Decarbonising Cities in Japan and New Zealand: A Comparative Study of Urban Policy Developments

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Abstract This study aims to identify national and local challenges and best practices amid urban decarbonisation policy, with a comparative case study approach focused on Japan and New Zealand. Insights on three perspectives — government initiatives for decarbonising cities, integration of climate action in urban planning, and challenges in promoting decarbonisation — were obtained through interviews with four local governments in Japan, two local governments and the central government in New Zealand. In Japan, active initiatives have not progressed, as urban planning departments recognised difficulties in developing decarbonisation strategies. In contrast, it was revealed that local governments in New Zealand have a progressive attitude towards climate change. This means assigning staff to climate change initiatives across sectors and developing urban and transport plans with specific actions to address climate change. However, recent policy changes to the resource management system in New Zealand will not directly encourage climate change mitigation in the land use sector. One of the challenges faced by New Zealand planners relates to advancing national and local decarbonisation strategies while complying with rapidly changing central government policies.

Keywords. *Decarbonisation, Carbon neutrality, Governance, Planning systems, Sustainable development, Comparative case studies*

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1 Introduction

This study aims to identify national and local challenges and best practices in urban decarbonisation strategies, to benefit the professional endeavours of the urban and environmental planners and the interests of their organisations. Many countries and regions around the world are aiming to achieve decarbonisation (defined in this study as carbon neutrality) by 2050, a condition that balances carbon dioxide emissions and sequestration, curbing greenhouse effects and sustaining improved urban wellbeing. For this, promoting decarbonisation initiatives in urban planning sectors is essential to achieving carbon neutrality (Rauland & Newman, 2015). Because cities constrain human activities that affect carbon dioxide emissions, urban planning, which includes the design of future urban structures, is a key sector in determining carbon dioxide emissions over the long term. An urban structure like the 15 or 20-minute city models, where urban services are compactly arranged, facilitates access to essential services without forcibly restricting the mobility of communities, thereby reducing carbon dioxide emissions by reducing travel distances (Jin et al., 2024; White et al., 2024). However, there is a need to research key decarbonisation policy challenges in urban planning and best implementation practices to inform policy transitions targeted at promoting carbon neutrality.

Island countries in the Pacific and Oceania region are also shifting towards decarbonised societies and economies, despite their limited land area and geographical disadvantages. According to Flessa et al. (2023, p.2), "Non-interconnected islands face unique challenges on the pathway to decarbonization that differ from those of the mainland based on their geographical location, lack of energy interconnections". Japan and New Zealand, where this study focuses, are the most similar of the Pacific Rim countries in terms of geology, and their cultures and development have adapted to the terrain in different ways (Harada & Glasby, 2000). Comparing the different policy approaches to climate change actions in the two countries, which have distinct urban histories and developed diverse legal systems and policies under similar geographical conditions, can facilitate mutual learning toward achieving carbon neutrality. This is relevant not only

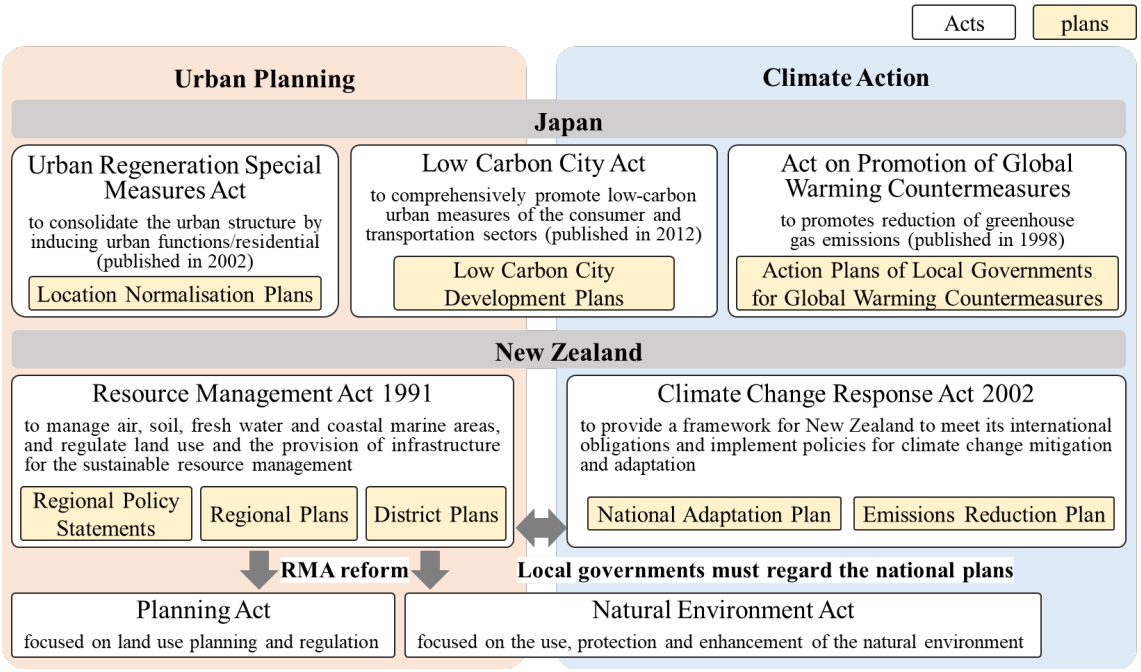

Figure-1 Planning Systems Related to Decarbonising Urban Environment in Japan and New Zealand

