (such as insurance withdrawal, land-use change and external events) may yield the same result." (Reviewer)

5.2 Compulsory acquisition

As mentioned above, compulsory acquisition is rarely used in Aotearoa New Zealand, but it may make sense to include it in a managed retreat toolbox in cases where voluntary measures are unable to achieve the necessary change. Even the mere threat of compulsory acquisition can prompt property owners to reach a voluntary agreement.

As also outlined in Working Paper 2, any new regime for property acquisition would need to make it clear that Māori land would not be subject to compulsory acquisition and could be re-adapted to other non-residential uses. As we said there:

> Any proposals for managed relocation must be sensitive to this history of Māori land dispossession. It has left some Māori communities with trauma and a fear of moving off their whenua and losing mana whenua (customary authority) status. For some, the depth of connection to the whenua on which their homes or marae sit, and fear of losing mana whenua status far outweighs the imminent risk posed by climate change. Any managed retreat policy will need to recognise the importance, as highlighted in the Te Ture Whenua Māori Act, of retaining Māori land in Māori ownership.[20]

Any new compulsory acquisition powers will need to be housed in a statute. Although the Public Works Act is not currently well configured for managed relocation, it could be amended to explicitly provide for such a purpose. For example, the definition of 'public work' could be expanded. Different compensation considerations for managed relocation could also be incorporated into the Act.

The benefit of using the Public Works Act is that it has generally well understood provisions dealing with property acquisition, that have been widely tested in the courts, and these apply both to central government (through the Minister) and local government. On the down side, the Public Works Act brings with it negative connotations for some, particularly for Māori, because of the way it has been used to take Māori land.

Alternatively, it might be possible to expand the Local Government Act to include compulsory acquisition powers for local government, but the downside of this approach is that it would not provide central government, or any dedicated managed relocation national agency, with such powers which may well be needed. A third alternative would be to provide bespoke powers in a Climate Adaptation Act, which is the approach favoured by the Expert Working Group, as outlined above.

Umpuia, where Ngā Tai wharenui, wharekai, urupā and other wāhi tapu are located, is threatened with coastal erosion and flooding

Wherever such powers are housed, there is the issue as to whether they should be provided for as a broad discretion, as was the case in Christchurch (see below), or whether they should be accompanied by firm criteria as to when and how they should be used (more along the lines of the Public Works Act). For example, the statute could make it clear that voluntary purchase is to be preferred if at all possible, that compulsion could not be used in the case of Māori land, and that overall fairness and reasonableness need to be demonstrated.

Spotlight on compulsory acquisition powers

The *Public Works Act 1981* provides broad powers to acquire land under section 16. The Minister is "empowered to acquire under this Act any land required for a Government work". Local authorities are similarly authorised to acquire "any land required for a local work for which it has financial responsibility". Landowners may object to the taking of their land to the Environment Court. When determining whether the taking should be upheld, under section 24, the Court assesses whether "it would be fair, sound, and reasonably necessary for achieving the objectives of the Minister or local authority, as the case may require, for the land of the objector to be taken". This means that "fair", "sound" and "reasonably necessary" are the tests to be used when exercising the discretion. The Act also makes provision for acquisition by agreement.

The *Canterbury Earthquake Recovery Act 2011* (now repealed) provided that "the Minister may acquire land compulsorily by causing a notice of intention to take land in the name of the Crown to be published in the *Gazette* and twice publicly notified".[21] No criteria are provided as to when this power could be used or on what basis. And despite the requirement to publicly notify the intention to take land, the Act makes it clear that no objections will be entertained, stating in section 54(3), "To avoid doubt, there is no right of objection to a notice of intention to take land". It is therefore a much more unfettered discretion than that under the Public Works Act.

The *Urban Development Act 2020* provides under section 256 that the Minister may acquire land for a 'specified work', which under section 252 is a work for the purpose of urban development. Acquisition is to be in accordance with Part 2 of the Public Works Act which includes the provisions described above.

5.3 Compensation

In Working Paper 1 we canvassed a broad range of options when designing a compensation system for residential properties and we have reproduced a summary of these in Figure 13 below. We refer the reader to Working Paper 1 for a list of the advantages and disadvantages of each option[22] and to Boston (2023)[23] for a more in-depth analysis of factors to consider when designing a compensation system.

1. Compensation based on the replacement cost of the buildings plus the land value, with the land value based on comparable land in a safer nearby location
2. Compensation based on the value of a comparable or equivalent property in a safer nearby location (ie one of a reasonably equivalent size and standard)
3. Compensation similar to that provided under either option 1 or 2, but with a fixed cap (eg based on the average house price nationally or regionally in the recent past)
4. Compensation similar to that provided under either option 1 or 2, but with a fixed percentage contribution from property owners (eg 20%)
5. Flat-rate compensation with fixed amounts for each dwelling and land
6. Compensation based on the estimated remaining habitable life of the property – the shorter the estimated life, the larger the compensation payment. Freehold properties would be converted to leasehold, with time-bound leases based on the period during which occupancy is considered safe
7. Compensation adjusted to reflect the knowledge of climate change-related risks by the owners at the time of purchase or construction (eg could be time-limited)
8. Compensation differentiated depending on whether the property is the principal place of residence or not
9. Compensation differentiated according to the means of the owners (eg their net worth and/or income)
10. Compensation differentiated according to whether the property sale is voluntary or compulsory
11. Total compensation for property losses due to managed retreat capped annually or for specified periods of time (ie via a fiscal envelope)

12. No compensation beyond a fixed date; prior to that compensation based on one or more of the options above

Figure 13: Options for public compensation for loss of residential properties

Not all these options are mutually exclusive and a package of them could be adopted. They all have their downsides, and which option(s) should be chosen will depend on what principles ultimately underpin a compensation policy (ie such as concepts of fairness and solidarity), and the government's fiscal ability and appetite to fund it. As described above, the Expert Working Group has recommended a variant of these options, pegging compensation to market value but with a cap, and differentiating owner occupied homes from others (ie a mix of options 3 and 8).

In Working Paper 1, we also discussed funding options for Māori, infrastructure, businesses and nature. The recommendations of the Māori Affairs Select Committee on funding for Māori are highlighted in the spotlight below.

Spotlight on the recommendations of the Māori Affairs Select Committee on adaptation funding

The Māori Affairs Select Committee recommends that adaptation funding policies and frameworks should:

1. Give effect to Te Tiriti o Waitangi–the Treaty of Waitangi
2. Compensate Māori fairly for any loss of land or culturally important sites
3. Fund mātauranga Māori research
4. Fund Māori to participate in adaptation plan development processes led by others or to develop their own adaptation plans
5. Fund the implementation of Māori adaptation plans, including mātauranga Māori solutions[24]

Potential sources of funding to pay whatever compensation is determined include:

- General taxation (central government)
- Property taxes (local authorities)
- Stamp duty levied on property transfers
- An additional levy on home insurance policies (and perhaps other insurance)
- An additional levy on fossil fuels (eg petrol and diesel)
- Drawing revenue from the Climate Emergency Response Fund – which recycles proceeds from the emissions trading scheme
- Revenue from renting purchased properties until removal or demolition
- Revenue from relocating dwellings and other structures, that can be moved cost-effectively, and re-selling them
- New taxes, such as a comprehensive capital gains tax, inheritance tax or wealth tax

When considering compensation options for managed relocation, it is interesting to review what compensation has been paid to residential property owners in the wake of recent natural hazard events, and where the money has been sourced from (see Figure 14). This shows that compensation has been pegged to pre-event market valuation (ie similar to option 2 above), although in the more recent 2023 compensation arrangements, the property owner has been left to cover 5 per cent of that value (ie reflecting option 4).

It is also clear that government has sought to incentivise property owners in general to take out home insurance by seeking to pay those who are uninsured less than those who are insured. In the case of the Christchurch red-zone (as we described in a spotlight in Working Paper 2),[25] the government offered insured home owners 100% of their most recent rating valuation, but only initially offered uninsured home owners 50 per cent of the value of their land and nothing for the loss of their building(s). Such a stark difference in the two offers saw the government's approach being overturned in the High Court and uninsured owners eventually received a similar payout to those who were insured.

It is interesting to see a more nuanced approach being taken for the more recent flood and cyclone events, where uninsured property owners have only been offered 80 per cent of market valuation, rather than the 95 per cent offered to insured home owners. There is also provision for a higher payout for the uninsured in special circumstances (presumably including cases where insurance had lapsed for reasons outside the homeowners control).

Although central government paid the full amount of compensation for those in the Christchurch red-zone (less any insurance pay-out), half the cost has been driven down to territorial authorities in the most recent events. However, in the case of the impecunious Gisborne District Council, government softened the fiscal impact of the buy-out and other cyclone recovery work by covering the interest cost of a 10-year $30 million loan to the council, a 'gift' which was valued at around $17 million.[26]

Still, insurance has paid for the bulk of the damage to buildings, and so the future costs of government buy-outs will be much greater if undertaken prior to an event occurring (although the overall costs will be less because damage has been avoided) and this may affect the amount of compensation offered and the source of funds. It may also incentivise central government and councils to wait until an event has occurred before offering to buy-out property owners.

Location	Amount	Source
Matatā (event 2005)	100% current market value (without hazard)	Central government (33%), Bay of Plenty Regional Council (33%) and Whakatāne District Council (33%)
Christchurch (event 2010-11)	100% most recent rating valuation (prior event)	Central government (100%)
Auckland floods (event 2023)	95% of pre-event market value (insured) 80% of pre-event market value (uninsured); in special circumstances 95%	Central government (50%), Auckland Council (50%)
Hawkes Bay (Cyclone Gabrielle) (event 2023)	As above	Central government (50%) Hastings District Council, Napier City Council (50%) Gisborne City Council (50% but accompanied with an interest-free loan)

Figure 14: Compensation paid to homeowners post event

Whatever compensation package is developed for managed relocation it will be important that homeowners can have recourse to independent support to assist with any issues during the buyout process. As one interviewee emphasised:

> A claims resolution service needs to be set early regardless of how robust a compensation scheme will be. A key learning that came out of the Christchurch red-zone was that there will be complex cases where people need support to be heard and there will be unjust outcomes.

We note, in this respect, that the Expert Working Group has recommended an expansion of the responsibilities of the New Zealand Claims Resolution Service to include non-insurance related issues that may arise in terms of implementing managed relocation.[27] It will also be important to provide 'navigators to assist Māori landowners and communities through the retreat process.[28]

Slip damage, South Piha, Auckland

Endnotes

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6 Relocating and developing new settlements

New housing development, Hobsonville Point, Auckland

The process of relocating people, buildings and infrastructure raises some difficult issues as will providing new settlements for people who have relocated from high risk areas. These include whether a relocation programme should be developed, when and in what circumstances services can be withdrawn, how new settlements might be created and who should manage the overall process (see Figure 15). We discuss all these aspects in more detail below.

Element	Options
Removal of properties and infrastructure	Relocation programme Ad hoc removal and services withdrawal
Development of new settlements in low risk areas	Urban Development Act RMA/NBEA procedures Gifting of land
Management	Council Bespoke national agency

Figure 15: Options for relocation and developing new settlements

Spotlight on the recommendations of the Expert Working Group on relocation and developing new settlements

The Expert Working Group proposes a 'relocation programme' as a new tool to implement managed relocation, which would authorise the requisite powers and processes. The programme would be prepared by the adaptation committee, or the Māori decision-making body, and would be approved by the Crown. It would include all the actions required to effect managed relocation including determining the use and management of vacated land. A new Crown entity, such as a National Resilience and Recovery Agency or a National Resilience, Relocation and Reconstruction Agency could oversee the implementation of the relocation programme.

In providing places for people to move to, the Group recommends that standard plan change processes be used under the RMA/NBE unless relocation is imminent. In such urgent cases, urgent plan-change processes in the RMA/NBEA may be needed.

6.1 Removal of properties and infrastructure

The relocation programme proposed by the Expert Working Group appears helpful in providing a well-planned and hopefully well-executed programme of activities to address the physical relocation of properties and infrastructure (along with people). One specific matter that will need to

be considered is developing packages to support the relocation of cultural assets such as marae, whare and taonga associated with the marae.[1]

In terms of the provision of utilities, there is the question as to whether the status quo should prevail, where there are strong protections on maintaining the provision of essential services (as described in Working Paper 2) or whether councils and other service providers should be able to withdraw such services to any remaining residents in the event that managed relocation is effected. Such withdrawal could enable funds to be redirected to the relocation process and provision of relocated services.

The Expert Working Group recommends a process whereby authorities can apply to withdraw services (including roads and bridges) from a property before or during a planned relocation process (Recommendation 59) which makes good sense. This may need to include the ability of regional councils to stop maintaining flood protection works under the Soil Conservation Rivers Control Act. A set of robust criteria would need to be applied to when services could or could not be withdrawn. It will also be important that services providers withdrawing services are required to remove any remaining infrastructure so that the land can be repurposed.

6.2 Supporting people in transit

Ahead of managed relocation, thought will need to be given to how those being relocated will be supported while they are between permanent housing at either end of the relocation process. For instance, funding to cover moving costs and waivers on property transfer administrative fees, could help people move through what will be a stressful ordeal. In addition, there may be a need to provide temporary accommodation for those in transit.

In the case of those affected by Cyclone Gabrielle, the government's temporary accommodation service offered long-term accommodation for less than market rent (albeit only where homes were available).[2] Weekly payments were also provided by government, to cover the cost of temporary accommodation, in order to assist property owners who were paying rent on top of servicing their mortgage.[3] Similar support could be offered to those transiting through a managed relocation process.

One option to consider, in the context of managed relocation, is the construction of temporary accommodation (potentially at the new location) to house those in transit between their old and new homes. This could also house those affected by hazardous events prior to managed relocation occurring. For example, in the case of Westport, MBIE's temporary accommodation service built 20 new homes on council-owned land at Alma Road (an area now slated for managed retreat) to house residents temporarily after the 2021 floods. Once new permanent housing has been established, the houses can be repurposed as social or affordable housing.[4] A similar supportive approach could be provided for iwi, hapū and whanau needing to move.

It will be important to manage the impacts on social cohesion. The effects of managed retreat on those who do not move (for whatever reason) need to be considered alongside those who have relocated, as there may be feelings of being 'left behind' and impacts from the withdrawal of important local community services/facilities.

6.3 Development of new settlements

In some cases, residents affected by managed relocation may be able to find alternative accommodation elsewhere in their communities within the current housing market. But in other cases, whole communities may need to be moved, and this raises the need to develop whole new settlements. As indicated in Working Paper 2, the Urban Development Act makes comprehensive provision for the development of new urban settlements, with the process typically managed by Kāinga Ora. Councils also have the ability to buy up land on the open market and zone it for a new settlement under the RMA/NBEA. New sites could then be balloted to those needing to move (similar to the process in Grantham – see Part Two).

A spotlight on whenua tuku

Whenua tuku is a customary means of allocating land which could be drawn on in managed relocation policy. An example of it application, is the Mataatua Marae in Rotorua, which is whenua in the heart of Te Arawa. It was gifted to Tūhoe, recognising the arduous and time-consuming trek to travel from Tūhoe to Te Arawa. The Mataatua Marae was established for visiting Tūhoe (amongst others from Mataatua) to use as their own and under their practiced tikanga.

As highlighted in Working Paper 2, the Crown may need to assist Māori to obtain land suitable for the relocation of threatened marae, papakainga and taonga. This may involve government purchasing and then gifting the land to the affected tribal group. This would recognise 'whenua tuku' or the tradition where one hapū gifts another the right to occupy land in recognition of an event or specific circumstance. As well as helping to identify relocation sites, government should consider expediting necessary consents, funding infrastructure and addressing any socio-economic

issues related to the relocation. It will also be important to mitigate any exacerbation of existing housing-related inequities for Māori in any managed relocation exercise.[5]

6.4 Management agency

In some cases, particularly where only a small number of houses are affected, it may be possible for councils to undertake the process of relocating communities and developing new settlements if required. At the very least, a council could zone land and provide infrastructure so the private sector could develop the land. Another option would be for a bespoke national agency to be put in charge of the whole process. This is one option floated by the Expert Working Group as described above.