between these two countries but also for neighbouring island nations in the Pacific and Oceania, on their decarbonisation transitions.

Under the Japanese urban planning system, urban compactness has been encouraged throughout the history and evolution of cities. The urban planning system is based on the City Planning Act, which was established in 1968 and aims to promote the orderly development of cities (**Figure-1**). In 2014, the Act on Special Measures Concerning Urban Reconstruction was amended to enable Location Normalisation Plans (LNPs), addressing the challenges of population decline and ageing, diffuse urban areas, and frequent and severe disasters. The LNPs aim to promote the creation of Compact Plus Network urban fabric by leading residential and urban functions within areas with high accessibility and have been published by 599 local governments across Japan by the end of 2024 (Ministry of Land, Infrastructure, Transport and Tourism, 2024a). On the other hand, the Act on Promotion of Global Warming Countermeasures was established in 1998 and aims to promote initiatives to counter global warming, including the reduction of greenhouse gas emissions. In 2013, it was added to the act that the national government must formulate a Plan for Global Warming Countermeasures, and prefectures and municipalities were mandated to formulate Action Plans of Local Governments (Action Plans). In 2021, the basic principle of achieving a decarbonised society by 2050 was added to the act. Furthermore, the Low Carbon City Act was established in 2012. The 26 local governments have developed Low Carbon City Development Plans (Eco-City Plans) to comprehensively promote low-carbon measures in urban structures, transport, greenery and the energy sector (Ministry of Land, Infrastructure, Transport and Tourism, 2024b). The Japanese government has designated three plans named 'Planning System Related to Decarbonised City Planning': the LNPs, the Action Plans and the Eco-City Plans, to promote decarbonisation under the strategies and sectors of the social economy (Ministry of Land, Infrastructure, Transport and Tourism, 2022, p.45). However, the integration of the three plans is not adequate, particularly as the alignment between the LNPs and the Action Plans is weak (Sato et al., 2025). The consistency and effectiveness of decarbonisation urban measures in both plans are not ensured, since there is no indication that policies and targets are shared between them. One of the reasons for this lack of coordination is a legal system problem, which has not made it mandatory for decarbonisation promotion measures to be considered in urban planning. In contrast, the Eco-City Plans are the only plans primarily aimed at reducing carbon dioxide emissions in urban areas, but these have hardly been formulated or updated since 2016, when the creation of the first LNP. These plans have the same concepts of promoting compact cities but subsidies available for implementing urban intensification through the formulation of LNP are more substantial than those available through the formulation of Eco-City Plans.

In New Zealand, the Resource Management Act 1991 (RMA) was established, aiming at sustainable resource management (**Figure-1**). This resource policy includes land and provisions to plan for land use. In addition, the RMA requires the national climate change adaptation and mitigation plans to be considered in the region/district plans (Ministry for the Environment, 2022a). The RMA is claimed to have resolved the paradox between environmentalism and economic growth and led the world to the development of environmental acts for sustainable management (Memon & Gleeson, 1995). However, problems across the resource management system under the RMA, including excessive complexity, uncertainty, cost and lack of effective integration, have been identified (Resource Management Review Panel, 2020). Currently, the central government has been working on RMA reform in order to overcome these problems and accelerate delivery timelines of housing developments and critical infrastructure (Ministry for the Environment, 2025). In the first phase of changing the resource management system, the current government repealed the Natural and Built Environment Act 2023 and the Spatial Planning Act 2023, which had been introduced by the previous cabinet, four months after their establishment. The second phase introduced the Fast-track

Approval Act 2024, to make the approval process easier and quicker for the development and infrastructure projects identified as relevant by the government. The development of electrification infrastructure is expected to be accelerated under this new legal pathway. In the third phase of the reform, the existing RMA will be replaced with two acts, the Planning Act and the Natural Environment Act (**Figure-1**). The other objective of RMA reform is to respond to climate change, and the government commits to electrification, including a shift to electric vehicles and a rollout of public charging points (Beehive.govt.nz, 2024). New Zealand's second emissions reduction plan, which was published after the government changed as a result of the last election, has introduced climate change mitigation measures through electrification and renewable energy promotion, but the chapter on the importance of planning and infrastructure to reduce carbon dioxide emissions has been removed (Ministry for the Environment, 2022b; Ministry for the Environment, 2024). Therefore, it is not clear how the strategy and plans intend to combine climate change measures with urban development promoted by the new government. This highlights the need to research the best practices to enable urban planning practitioners to implement decarbonisation policies, particularly at scalable niches (Early et al., 2015). 'Starting small' can provide incremental confidence to decision-makers in policy and practice transitions to achieve carbon neutrality.