When considering how such an agency might be structured, it is useful to reflect on the performance of the Christchurch Earthquake Regeneration Authority (CERA) (see spotlight), which was the first and to date only dedicated recovery agency established in Aotearoa New Zealand. It suggests that a body strongly focused on implementation, and with excellent public communication skills, is likely required. For managed relocation it would also need a number of regional/local offices which could expand and contract depending on the scale and timing of the various relocation processes.

An area of the Christchurch CBD in 2021, a decade after the major earthquakes

Spotlight on the Christchurch Earthquake Recovery Authority

CERA was established in March 2011, in the wake of the Christchurch earthquakes, in order to lead a co-ordinated response to the disaster. As well as being tasked with providing policy advice to the Minister and Cabinet, and leadership for a whole-of-government recovery effort, CERA was directly tasked with delivering reconstruction programmes on the ground. The tasks undertaken by CERA included demolishing dangerous buildings, determining the future status of land, and managing the property buy-out process. It also co-funded and co-managed infrastructure repair. CERA operated for five years until April 2016 and administered $4 billion of funding. It was established as a government department, as opposed to a Crown entity, to enable a high degree of Ministerial control. In 2015, CERA became a departmental agency of the Department of Prime Minister and Cabinet.[6]

In January 2017, the Controller and Auditor General published the results of an audit of CERA. It highlighted, in particular, the difficulty of quickly establishing a highly-functioning agency in the wake of a disaster indicating that any managed relocation agency should be established well in advance of any hands on relocation process being undertaken.[7] It also highlighted the challenge of maintaining effective relationships with the community.

Although CERA was able to effectively bring many government departments and stakeholders together while undertaking short term tasks during the immediate aftermath of the quakes, the cohesion fell away during the restoration process, which required a longer-term strategic approach. This highlights the likely need to adapt community engagement approaches as any managed relocation process proceeds through the different stages. Such a shift was attempted when CERA was replaced by Regenerate Christchurch in 2016.

CERA also struggled to balance its strategic leadership role with delivering projects on the ground,[8] suggesting that a managed relocation agency may be better to focus on the 'doing' element of managed retreat, rather than also having a policy function (an approach supported by the Expert Working Group).

Endnotes

1 Ministry for the Environment, 2023, *Community-led retreat and adaptation funding: Issues and options*, Ministry for the Environment, Wellington, 30

2 See Green K, 2023, 'Owners nervous over accommodation aid as fate of weather-hit homes remains uncertain', *RNZ*, 24 May

3 Green K, 2023, 'Homeowners forced out by floods to get taxpayer-funded accommodation payments', *RNZ*, 19 July

4 Buller District Council, West Coast Regional Council and Ngāti Waewae Arahura, 2022, *Co-investment in Westport's resilence*, Westport, 64

5 Ministry for the Environment, 2023, *Community-led retreat and adaptation funding: Issues and options*, Ministry for the Environment, Wellington, 30

6 Controller and Auditor-General, 2017, *Canterbury Earthquake Recovery Authority: Assessing its effectiveness and efficiency*, Controller and Auditor-General, Wellington, 11

7 See section 2 of Controller and Auditor-General, 2017, *Canterbury Earthquake Recovery Authority: Assessing its effectiveness and efficiency*, Controller and Auditor-General, Wellington

8 See section 3 of Controller and Auditor-General, 2017, *Canterbury Earthquake Recovery Authority: Assessing its effectiveness and efficiency*, Controller and Auditor-General, Wellington

7 Post-relocation land management

Restoration dune planting, Te Henga

Once people have moved from a hazardous area, the land will need to be cleared and arrangements made for its ongoing management. We consider in this chapter options for land status and the overall governance and management of the vacated land (see Figure 16).

Element	Options
Land status	Reserves Act
	Climate Adaptation Reserve
	Māori reservation
Governance/management	Iwi/hapū
	DOC
	Local council
	Co-governance

Figure 16: Options for post-relocation land management

The Expert Working Group recommends that central or local government cover post-implementation costs including those related to demolition, clean-up and and land rehabilitation and management.[1] The Group also notes that ownership options for the vacated land are likely to include the Crown (DOC or LINZ), local authorities or Māori trusts and that reserve status options are likely to be applied in most cases.[2]

7.1 Land status

As we noted in Working Paper 2, the Reserves Act currently lacks a specific category of land focused on the restoration and rehabilitation of natural ecosystems. Ecologist Mike Harding, in advice provided to EDS as part of our Conservation Law Reform project, has recommended that the Reserves Act be amended to provide for an amended range of reserves including a new addition of a 'Climate Adaptation Reserve' which would have as its purpose:

> protecting areas for their potential to support or restore indigenous biodiversity and ecological processes, and to enable adaptation or evolution of indigenous biodiversity in response to natural or human-induced changes to the environment.[3]

Such a designation would provide protection for land that may have no or few current ecological values, but which may be ecologically important in the future for the inland migration of species/ecosystems (coastal retreat), and/or for species movement or adaptation in response to natural or human-induced loss of, or changes to, habitat.

An alternative (or additional) approach would be to create a Māori reservation in favour of local hapū on the vacated land under section 338 of Te Ture Whenua Māori Act 1993. Such reservations can be declared for any specified purpose and the land then becomes inalienable. This would enable the hapū to manage the land according to tikanga.

7.2 Governance/management

There will no doubt need to be a flexible approach as to how vacated land is governed and managed. Localised and ancient knowledge pertaining to the environment (mātauranga-ā-hapū) will be important when considering effective management of land post relocation. Hapū may need to be supported to develop contemporary land management concepts.

In the case of Māori land, there will be an opportunity for iwi, hapū and Māori to exercise rangatiratanga and also broader kaitiaki roles in ecosystem restoration. During relocation, this might include hapū putting rāhui over land deemed unsafe to protect communities from being at risk. Post relocation it could include reindigenising the whenua by restoring indigenous vegetation and wetlands. The benefits of such restoration are multifaceted including improving community health and wellbeing; enhancing employment opportunities; and increasing freshwater security, indigenous biodiversity and carbon sequestration.[4]

Where Māori land is vacated it will continue to be governed and managed by mana whenua. As well as being restored, it could be repurposed for mahinga kai or other commercial opportunities. A range of options could apply to other vacated land. In some cases it could be returned to iwi/hapū. In others it could become part of the DOC conservation estate managed by the department. In yet others, the land could be transferred into the ownership of the local council but with co-governance arrangements as is the case with the red-zoned land in Christchurch (see spotlight below).

Spotlight on management of vacated Christchurch red-zoned land

After the Christchurch earthquakes in September 2010 and February 2011, central government identified a red-zone along the Avon River (of around 602 hectares) where over 5,000 properties were badly affected by liquefaction. Voluntary purchase of affected residential properties was then undertaken, with the purchased land titles reverting to the Crown. Some property owners declined the government's offer so remained in the red-zone. Other land in the zone, including public reserves, was already owned by the Christchurch City Council.

The question of what would happen to the land retired from residential use was not addressed in the initial aftermath of the earthquakes and the vacated red-zone area was effectively left in limbo for some years. This was despite regeneration of the area representing "a once in a lifetime opportunity" for the city.[5] A range of community-based groups and networks, which were keen to develop new uses for the land, were stymied by lack of clarity on where and how to get approval.[6] As one interviewee explained:

> In effect no-one was doing anything in the red zone as nobody was responsible for it. No-one could raise any money as there was nothing to raise money against. For a long time it was not entirely clear who owned the land.

It was not until 2016 (5 years after the second major earthquake), with the passage of the Greater Christchurch Regeneration Act, that formal planning for the future of the area began. The Act established Regenerate Christchurch, a joint Crown-council agency tasked with (amongst other things) developing visions, strategies and regeneration plans to assist with the regeneration of Christchurch. 'Regeneration' was to include urban renewal, restoration and enhancement. One of the regeneration plans, and the largest prepared by agency, was for the Avon River corridor (ie the red-zoned area).

After an extensive public and iwi engagement process, which included a public exhibition of options, a draft Ōtākaro Avon River Corridor Regeneration Plan was produced in 2018. It was finally approved by the Minister in August 2019 (now some 8.5 years after the second earthquake). By this stage, Regenerate Christchurch "was in something of an existential crises. It had axed many of its planning staff and pivoted to commercial development…".[7] The agency was disestablished in June 2020, with responsibilities for plan implementation falling back on Christchurch City Council.

The plan itself was a visionary document, but was light on detail (see Figure 17). As former general manager of Regenerate Christchurch, Rob Kerr, explained to the media:

> Regenerate Christchurch was co-owned by the Crown and the council. [It was] asked to do a plan on land that it didn't have, which would be implemented through a budget it didn't have.[8]

Figure 17: Map showing the regeneration vision for part of the Ōtākaro Avon River Corridor *Source: Ōtākaro Avon River Corridor Regeneration Plan, page 48*

When responsibility for implementation of the plan fell back to Christchurch City Council, in July 2020, there was no obvious home for it within council's then structure. It was notionally placed with the Parks Department, but the Regeneration Plan was about much more than simply managing the land as a park, it included ecological restoration, climate change adaptation, experimental purposes and cultural expression amongst many other things.

At that point, things fell back into limbo, while LINZ sorted out the land titles so they could be transferred to the Council. This was a major exercise. For 5,500 property titles, LINZ needed to survey the land and remove legal road statuses, before consolidating the titles into 29 larger lots. Property transfers to Council started in 2020, but were only completed in August 2023[9] (12 and a half years after the second major earthquake). At that point, very little had still happened on the red-zoned land and much community impetus had been lost. As Kerr explained:

> There's various community groups. Many of them doing great work. But there are many others that have just sort of frittered away because the opportunities were difficult to grasp... people just got on with their lives and started doing other things.[10]

It was only in 2022, that planting groups were finally able to access the land for restoration work. They managed to plant 60,000 trees,[11] but if they had been given access ten years prior (just after the earthquake) that may have seen 600,000 trees already in the ground. It would also have been helpful if the road network, which is gradually fragmenting, had been removed earlier. The Ōtākaro Living Laboratory has now been established to facilitate research, educational and learning opportunities within the river corridor. It has a vision of creating new ideas and ways of living for a climate-challenged city and globe.[12]

Now that Council has ownership of the land, it is proceeding with infrastructure works. However, it has not been all plain sailing. One significant problem has been the unexpected discovery of contaminated land which will likely be a problem all over the country after managed relocation. As David Little, the council red-zone manager explained to the press:

> It was all ex-residential [land] and is more contaminated than we probably thought it would be. You've got everyone's old asbestos piles that they dumped in their backyard, you've got the lead paint that they scraped off the house when they repainted, they did some oil changes. There's all sorts of stuff and it's almost impossible to predict exactly where it is.[13]

Meanwhile the future governance of the land is still to be determined. The Otākaro Avon River Corridor Co-governance Establishment Committee was established in 2022 to advise Council on the development of a permanent co-governance entity for the area and to manage transitional uses in the meantime. It has yet to deliver its recommendations.

The events in Christchurch highlight the importance of providing for the future ownership, land status, management and use of vacated land in the circumstances of managed retreat to avoid leaving large tracts of land in limbo for long periods of time. It is also important that funding is allocated for the restoration and ongoing management of the land.

A managed relocation legal framework in the Climate Adaptation Act could usefully provide for the interim management of land during the period after property buy outs have been effected and residents have moved out, and before the land titles have been consolidated and transferred to the ultimate owner. It could also include planning for the ultimate use of the land, perhaps a form of 'regeneration plan', as developed in the Christchurch example.

Endnotes

1 Expert Working Group on Managed Retreat, 2023, *Report of the Expert Working Group on Managed Retreat: A proposed system for te hekenga rauora/planned relocation,* Expert Working Group on Managed Retreat, Wellington, 32

2 Expert Working Group on Managed Retreat, 2023, *Report of the Expert Working Group on Managed Retreat: A proposed system for te hekenga rauora/planned relocation,* Expert Working Group on Managed Retreat, Wellington, 145

3 Harding M, 2023, *Advice on area designations within the terrestrial conservation system*, Environmental Defence Society, Auckland, 25

4 See Greater Wellington Regional Council, 2020, *Reclothing Papatūānuku: Focusing restoration efforts in parks: Draft toitū whenua parks network plan 2020-30*, Greater Wellington, Wellington

5 Christchurch City Council, 2019, 'Minister approves red zone regeneration plan', *Newsline*, 23 August

6 Anonymous interviewee

7 Wright M, 2023, '2023: The year Christchurch's red zone will finally get moving', *The Press*, 13 May

8 Wright M, 2023, '2023: The year Christchurch's red zone will finally get moving', *The Press*, 13 May

9 https://www.beehive.govt.nz/release/transfer-crown-owned-christchurch-residential-red-zone-complete

10 Wright M, 2023, '2023: The year Christchurch's red zone will finally get moving', *The Press*, 13 May

11 Wright M, 2023, '2023: The year Christchurch's red zone will finally get moving', *The Press*, 13 May

12 https://www.otakarolivinglab.org.nz

13 Wright M, 2023, '2023: The year Christchurch's red zone will finally get moving', *The Press*, 13 May

8 Models for managed retreat policy

Sea defences, Waihi Beach

In this chapter we ponder what different models of managed relocation policy might look like if we put a group of the options described above together. To do this, we have set out below two potential models, one focusing on strong central government intervention, and the other adopting a more decentralised, community-led approach. We include these models, not because we are suggesting that one or the other of them should be adopted, but to provide a 'look and feel' for the various options when combined into a cohesive model. It is also entirely possible that managed retreat policy could transition from a less developed model (such as Model 2) to a more developed one (such as Model 1) over time.

8.1 Model 1: Comprehensive nationally-driven approach

Model 1 is an ambitious and highly interventionist approach to managed relocation in Aotearoa New Zealand (see Figure 18). It embraces a broad scope of government action and support. It is premised on the assumption that it is better to invest now to stave off the potentially dire long-term financial and social consequences of growing natural hazard risks. Failing to act in a decisive manner could lead to weak and inconsistent identification and assessment of risk (with resultant confusion on land use controls), underinvestment in public consultation which can undermine community acceptance of climate science, unclear allocation of responsibilities for the entire managed relocation process, and unfit-for-purpose compensation which many leave people with no means to move out of risky areas and get on with their lives.

Model 1 contemplates comprehensive government involvement to address these matters. It includes the creation of a new national agency (the National Adaptation Agency) with a broad role to support risk assessment and adaptation planning, and to oversee the nuts and bolts of property acquisition and the relocation of people. Instead of being a new agency it could be an extension of the functions of an existing entity such as the Earthquake Commission or Environmental Protection Authority. A specialist branch of the agency (or separate entity) would provide direct support to Māori communities.