Climate change policies are formulated and implemented with the influence of political and social factors, as well as the visions of various actors (Cretney et al., 2024). Understanding what policy makers consider and how they translate their views into measures is important for recognising their efforts and best practices. Furthermore, learning from past experiences and sharing knowledge of success and failure cases in urban development efforts to reduce carbon dioxide emissions is important for overcoming barriers and advancing new initiatives toward decarbonisation (Rauland & Newman, 2015). The New Zealand legal system, in which land use is covered by the Environmental Act, might be helpful in solving the challenge that specific decarbonisation initiatives have not progressed in Japan due to the separation of the urban and climate change planning systems. On the other hand, New Zealand's resource management system has been under reform (White et al., 2024, Cretney et al., 2024), which would possibly overturn the assumption that land use and environmental measures are integrated. This study compares the policy pathways, strategies, challenges in Japan and New Zealand, focusing on the influence of the RMA reform on climate change mitigation in the national and local government, to identify points of reference and to encourage government initiatives towards best practice policy approaches to support the urban planning sector in decarbonising transitions.

2 Methodology

2.1 Comparative case study research

This paper explores how Japan and New Zealand have been leading carbon neutrality in urban planning, policy and practice, with approaches that can support urban decarbonisation transitions into the future. The previous section outlined changes in legislation and policy pathways in both countries in the context of carbon neutrality in cities. This research adopts a comparative case study research approach because international comparisons provide insights into common problems, best practices, and lessons for addressing similar social issues, contributing to the evaluation of the solutions and the transferability of policies (Hantrais, 2009). This approach enables the collection of more detailed data than the information can be found in the legislation, statements and planning documents, including how decarbonisation strategies have been developed and what institutions and policies promote land use and transport measures. The comparative analysis enables the examination of commonalities and differences between the two

countries' decarbonisation strategies in urban planning.

2.2 Case studies in Japan

Previous research identified LNPs that defined decarbonisation as one of the rationales for the establishment of Induction Facilities, Urban Function Induction Areas, and Residential Induction Areas, and selected the local governments formulating these plans; Koriyama, Yokkaichi, Ube and Kitakyushu cities, as case studies (Sato et al., 2025). The methods of data treatment were adopted as preferred by the participants, the employees in charge of developing LNPs in the four local governments, and the open-ended questions were sent to them in advance. The study revealed the background of decarbonisation mentions, methods of cooperation with other sectors, views on the contribution of the LNP to promoting decarbonisation, and the challenges faced.

2.3 Case studies in New Zealand

The case studies in local government of New Zealand include Auckland Council and Queenstown Lakes District Council (QLDC), which have specific decarbonisation strategies, and are compared with the case studies in Japan. Auckland has a unique decarbonisation initiative that delivers Zero Emissions Area in the city centre, where only zero-emission vehicles and fully electric public transport, walking, and cycling are allowed (Auckland Council, 2020). In Queenstown, a thriving tourist destination in the southern part of the South Island, the Queenstown package delivers the necessary infrastructure for public transport services and safer, healthier and more environmentally friendly travel options (NZ Transport Agency, 2022). This case has been featured as a case study in the chapter of Transport in the first emissions reduction plan (Ministry for the Environment, 2022b). In addition, the Queenstown Public Transport Business Case provides a public transport strategy in the Whakatipu Basin, including the State Highway 6 and 6A corridors where the Queenstown Package has been implemented, and focuses on decarbonising public transport (Otago Regional Council, 2024). Auckland is the largest city in New Zealand, where approximately one third of the nation's population lives, and has faced intense pressure to address problems caused by rapid population growth, such as housing shortages (Early et al., 2015). Additionally, “Queenstown is one of New Zealand’s fastest growing regions” (Otago Regional Council, 2024, p.2). Both cities are required to grow their urban areas while simultaneously considering issues, such as traffic congestion caused by population growth, and climate change mitigation. Furthermore, the Central Government is also selected as a case study to explore how RMA reform, which has a significant impact on the urban environment, contributes to the decarbonisation strategies of local governments.