Wharenui, Whakarewarewa

Phase	Elements of model 1
Identifying, assessing and communicating risk	• National natural hazard risk assessment exercise undertaken, region by region, by the Climate Change Commission linked to national risk assessments • Local risk assessments undertaken by territorial authorities, with technical and financial support from a National Adaptation Agency • Technical and financial support for iwi, hapū and whanau adaptation planning on Māori land, provided from the National Adaptation Agency, and coordinated by tikanga specialists • Methodology for risk assessment (including assessing compounding and cascading risks, tolerance to risk, and what amounts to 'high risk') set out in regularly updated guidance attached to a National Policy Statement under the RMA/NBEA • Risk assessments made publicly accessible with mandatory inclusion on LIMs • Assessments to be paid 'particular regard to' in all plan-making and consenting under the SPA, RMA/NBEA, Building Act and Local Government Act
Preventing development in risk prone areas	• Regional spatial strategies under the SPA required to spatially map high risk areas • National Policy Statement/National Environmental Standard mandate development in high risk areas as a prohibited activity • In the event of conflict, the avoidance policies in the NZCPS and NPS-NHD take precedence over provisions in the NPS-UD • Councils required to refuse subdivision consent on land within high risk areas under the RMA/NBEA • Building Act prohibits granting of building permits for development in high risk areas • Territorial authorities required to regularly report on number and value of homes, other buildings and infrastructure within high risk areas • Potential liability of councils for negligently consenting homes in high risk zones removed by statute
Undertaking adaptation planning	• Statutory framework for adaptation planning provided in Climate Adaptation Act (including national guidance) • All adaptation plans must also meet the requirements of national direction under the RMA/NBEA (including environmental limits which could also effectively be 'risk thresholds'), address how nature will be supported to adapt alongside communities and how cultural connections will be maintained within the risky areas • National Adaptation Agency initiates, or approves commencement of on request by others, (non-Māori) adaptation planning (at either regional, sub-regional or local level) • National Adaptation Agency approves the planning process and final adaptation plan ensuring consistency with national direction and the national adaptation plan • Bespoke processes provided for iwi, hapū and whanau adaptation planning to maintain tino rangatiratanga supported by specialist Māori branch of the National Adaptation Agency • Financial and technical support provided for the planning process through the National Adaptation Agency • Funding sourced from a National Adaptation Fund • Adaptation plans must be 'paid particular regard to' when developing RMA/NBEA/SPA/Local Government Act plans and considering resource consents • Adaptation plans provide the basis for seeking an 'adaptation designation' in the district plan (thereby avoiding new activities that will undermine implementation of the adaptation plans)

Acquiring properties	• Climate Adaptation Act provides powers of voluntary and compulsory acquisition of property for managed relocation with clear criteria for use • Act also provides a set of principles and framework for negotiating compensation when property is acquired (with more details provided in national policy documents developed under the Act) • A bespoke statutory mechanism provides for any acquisition of Māori land which can only be by agreement and ensures ongoing access • National Adaptation Agency handles all compensation offers and purchase agreements • Compensation for residential properties based on full market value with a cap on maximum amount • Compensation for businesses negotiated individually based on clear criteria such as material hardship and public good • Financial agreements reached with infrastructure providers to support infrastructure relocation and nature-based 'green' infrastructure • Funding made available to councils to support managed realignment (ie providing more room for rivers and the sea) and other measures to support the ability of nature to adapt (on a more generous basis than funding for hard defences) • Grants available to support innovative responses to adaptation by councils, iwi/hapū/whanau and communities including piloting new approaches • Insurance cover made available (and mandatory) in areas slated for managed relocation until property purchase (through a government-backed scheme where private insurers have withdrawn from the market) • Compensation and other funding support is sourced from a National Adaptation Fund which has several funding sources including regular top ups from general taxation, a new stamp duty levied on property transfers, and revenue from the Climate Emergency Response Fund • The New Zealand Claims Resolution Service is expanded to address claims arising from property acquisition for managed retreat
Relocation and developing new settlements	• Areas for relocation are identified in the regional spatial strategy under the SPA • Under the Climate Adaptation Act, the National Adaptation Agency develops detailed relocation plans in collaboration with councils, iwi/hapū/whanau and the community and oversees their implementation • Service providers can apply to withdraw services from areas being vacated, under new provisions in the Local Government Act, and must remove all infrastructure once services are withdrawn and restore the site • Means tested financial support is provided to assist with relocation costs and temporary accommodation is made available for those needing it when in transit between homes (and which can later be repurposed as social housing) • New land is purchased by the Crown, where needed, for the relocation of marae, papakāinga and taonga • Māori Adaptation Agency or Te Puni Kōkiri provides support for the relocation of Māori communities and associated buildings and taonga • Kāinga Ora is tasked with creating new communities under the Urban Development Act where needed • Where feasible, new sites are swapped for vacated sites by ballot, thereby enabling relocatable houses to be moved to safer locations and minimising losses

Post relocation land management	• National Adaptation Agency oversees land clearance, amalgamation of titles by LINZ, and land transfer to the ultimate owner (which could be council, mana whenua or a formally constituted community group) • New land classification in the Reserves Act, of Climate Adaptation Reserve, is the default classification of vacated land • Where land is held under Reserves Act, the council develops a regeneration plan for vacated land in collaboration with iwi/hapū/whanau and the community, and with support from the National Adaptation Agency • Provision is made for land to be declared Māori reserve land in which case hapū lead development of the regeneration plan with financial support from the National Adaptation Agency • Funding support for the implementation of the regeneration plan, including governance and management arrangements, provided from the National Adaptation Fund

Figure 18: Key elements of Model 1 Comprehensive nationally-driven approach

This model has a considerable number of strengths. Adaptation planning will be the norm, and people will be pre-emptively moved away from unsafe areas. It is also likely to be cost-effective long term because early action to relocate communities reduces property and infrastructure losses from natural hazard events (recognising that the cost of just two recent events – the Auckland Anniversary Floods and Cyclone Gabrielle – has been estimated at between $9 and $14.5 billion).[1] It avoids the need to build and maintain costly coastal and flood protection works. In addition, costs could be staggered over time focusing initially on the highest risk areas nationally.

Such a well-resourced approach, which could begin well ahead of the need to relocate, would enable effective engagement with communities and context-driven approaches to be developed. It would also embrace innovation and piloting of approaches. This would help ensure that people feel they can have an impact on the possible future for their community and can tailor a solution appropriate to their circumstances. It could also spur education and training in sought-after skills, such as climate hazard risk assessment, climate adaptation planning and community engagement. As one reviewer stated:

> This could be seen as 'co-design' of our future communities, involving creativity and 'visioning' of what they could look like in a way that we have never done before. Much of our existing community layout has been 'imposed on us', often by colonial norms, and is no longer fit for purpose. These communities *will* look very different in 50-100 years time…here we have the opportunity to determine how we *want* them to look.

A highly interventionist approach to planning, relocation and post-relocation land regeneration could also generate significant benefits, in terms of increased biodiversity and ecosystem services (and ongoing lessening of risk), if nature is required to be factored into the process from the beginning. Furthermore, doing so in tandem with mana whenua would enable te Tiriti to be upheld. Putting central government in the driving seat of providing new housing, for those displaced, would also help take the strain off an already stressed housing market while those who have been bought out seek new homes.

The model also has a number of weaknesses. It is not clear where the staffing for a national agency would come from as much of the existing expertise lies in the private sector and increasingly in insurance companies. In the short term, it will be fiscally expensive, although costs could be managed through a staged approach and some funds could be recouped from subsequent house sales and also from the diverting of infrastructure spend away from areas tagged for relocation. In addition, strong government intervention, if not managed well, can mean that local preferences are overridden. Such issues occurred in Christchurch with CERA. As the Controller and Auditor-General reported:

> surveys of the community show that the public's trust and confidence in information from CERA declined over time, and many in the community were not satisfied that they had enough opportunities to influence decision-making about the recovery.[2]

In addition, the provision of central government funding opens up the process to political interference, where stronger councils may lobby for adaptation funds to be deployed in areas that may not have the highest need.

8.2 Model 2: Decentralised community-led approach

> "Local government and communities must be empowered to build local solutions for national-level problems, with collaboration and funding from central government. This includes local government supporting a wide range of functions like housing, economic development, and response to climate change." (Future for Local Government Review Panel)[3]

This model would see more emphasis put on communities making their own adaptation decisions and with central government playing a low key largely supportive role, rather than leading the process (see Figure 19). Adaptation processes would be mainly led by councils (either territorial authorities on their own or combined with other councils), with only broader guidance and some ad hoc funding support from central government. The model is based on the proposition that communities know best, and territorial authorities are the level of government best placed to know the needs of their communities.

Emphasis is put on risk identification and communication of information doing the work of helping to avoid development being put in the wrong place. Councils will remain potentially liable in tort for making negligent decisions that ignore this information, and property purchasers will be alerted to risk through its inclusion on LIMs, implementing a 'buyer beware' policy.

Greater reliance is also placed on councils funding a greater proportion of residential property compensation (reflecting the recent shift towards an equal share between governments in the Cyclone Gabrielle property offer) which means that at-risk property owners in poorer communities are likely to receive less compensation. There is no provision for pre-funding such as through the establishment of an adaptation fund or similar. In many respects this model is based on the status quo, but with some strengthened legal tools and increased support provided by central government.