The collection, treatment and presentation of data comply with the regulations of ethical conduct in human research and related activities, with ethical requirements approved by the university at the department level (approval number FS2024-63, 27 Nov 2024).Participant recruitment was conducted through emails to organisations in the case studies with descriptions of the research, and requesting either to participate in semi-structured interviews or to introduce suitable individuals within their organisations. The interviews were conducted while respecting the participants' preferences for the treatment and presentation of their data, to mitigate identified social and professional risks associated with their participation in the study. The participants included experienced employees with specialist knowledge of decarbonisation policy and strategic implementation. The data collection methods, like the online semi-structured interview, were applied for the Central Government and Auckland Council, and an interview questionnaire was conducted at Queenstown Lakes District Council via email. The discussions in the interviews were audio-recorded with the consent of all participants and transcribed with the assistance of

Microsoft Word's transcript function. The transcribed data was circulated by email to participants who wished to review it, and the accuracy of the transcriptions was verified through feedback provided by them. While designed to be individual, the online interviews were conducted as group interviews because several employees joined the activity together, and there were discussions that the participants further followed up, collectively.

3 Results

3.1 Local initiatives and policy challenges in Japan

The results of the case study in Japan have been clarified in previous studies (Sato et al., 2025), therefore only a summary is provided in this section. The following highlights the interview results, showing how the four local governments integrated the perspective of decarbonisation into their LNPs. Koriyama City and Ube City incorporated the concept of carbon dioxide reduction into their LNPs, aligning them with existing Low-carbon City Development Plans. Yokkaichi City includes the preservation of green spaces to sequester carbon dioxide within Residential Induction Areas, reflecting a commitment to green infrastructure. Kitakyushu City has designated the zero-carbon advanced area as an induction area, aiming to attract mixed urban functions, including residences into areas with high transport accessibility.

As to promoting decarbonisation strategies, Koriyama City indicated a proactive stance, whereas Yokkaichi, Ube, and Kitakyushu indicated that decarbonising urban environments is not the main purpose of the LNPs. Yet, the three cities acknowledged the role of compact city development to advance decarbonisation. Regarding the consideration of decarbonisation within the review of existing plans, the four studied local governments indicated that there were no such discussions.

The interviews highlighted that planners face various challenges in integrating decarbonisation in the LNPs. This study revealed that local government employees are seeking objective evidence to justify devoting efforts to decarbonisation strategies in urban planning, as well as policy tools and reference measures to help them consider options for decarbonisation transitions. These challenges include the lack of a legal basis and specific measurements to promote decarbonisation pathways in the LNPs, and limitations in developing robust environmental metrics to efficiently inform urban governance processes. Given that LNPs are adopted with a long-term framing to develop neighbourhoods, there are relevant challenges to overcome to efficiently measure and demonstrate the incremental impacts of carbon neutrality. Likewise, it is still relevant to further develop the quantifiable measurements of implemented projects affecting urban carbon dioxide emissions. The next section presents the results of the New Zealand case studies.

3.2 Local initiatives and policy challenges in New Zealand

Initiatives for decarbonisation by local governments in New Zealand.

Auckland Council. The Auckland Council group has in-house teams and specialists dedicated to various streams of work related to climate change, with approximately 200 staff. The Auckland Council group includes the local council and council-controlled organisations (CCOs). Auckland Council has a Chief Sustainability Office, responsible for determining strategic directions on climate change, but also individual strategy teams that deliver specific components of the climate strategy. Additionally, there is a financial reporting team dedicated to sustainable finance, and operational logistics affecting parks, healthy water and waste solutions. In terms of organisational operations, there is a team focused on community climate action.

CCOs have in-house sustainability teams responsible for strategy development and climate change reporting. These include specialised staff. Even when their main focus is not climate change, they still contribute to climate action as part of their broader responsibilities.

Climate change actions are integrated across the Auckland Council through a broad range of strategies and policies. The Auckland Council has incorporated 'Whole of Life Carbon' into their long-term plan, setting the strategy and budget for Auckland over the next 10 years. The infrastructure strategy, which is part of the long-term plan, mandates a comprehensive consideration of carbon emissions reduction in infrastructure development and renewal. In the Future Development Strategy, compact city approach is considered. In addition, climate change measures have been integrated for the first time into the 21 local board plans, which set the direction of each local area of Auckland for the next three years. Each local board has a chapter on Climate Action in the plan, outlining challenges and actionable measures within the communities.

Regarding the transport sector, the Transport Emissions Reduction Pathway has been developed. This study highlights that although there are in-house human resources to deliver the strategy and its further implementation, the pathway has not been essentially integrated into the day-to-day governance and planning processes. Auckland Council works with councilors and various departments across the organisation to ensure a coherent strategy and direction.

Queenstown Lake District Council. QLDC has strategically integrated transport, spatial planning, and climate change action to encourage sustainable growth across the district through the Queenstown Lakes Spatial Plan (QLSP), Climate and Biodiversity Plan 2022–2025 (CBP) and Better Ways to Go- a mode shift plan. The QLSP integrates a dedicated section on climate change and emphasises the importance of compact urban form and modal shift towards public transport and active transport modes to reduce emissions and improve climate resilience. The QLSP is integrated with the CBP, focusing on decarbonising the transport sector. The Better Ways to Go outlines a strategic approach to promoting sustainable transitions to transport networks, as a key way to achieve decarbonisation. These strategies are part of a broader endeavour to include climate change responses in all aspects of council decision-making and contribute to the district's emissions reduction targets.

Monitoring Climate Action in New Zealand. According to the Central Government, local governments in New Zealand have a drive to connect with national and international networks such as C40 Cities and 100 Resilient Cities, to reduce emissions and achieve carbon neutrality. Some local governments have been working ad hoc to develop a nationwide data platform to support decarbonisation pathways with tools and resources for measuring carbon emissions, like those developed by Kinesis in Sydney, Australia. This collaborative work has been conducted to provide local emissions pathways and help their decision-making. As highlighted by a central government employee who participated in this study, local councils have measured their emissions and plotted their transition pathways, without an initial requirement from central government.

Auckland Council. A regional greenhouse gas emissions inventory is conducted annually in Auckland, but this is progressing with a three-year delay. With support from the Ministry for the Environment, Auckland Council is investigating ways to report more data, in close to real time, through an emerging reporting tool that is currently used in an ad hoc manner by about 25 local governments nationwide. Eventually, this tool is expected to become a public platform to enable frequent data sourcing from central and local governments, while reducing reporting delays from regulating agencies and emission sources. Data sources, such as the transport sector, are required to enable accurate tracking of progress toward

emission reductions, while there are ongoing efforts to reduce reporting times and improve data accuracy. The Auckland Transport Authority is working to reduce carbon emissions, but against the wishes of the local council, they are pushing back the responsibility of reporting on emissions from the transport sector in the region.

Queenstown Lake District Council. GHG emissions reporting has been completed by QLDC in 2017 and 2019, and by Otago Regional Council in 2021. The decarbonisation reduction targets set by QLDC are being translated into policy-making and specific measures through the delivery of the Climate & Biodiversity Plan. Demonstrating the QLDC's commitment to climate action, this plan combines strategic actions and integrates various work programmes to promote progress toward achieving net-zero emissions by 2050.

Views of New Zealand's local governments on the potential for carbon neutrality.

Auckland Council. Auckland Council employees, who participated in the study, pointed out that successful decarbonisation pathways require government-level policy setting and funding support from multiple sources. The time scale of current policy documents challenges climate strategies from a long-term perspective, with goals set up to 2050 with a long-term vision, against city council financial planning documents that cover three to ten years. Moreover, climate action competes with all other priorities. To successfully implement the decarbonisation strategy by 2050, central government policy and funding allocation must undergo substantial change to enable local councils to implement projects. Also, economic degrowth has been identified as a way to achieve decarbonisation because if the New Zealand economy faces a severe recession, there might be new opportunities to significantly reshape the economy toward circular carbon lifecycles and carbon-neutral urban systems.

Queenstown Lake District Council. One of the QLDC employees recognised that the CBP has significantly advanced its implementation by reporting quarterly on the progress of each action, key achievements, and areas requiring attention. Of the 81 actions committed to in the plan, 96% are either completed or in progress. This CBP has been led by the Resilience and Climate Action team, consisting of one manager and two advisors, has been delivered with partners such as Otago Regional Council.

Impact of RMA reform in New Zealand. From a Central Government perspective, the participants mentioned that the new (RMA) system can create a clearer and simplified process flow, from legislation to consent. Since 1991, the RMA has kept growing with varying national policy directions over time; some more detailed, while some created conflicts between different policies. The new system is aimed at narrowing down the focus, considering areas that the central government deems a priority, as it becomes clear that climate change mitigation and reduction targets will not be considered in the new resource management policy. One of the central government employees interviewed recognised that elements of the new RMA system can help reduce emissions. For example, the focus on regional spatial planning could enhance the integration of land use with infrastructure investment to best deliver urban intensification around rapid transit. Additionally, the introduction of standardised zoning approaches was discussed. There is significant pushback on urban intensification, and as the current government is positive on greenfield development, there are few measures to achieve decarbonisation. Standardised zoning and permitting mixed land use, as well as revising land use management methods to reflect the socioeconomic needs of communities, can contribute to decarbonisation. Furthermore, the possibility of removing the consideration of amenities for maintaining areas and district land with special characteristics, was pointed out as a change in land use. This is set to enable faster infrastructure development, including renewable energy facilities. Regarding the energy policy, the government is promoting the electrified New Zealand programme, which

focuses on simplifying consent procedures to enable the generation and transmission of renewable electricity. Regarding the infrastructure development considered in the first emissions reduction plan, the second emissions reduction plan, formulated after the election of the new government, shifted significantly toward leaving this consideration to the Emissions Trading Scheme (ETS). Additionally, even after the RMA reform, regional and district plans will be mandated to consider the Emission Reduction Plan which is enforced by central government.