Sponge Bay, Gisborne which was one of the worst areas in the city affected by the 2021 floods

Phase	Elements of model 2
Identifying, assessing and communicating risk	• Methodology for risk assessment (including compounding and cascading risks, tolerance to risk, and what amounts to 'high risk') set out in regularly updated guidance attached to a National Policy Statement under the RMA/NBEA • Regional councils and territorial authorities undertake risk assessments under the current provisions of the RMA/NBEA/SPA • Risk assessments made publicly accessible and mandatory inclusion on LIMs
Preventing development in risk prone areas	• Regional spatial strategies under the SPA required to identify high risk areas • National Policy Statement/National Environmental Standard provide framework for councils to identify areas of high risk in their planning documents in order to provide a policy and rules framework to manage the risks through consenting • Hazard information must be shown on LIMs under LGOIMA to support a buyer beware approach • Territorial authorities required to regularly report on number and value of homes, other buildings and infrastructure within high risk areas • Councils are potentially liable in tort for negligently consenting development in high risk zones
Undertaking adaptation planning	• National non-statutory guidance provided for adaptation planning • Adaptation planning undertaken on the initiative of councils under a broad framework inserted into the Local Government Act • Iwi/hapū and whanau determine own processes for adaptation planning • Councils and and iwi/hapū/whanau can apply to central government for grants, sourced from Vote Environment, to support adaptation planning • Adaptation plans are a matter to 'take into account' in RMA/NBEA/SPA/Local Government Act planning • Funding for implementation of aspects of the adaptation plan, such as building flood defences/seawalls or purchasing land for relocation, is provided by government through MBIE on application
Acquiring properties	• Properties (including Māori land) only acquired on a voluntary basis, by councils, under the Local Government Act • Councils provide 50% of the cost of residential property compensation and central government 50% • Compensation based on national non-statutory guidance (and is likely to be considerably less than full market value depending on the ability of the council to pay) • No compensation is provided to businesses • Service providers can apply to a separate infrastructure fund for financial support to relocate infrastructure • Insurance cover not required and may be withdrawn by private insurers
Relocation and developing new settlements	• Service providers can apply to withdraw services from areas being vacated, under new provisions in the Local Government Act, and must remove all infrastructure once service withdrawn • Te Puni Kōkiri provides support for the relocation of Māori infrastructure and communities • Kāinga Ora is tasked with creating new communities under the Urban Development Act • Where feasible, the new sites are swapped for vacated sites by ballot, thereby enabling relocatable houses to be moved to safety

Post relocation land management	• Vacated land reverts to ownership of the territorial authority or regional council • The council must consult with iwi/hapū/whanau and its community on the future use and management of the land under the Local Government Act • New land classification in the Reserves Act, of Climate Adaptation Reserve, is the default classification of vacated land

Figure 19: Key elements of Model 2 Decentralised community-led approach

This model also has a number of strengths and weaknesses. On the positive side, supporting councils to be in the driving seat of adaptation responses, should enable innovation to occur, as different communities craft different place-specific responses to the growing natural hazard risks they face. It may also facilitate a greater sense of community ownership and therefore greater acceptance of the adaptation plan. There is also less likelihood of local preferences being overrun by central government policies, although local processes themselves can be dominated by certain local factions (ie developers and business operators).

On the negative side, such a decentralised model may well see less well-resourced councils failing to undertake adaptation planning at all, unless considerable support is provided. It will also likely lead to significant disparity and inconsistency between councils with the inevitable social inequities within and between communities that this will produce. In addition, community relationships with councils are strained in some areas and would need to be rebuilt before constructive progress could be made on adaptation issues.

Such an approach may also be too slow. As climate change risk accelerates, it is likely that councils alone will not be able to keep up either financially or logistically. It may also see more investment in hard defences, which will seem more doable and affordable in the shorter term, and greater negative impacts on the natural environment

If central government is to provide significant funding for managed retreat, it may not be comfortable with leaving decisions on when and where significant relocations are to occur to councils. In addition, central government is itself a major owner and funder of physical and social infrastructure which will be affected by such relocations and so would need to be involved to some extent in local decision-making processes.

Even if central government decides to take a hand-off approach, when it comes to adaptation planning, it is will almost certainly be drawn in to the response to significant natural hazard events. It is instructive that government recently spent $100 million on flood recovery for the Buller district, including Westport, which appears to have done little to increase the resilience of the community. Focusing government expenditure on pre-emptive measures may turn out to be much more cost-effective long term.

Such a hands-off approach by central government may also see more widespread insurance withdrawal, and less generous compensation packages, if a significant proportion of the compensation is left to be sourced from the increasingly stretched local government purse. This may mean that a growing number of people are left facing property purgatory, when they are unable to sell their homes, and cannot afford to move out of risky areas.[4] It also means that decisions on who will move and when may be more strongly driven by insurance cover and the extent to which it remains affordable or available at all. This could put local government on the back foot being left with the job of 'cleaning up' what is left.

This model may be more realistically seen as a transitional step towards a more comprehensive approach and may be more applicable to small managed relocation exercises. By providing interim support to councils to get going on adaptation planning, expertise will build up on how best to go about it, as well as a greater depth of knowledge to inform a more rigorous statutory approach which may be applicable to larger projects.

It would also be possible to combine elements of both models, with regional risk assessments undertaken at a national level along with the identification of areas in need of local adaptation planning, and local councils along with their communities doing local level planning and applying for national funding to support it.

> "Each region will be unique with different environmental, social, local government/council and economic challenges. Therefore, any framework will need to have a degree of flexibility. However, there needs to be key principles for consistency. What is the cost sharing approach? Will managed retreat be voluntary? What are the over-arching principles of compensation?" (Reviewer)

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9 Summary of international models

Geldese Poort, a restored area on the Rhine River, the Netherlands

In this part of the report we review a series of international case studies on managed relocation and draw out insights that can potentially help inform policy development in Aotearoa New Zealand.

The six international case studies that were investigated for this project, and which are described below, are:

1. Room for the River programme (managed realignment), the Netherlands
2. Blue Acres programme (managed realignment), New Jersey, USA
3. Managed realignment in Medmerry, Chichester, the United Kingdom
4. The managed relocation of the small town of Grantham in Queensland, Australia
5. Buy-back and resilience schemes for flood affected homes in NSW and Queensland, Australia
6. Efforts to relocate Shishmaref, a small indigenous community in Alaska

These case studies were selected for further investigation after we undertook an international desk top scan to identify approaches that had achieved some success and were potentially relevant to the Aotearoa New Zealand context.

9.1 Room for the River programme, the Netherlands

In the Netherlands, 55 per cent of housing is located in areas prone to flooding[1] and water management has traditionally relied on civil engineering methods (such as river dykes) to protect against hazards.[2] However, the risk of flooding has increased over time, due to more frequent and heavier rainfall and the decreased capacity of flood plains and rivers to absorb water.[3] This led the Dutch Government to conclude that flood hazards could no longer be contained by traditional methods, and it established the 'Room for the River' flood protection mechanism in 2007.[4]

The Room for the River programme aimed to protect urban areas vulnerable to flooding by restoring natural flood plains in the areas of least impact, thereby undertaking managed realignment. Providing the rivers with more room to flood, by lowering the levels of flood plains, relocating levees, increasing the depth of side channels, creating water buffers and constructing flood bypasses,[5] eased the pressure on dykes.[6] The programme involved more than 30 projects across four rivers – the Rhine, Meuse, Waal and Ijssel. As well as reducing flood risk, the projects also sought to improve the environmental quality of the rivers.