Auckland Council. The interview with Auckland Council employees discussed the impact of the changes led by central government on local government, including the RMA reform. One of the employees suggested that although there is a future development strategy and long-term planning, there are serious challenges to be effective because of central government legislation. The current government has reshaped the policy reform that the previous government initiated and has started all over again. There are concerns that the new system is centred on enabling greenfield development, and council staff are not given much control, such as the ability to deny plan changes or the rezoning of rural land into residential. By discouraging councils from considering land use, local councils will face challenges in planning infrastructure to accommodate future growth. Regarding greenfield development, the NPS Highly Productive Land is supposed to prevent urban sprawl on highly productive soils in Auckland. However, this is not strong enough to prevent greenfield development, and the risk of converting highly productive land into urban development is increasing.

In transport, the Transport Emissions Reduction Pathway was implemented with the Climate Action Transport Targeted Rate, which is a large co-funded budget provided by the central government. However, the Targeted Rate has now changed with shifting politics. The central government changed directions for future infrastructure and excluded initiatives that are related to active transport and decarbonisation. As a result, decarbonisation efforts are being excluded from the scope of ongoing infrastructure projects, and current initiatives are facing significant headwinds (RNZ, 2025a). This underscores the need to understand current decarbonisation implementation challenges and best practices.

Challenges facing New Zealand. Prioritising infrastructure investment tends to fluctuate in response to political and financial conditions, recognised the central government. This reflects in the infrastructure development and plans expected of local, regional and central governments. Transport policy has undergone significant changes from investing in public transport to roads, and there have been calls from outside the government to ensure a neutral and less politicised stance on decarbonisation policy. One of the challenges is creating an enduring system that will be used to measure decarbonisation progress at various urban and regional scales, while controlling the risks of tools that can be used to boost populist political agendas and decarbonisation plan deviations.

While the current government intends to promote housing development and renewable energy infrastructure, there are competing objectives, such as environmental protection, supporting economic growth, and climate change actions. These competing objectives create opportunities for trade-offs but also complicate the prioritisation of decarbonisation measures within long-term and global agendas. Moreover, one of the central government employees expressed that wind turbines, solar panels and EV chargers in New Zealand's landscapes can sometimes face backlash from the public, alluding that more can be done to enhance societal awareness on decarbonisation pathways.

Auckland Council. The principal challenges were identified as the policy direction of the central government, but there are also political issues in alignment with community sentiment. Auckland Council and its councilors supported highly ambitious decarbonisation strategies in the climate plan and the

transport emissions reduction pathway. However, New Zealand politicians are willing to take symbolic measures, but they will not lead the community to achieve strategic objectives. Despite nationwide calls for government lobbying reform, the automobile sector continues to be a powerful force that benefits from deterring decarbonisation pathways (Newsroom, 2025). Despite mounting evidence on the impacts of carbon emissions on health, there is enough distrust and confusion being created that can prevent communities from adapting to sustainable development patterns.

The results also outlined that climate change concerns can immediately increase after a severe storm but tend to fade over time. The previous government spent significant resources on initiatives for reducing emissions, which have been discussed in the media. However, the current government pushed for the opposite direction (RNZ, 2025b), and as a result, decarbonisation efforts face new sociotechnical barriers amid political shifts that prioritise economic growth at the cost of environmental values.

Queenstown Lake District Council. QLDC faces significant challenges as one of the fastest-growing cities and as an international tourist destination. It is a major challenge to ensure housing affordability and control seasonal tourist demand through city policy. This requires coordination between the tourism sector, local businesses and government. Queenstown needs to balance suburban development to address growth in housing demand and land shortage, with the trade-off of reducing carbon dioxide emissions. While QLDC has strong strategies concerning these issues, it is necessary to secure sufficient resources for implementation and ensure interorganisational coordination to embed climate priorities across departments. This study found that in Queenstown, there is a lack of reliable electricity networks with sufficient capacity to provide power for the transport system.

4 Discussion

This study compares Japan and New Zealand, considering three key perspectives – government initiatives for decarbonising cities, integration of urban development and climate action in planning, and challenges in promoting decarbonisation. This aims to provide insights into decarbonisation pathways in urban planning, which is relevant to progress such endeavors in both countries, but also internationally relevant in the context of cities in the Pacific and Oceania regions.

The Japanese case studies showed local government decarbonisation strategies that indicate intentions to reduce carbon dioxide emissions in LNP measures directly related to compact city models. Although local government employees recognised that promoting compact cities would lead to decarbonisation, there were no specific initiatives and discussions on how to proceed further. The case studies in New Zealand, where land use and climate action are integrated, under the legislation, active efforts toward decarbonisation differ from those in Japan. These efforts provide new options for integrating carbon-neutral pathways into urban planning in Japan. Conversely, local government officials in New Zealand recognised that historical references to compact city modelling in Japan can support expanding urban policy insights to decarbonise cities in Aotearoa.

New Zealand has teams, advisors, and staff specifically dedicated to climate action across government departments, and this ensured steady progress on climate measures. It was found that local governments have created decarbonisation strategies by considering national policies and incorporating the strategies into specific projects and measures across sectors, such as transport. In addition, local governments have been working to improve tools to measure carbon dioxide emissions, well before such efforts were mandatory. These initiatives demonstrate the proactive stance taken by local governments. Furthermore, this study revealed how local governments in New Zealand have integrated urban, transport, and

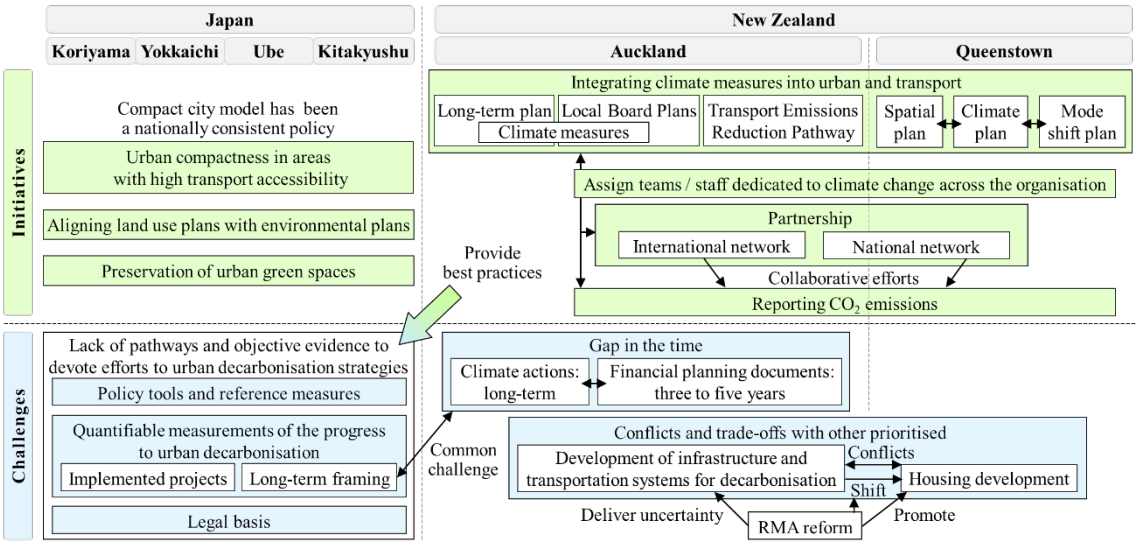

Figure-2 Initiatives and Challenges for Urban Decarbonisation in Japan and New Zealand

environmental perspectives through the formulation of plans. For example, Auckland has successfully incorporated climate action into each Local Board's plans. QLDC indicated carbon dioxide reduction by concentrating housing in transport-accessible locations and promoting modal shift to eco-friendly transport within the district's spatial plan. The climate change plan includes these measures regarding the QLDC spatial plan. Additionally, there is the QLDC's mode shift plan that outlines specific measures for shifting to public transport and active transport modes as a reduction measure. Therefore, the three plans of various scales and across sectors have the potential to function effectively, aligning individual plans and progressing with decarbonisation pathways in an integrated manner.

On the other hand, the ongoing RMA reform envisions the separation of land use and natural environment sectors. The interviewed employees from the Central Government recognised that the new RMA system will not include provisions for considering climate mitigation in the land use sector. There are concerns that the efforts of local governments to promote climate change measures and integrate them within urban development will face backlash. Fortunately, laws requiring local governments to consider the effects of climate change will remain in place under the reformed RMA system. Even without central government mandates, local governments have been working to reduce emissions at urban and regional scales. There is a possibility that legislative changes will not affect local government policies. However, as shown in the previous section, policy discrepancies between the central and local governments are creating barriers for local governments to implement such strategies, namely, to secure funds and reach necessary consensus with partners.

This research revealed carbon neutrality pathways intended by the New Zealand government. The current government has shifted its policy from the former one, based on the development of infrastructure and land, while considering the reduction of emissions, to an approach centred on greenfield suburban development. The shift of central government policies has had a negative impact on local governance, and central government employees show awareness of this. The current government has been promoting initiatives to mitigate climate change through measures that do not conflict with residential development, such as infrastructure for renewable energy and the ETS system. Additionally, the participants emphasised that enabling mixed-use development through revising the zoning system can expand urban decarbonisation pathways. For instance, intensification through efficient mixed land use, transport strategic development and the provision of diverse housing typologies can enhance walkability and decrease carbon emissions in

urban environments. The findings of the New Zealand case studies highlight several practical ways to address challenges in promoting climate action in Japan (**Figure-2**). For instance, New Zealand local governments are working to develop better systems for monitoring carbon dioxide emissions through membership of international and national networks, even in the absence of legal enforcement. In addition to this initiative, the councils have included climate change response in their long-term plans and spatial plans, which outline their future visions, and have defined specific actions required to achieve them, with more detailed plans. Furthermore, the local governments' efforts to keep their commitment to environmental values and their motivation to seek paths to decarbonisation were confirmed, despite headwinds caused by political shifts. At the same time, both countries face common challenges related to the timescales to achieve carbon neutrality. In Japan, the difficulty of achieving emission reductions through long-term, gradual residential induction was noted as a challenge.