Implementing the Room for the River programme involved a total of 19 partners including provinces, municipalities, regional water authorities and the Ministry of Infrastructure and Water Management (Rijkswaterstaat).[7] The Rijkswaterstaat established a central programme office to manage and monitor progress, evaluate the quality of projects, help with facilitation and provide expert knowledge. Decision-making on the actual projects was decentralised to the regional level, with local and regional stakeholders formulating and deciding on plans and designs.[8] The central programme office established a structure of 'river branch managers' to provide a conduit between the central team and work on the ground. This helped ensure a continuous connection between project teams and the programme office to help the projects keep on track.[9] Early engagement with the community was undertaken with newsletters, information meetings and interactive workshops utilised to identify and address the communities' concerns and promote their participation in the projects.[10]

Approximately 20 per cent of the programme's budget went towards buying and relocating 200 households in high-risk areas.[11] Although the Dutch government offered the market price for each property, and assistance to help find a new home, buy-outs were compulsory.[12] Significant funding also went towards improving amenities for the remaining, and now better protected, urban areas. For example, as part of the Waal River project, a 618-acre area with bike and walking paths, plazas and green spaces was provided, helping to win over affected locals to the prospect of losing their homes.[13]

Such an approach has achieved some resonance in Aotearoa New Zealand. For example, Forest and Bird has been advocating for implementation of making room for rivers as "a nature-based solution to climate change that will protect communities from devastating floods while restoring the environment and enhancing local recreational opportunities".[14]

9.2 Blue Acres programme, New Jersey

New Jersey is one of the most flood-prone states in the United States due to its heavily developed floodplains and densely populated shoreline.[15] With climate change, the state is facing heightened risks of tropical storms, heavier rainfall, storm surges and riverine flooding.[16] The Blue Acres program was established in 1995, with a specific emphasis on acquiring properties susceptible to flooding, and converting them into passive recreational green spaces managed by local government. Since that time around 1,000 properties have been purchased by the programme.[17]

When it commenced, the Blue Acres program was entirely state funded and undertook proactive buyouts under the Green Acres, Farmland, Historic Preservation and Blue Acres Bond Act 1995.[18] However, after Hurricane Sandy in 2012, the program secured $273 million from the Federal Emergency Management Agency and the Department of Housing and Urban Development, thereby shifting to disaster recovery assistance as well.[19] State funding was used to meet the federal requirement of 25 per cent matching funding thereby relieving local government from its part of the financial burden.[20] Additionally, a constitutional amendment by the New Jersey State Legislature, in 2019, imposed a 6 per cent corporate business tax to help fund the programme. This has provided a sustainable and predictable funding source, so that buy-outs can be undertaken on a long-term strategic basis.[21]

The State Department of Environmental Protection manages the Blue Acres programme, with various criteria guiding the selection of communities invited to take part in the buy-out process. They include identifying high concentrations of homes that have experienced the most severe damage from a recent storm, and over-burdened communities which are disproportionately impacted by flooding and other adverse environmental conditions.[22] The Department works directly with the federal government to obtain federal funding, and with local governments in the communities where buy-outs are occurring.[23]

Homes are purchased at their pre-storm or pre-flooding value to incentivize property owners to sell while providing sufficient resources for them to relocate to safer locations.[24] Each homeowner is paired with a case manager to provide support throughout the entire process.[25] Blue Acres officials work with real estate agents on behalf of sellers purchasing new homes to coordinate down payments and other funding requirements.[26] Notably, under State law the programme is barred from 'taking' property (through the power of eminent domain) unless approved by both Houses of the legislature meaning that residents must in effect voluntarily agree to sell their damaged or flood-prone home to the state.[27]

What makes the Blue Acres programme of particular interest to Aotearoa New Zealand is its aim to only purchase clusters of homes (with all property owners within the cluster needing to agree to the buy out before it proceeds) rather than individual properties. This enables interconnected restoration areas to be created, rather than a patchwork of land between homes that have not participated in the buy-out. Such an approach helps to maximise the environmental and hazard mitigation benefits of the investment.[28]

9.3 Managed realignment, Medmerry, Chichester

Medmerry has long been susceptible to coastal flooding. A shingle bank structure, which had been constructed to protect the town, was frequently breached and required £300,000 in annual maintenance. Over time, erosion and sea-level rise severely diminished the intertidal habitat, which was unable to expand due to the proximity of nearby urban areas.[29] Things came to a head when, in 2008, a flood event caused £5 million of damages. This prompted the initiation of a managed realignment project, which was completed in 2013 at a cost £28 million, with the funds provided by central government.

The realignment was led by the Environment Agency in partnership with the Royal Society for the Protection of Birds. A Medmerry stakeholder group, which included representatives from local authorities, businesses, parishes and residents, was an integral part of the project. The group agreed on project objectives and helped with the design. Additionally, workshops, public exhibitions, guided walks and a dedicated liaison officer were provided to promote community participation.

Managed realignment of farmland, with the re-establishment of a coastal wetland, Exmoor

The project involved breaching 110 metres of the shingle bank to permit the ingress of tidal water. This created 183 hectares of new intertidal habitat which is now managed by the Royal Society for the Protection of Birds. Additionally, 7 kilometres of new flood banks were constructed some 2 kilometres inland, forming a low-cost flood defence system to protect the two local towns.[30] Ten kilometres of new footpaths, cycleways and bridleways were also built across the site.[31] As well as generating considerable environmental benefits, the project has reduced flood risk to 350 homes, local infrastructure and roading, and it did not necessitate the removal of any houses.[32]

9.4 Relocation of Grantham, Queensland

Grantham, a small town in Queensland, Australia, was built on a floodplain and had experienced multiple instances of flooding over 150 years. Things came to a head when, during the Queensland floods of 2010-2011, a flash flood inundated the town killing 12 of the 370 residents and damaging numerous buildings.[33] After witnessing the destruction caused by one of the worst flooding events in the town's history, the Mayor decided to look to other options before rebuilding.[34] Within three months, the Lockyer Valley Regional Council had purchased a 938-acre site on a nearby hillside unaffected by flooding.[35] It took only a further four months to rezone the rural land for urban use utilising special fast track procedures under the Queensland Reconstruction Authority Act 2011.

Owners of affected properties were able to swap their land for a plot of similar size within the newly developed area, with the specific site identified by lottery.[36] They were then required to remove all existing buildings before vacating their damaged land. Participating property owners could apply for state grants of $35,000 to assist with these costs. They were also exempt from paying transfer duty on their new lots.[37] The old land titles were transferred to the Council for non-residential use.

A significant amount of community support was offered during the relocation process. The Council ran weekly workshops, one-on-one meetings were held between affected property owners and case managers,[38] and there were extensive community consultations and public meetings. The media was also kept closely engaged throughout the project.[39] Participation in the land offer programme was voluntary. In the end 115 land titles were transferred with 50 houses remaining in the old flood-risky part of the town. Some remained because they could not afford to move, being unable to fund the construction of a new home on the resettlement site.[40]

In terms of financing, the Commonwealth Government provided 47.5 per cent for recovery and reconstruction across the state, the Queensland Government provided 17.8 per cent, insurance provided just under 30 per cent, and private donations covered just over 5 per cent.[41] Most of the government funding covered the replacement of key infrastructure, with insurance payments largely paying home reconstruction costs. Additionally, some (but not all) uninsured or underinsured residents – whose eligibility for donations was income tested – were offered private donations via non-profits.[42]

9.5 Buy-back schemes in NSW and Queensland

From late February to early April 2022, three intense weather systems devastated the states of Queensland and NSW in Australia, with over 20,000 homes and businesses flooded in Queensland and more than 5,000 homes damaged in NSW. At least 23 people died and thousands were evacuated. [43]In response, the Commonwealth, Queensland and NSW governments decided to implement a home buy-back scheme and provide other adaptation support for those impacted by the 2022 floods.

The Resilient Homes Program – a $700 million programme co-funded by the NSW and Commonwealth governments – was established for the Northern Rivers area of NSW. It offers one of three options to eligible homeowners based on flood impact severity data, safety risks, expert property assessments and potential future flood levels. The options include home buy-backs for those located in areas where flooding may pose a risk to life, support of up to $100,000 to raise the level of a home, or up to $50,000 for home retrofitting.[44]

A Voluntary Home Buy-Back Program – with funding of $350 million – has also been set up in Queensland in order to fund councils to buy back homes at their pre-flood valuations. The sales are negotiated by the Queensland Reconstruction Authority which organises a valuation of the homes registered for the scheme before negotiating with the relevant owner, developing the sale documentation and then selling the property to the relevant council. [45] The land is then rezoned as 'non-habitable use' so that no home can be built there in the future.[46]

A Resilient Homes Fund of $741 million, funded by both Commonwealth and Queensland State Disaster Recovery funds, has also been established and is administered by the Queensland Reconstruction Authority. [47] It is funding homeowners to repair or retrofit their homes to enhance resilience including through raising their houses. In addition, a Resilient Land Program – a $100 million programme fully funded by the NSW Government – focuses on identifying flood-safe land suitable for redevelopment and relocation of those impacted by the 2022 floods.[48]

These programmes provide residents options to sell and move, or fix and make their damaged homes more resilient, while also providing pathways for future development in flood-safe areas. Notably, all participation in the programmes is voluntary, leaving citizens with a choice over their flood response.

The public response to the NSW and Queensland voluntary buy-back schemes has been strong. More than 5,700 Queensland homeowners registered for the Resilient Homes Fund by January 2023,[49] and in NSW, 250 formal buy-backs were offered by the end of April 2023.[50] Nevertheless, there have been some issues. The number of registered homeowners and vulnerable properties exceeds both funds' capacity, meaning many will miss out.[51] There have also been claims that the amount of the offers are significantly lower than expected based on previous valuations.[52]

Coastal development and sea defences in Port Stephens, NSW, Australia

9.6 Efforts to relocate Shishmaref, Alaska

Shishmaref is a small town of around 600 residents located on Sarichef Island in Alaska. It is home to the indigenous Iñupiat community which undertakes fishing and a subsistence lifestyle. Sarichef, a small barrier island comprised mainly of sand, is particularly vulnerable to the impacts of climate change due to the combined pressures of reduced Arctic Sea ice, melting permafrost and sea-level rise.[53] Since the 1970s, there have been many erosion events leading to the collapse of several structures into the sea. In 1997, after 10 metres of the shore eroded after a storm, 14 homes were relocated to another part of the island. Five more homes were moved in 2002.[54] Shortly thereafter several coastal revetment projects were implemented, at a cost of more than US$27 million, but these have only offered short-term protection.[55]

The Shishmaref Erosion and Relocation Coalition was created in 2001 to address threats posed to the village by erosion and flooding. In 2002, the community voted to relocate, so the Coalition created a strategic plan for relocation.[56] In 2004, the US Army Corps of Engineers undertook a cost analysis which found that relocating the town to a new site would cost approximately US$180 million, and co-locating to a nearby village would cost around half that amount, at $94 million.[57] Despite the lower price, merging with another village was seen as likely jeopardising the Shishmaref community's way of life and cultural heritage. Therefore, the Coalition decided to proceed with relocation to a new site. During a public meeting held in December 2007, the community approved an inland location – Tin Creek – as the preferred site for relocation, with the understanding that the village had 10-15 years before the current location would become untenable.[58]

Nine years later, in 2016, a further study (the Shishmaref Relocation Site Feasibility Study funded by the Division of Community and Regional Affairs) assessed five relocation options based on factors such as flooding, erosion, access to traditional use areas, and costs.[59] As a result of this study, residents decided in August 2016, with a vote of 94–78, to move to either Old Pond or West Tin Creek Hills on the mainland.[60]

Over more than two decades, a large amount of work and resources has been put towards completing studies and creating policies to allow for the relocation of Shishmaref. Nevertheless, the community has still not relocated due to a lack of consistent state and federal funding which is required to facilitate the relocation process. Shishmaref and other Alaskan communities find it difficult to compete for hazard mitigation funds due to their geographic isolation and low population. The US Government Accountability Office has highlighted that more than 70 Alaska Native villages face significant environmental threats from erosion, flooding or thawing permafrost. It recommended that Congress consider establishing a coordinating entity to assist Native villages facing environmental threats. This could allow for more strategically targeted federal investments that better address the challenges faced by Alaska's Native villages.[61]

9.7 Key themes from international case studies

These international case studies provide several over-arching themes and lessons to inform approaches taken in the development of climate adaptation policy in Aotearoa New Zealand.

9.7.1 Funding and buy-backs

The success of managed relocation is very dependent on access to a strong and predictable funding source. This is especially important for voluntary buy-back schemes, which if limited by funding, will cause some residents to miss out. If adequate funding is not made available, communities will remain trapped in hazardous areas, as was the case with some Grantham residents and the indigenous Iñupiat community in Shismaref. There seems little point in undertaking relocation studies if the requisite funding to implement the preferred option is not likely to be forthcoming. This can only serve to unhelpfully raise community expectations.

In some cases the programme was entirely funded by central government (Room for the River) and in others there was a mix of sources including federal government, state government, insurance and donations. Local councils were not generally expected to fund the programmes, although they were often the key implementers of managed relocation. Much of the funding was spent on replacing, moving or reconfiguring key infrastructure rather than relocating homes. In some cases (eg Medmerry) no homes needed to be acquired in order to put in place a very effective managed realignment regime which also generated significant benefits for nature.

9.7.2 Governance

Many of the case studies incorporated multi-level governance structures. This required coordination between national/federal (and/or state) government, as the over-arching decision-maker and potentially funder, and local governments which have contextual knowledge about their geographic area. Local government involvement helped ensure meaningful stakeholder and community engagement. In some cases a specialist entity was involved, such as the Queensland Reconstruction Authority.

In the Dutch Room for the River initiative, government established a central programme office to oversee the project but decisions on the actual plans were made at the regional level. A group of 'river branch managers' provided an important conduit between the central and regional levels.

In the Grantham example, the council took the impetus to relocate the community and had sufficient resources to buy land for the relocated community. However, the council was then strongly supported by the state government in providing access to fast track procedures for rezoning. This enabled the relocation process to be completed swiftly with the new blocks of land allocated within two years of the flood. Such speed, if it can be achieved, is important in providing certainty to those affected, and enabling them to get on with their lives as soon as possible.

9.7.3 Community engagement

All the case studies illustrate the importance of stakeholder and community engagement in managed relocation efforts, and this has also been highlighted in the Aotearoa New Zealand case studies. Such engagement is a specialist skill which needs to be incorporated into managed relocation teams.

9.7.4 Social support

In most cases, the relocation process was voluntary (with Room for the Rivers being the exception). In some cases a range of options were funded including relocation or adaption of houses in situ. Whatever the programme, strong social infrastructure was crucial in successfully managing relocation processes. As was also demonstrated in the Christchurch red-zone experience, relocation involves real people who may be scared and hesitant to give up their homes, particularly because of the various complicated processes involved. Providing a wide range of services and support can ensure that those moving are looked after every step of the way, creating a seamless process that limits stress and anxiety as much as possible.

9.7.5 Nature-based solutions

Nature-based solutions – such as managed realignment highlighted in the Room for the Rivers, Blue Acres and Medmerry case studies above – can achieve significant environmental and community gains when undertaken alongside managed relocation. They can reduce hazard risks for the remaining community, create more room for nature, and improve community amenity.

9.7.6 Scaleability

Many of the programmes were of a reasonably small scale and there are questions as to whether the approaches could be scaled up significantly. For example, the Room for the River programme purchased 200 houses, 115 houses were relocated in Grantham, and the Blue Acres programme has purchased only around 1,000 houses over a 28 year period. The NSW flood buy back programme is larger but had approved only 11 per cent of the 5,001 applications for a buy back 20 months after the flood disaster.[62]

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10 Conclusions

House in the dunes, Ocean Beach, Hastings

This working paper has canvassed a wide range of options for development of managed retreat policy, while also traversing a wealth of experience both in Aotearoa New Zealand and overseas. Our intent has been to widen the debate as to what might be possible and desirable to include in such policy, and in particular in a new Climate Adaptation Act. We are keen to hear feedback on the options presented.

This is the last working paper in the series. In our final report, due early in 2024, we will be putting forward what we consider to be the best path forward for the country, in terms of developing managed retreat policy. The proposals will strongly focus on the content of the proposed Climate Adaptation Act. We do this work, cognisant that adapting in the face of growing climate hazards is likely to be one of the greatest future challenges facing this country.

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