In New Zealand, the effects of climate change were discussed by participants, considering a long-term perspective, whereas the political cycle is short-term, enhancing barriers to implementing consistent long-term policies. Such challenges resonate with countries in the Oceania Pacific (Taylor et al., 2013), working to address climate change across various time and spatial scales.

5 Conclusion

This study highlights best practices and key challenges in urban decarbonisation policy to support the endeavors of the planners and planning authorities. In Japan, various local governments included decarbonisation perspectives in their land use plans, with recognised difficulties in reaching detailed policy-making. The interviews in New Zealand highlighted the efforts by the planning authorities for carbon neutrality, including best practices that can help countries and regions, including Japan, break through the current situation and progress toward decarbonised places and societies.

A key limitation of this study is that the data could not be consistently obtained from the four planning authorities in Japan and the three in New Zealand. The Japanese case studies found that there were no active or specific efforts to promote decarbonisation in LNPs, and therefore, the amount of data provided was limited. Another reason for obtaining more information in New Zealand than in Japan is that the RMA reform has significantly changed urban development policies, and the case study expanded to include perspectives from the central government, with interviews conducted with employees familiar with decarbonisation strategies.

While several best practice examples were identified from the New Zealand case studies, some concerns were suggested that current reform can have negative effects on urban transitions towards decarbonising cities. In fact, planners and urban scientists in New Zealand are warning that urban development is proceeding under fast-track processes without sufficient community input and consideration of its potential impact on ecosystems and landscapes (The Guardian, 2025; RNZ, 2025c). Political change has led to climate change mitigation falling off focus, and decarbonisation pathways could stagnate or even reverse. As a reference example, Japan has consistently promoted the concept of compact cities, which entails best practice examples relevant to New Zealand and other Oceania Pacific contexts facing climate induced transitions. For Aotearoa, it would be beneficial to learn from Japan's consistent urban policy to promote compact cities and minimise the negative effects of political change.

It is important to not only identify best practices, but also to conduct research on how to apply them in other countries. This will help to lead to the dissemination of the reference cases identified in this study to Oceanian nations. When importing best practices from other countries, there are various concerns, such

as cost, organisational structure, legal systems, and cultural context. The example of the Kinesis modeling system in Australia, which is being considered for adoption by several local governments in New Zealand, will be able to provide useful insights. This insight might be applicable to importing policies and tools besides carbon dioxide emission measurement methods. Furthermore, this study revealed that the decarbonisation pathways are highly influenced by political shifts and that the lack of government commitment to climate actions reflects ongoing tensions in local communities, strained by economic challenges. While policy-level climate measures are important, community engagement is also crucial. Auckland has successfully introduced climate actions at the local board level. Meanwhile, future research should focus on promoting decarbonisation awareness and actions among urban communities. For instance, in New Zealand cities, efforts are needed to embed communities' environmental values, such as the Indigenous Maaori communities, to expand the wider social and environmental benefits of carbon neutrality strategies and compact city models. Understanding the perspectives of communities, in both case study contexts, has the potential to enable robust and viable decarbonisation pathways because it can contribute to long term approaches led by governments and planning authorities to promote carbon neutrality. Finally, the RMA has not yet been replaced and is still relevant to research how to best evaluate the results and effects of RMA reform, including changes after the reform is implemented.

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References

Act on Promotion of Global Warming Countermeasures (地球温暖化対策の推進に関する法律). (1998). Available at: https://laws.e-gov.go.jp/law/410AC0000000117/. (accessed on 8 June 2025) (in Japanese)

Act on Special Measures Concerning Urban Renaissance (都市再生特別措置法). (2002). Available at: https://laws.e-gov.go.jp/law/414AC0000000022. (accessed on 8 June 2025) (in Japanese)

Auckland Council. (2020). AUCKLAND'S CLIMATE PLAN. Available at: https://www.aucklandcouncil.govt.nz/plans-projects-policies-reports-bylaws/our-plans-strategies/topic-based-plans-strategies/environmental-plans-strategies/aucklands-climate-plan/Documents/auckland-climate-plan.pdf. (accessed on 6 June 2025)

Beehive.govt.nz. (2024). *Speech on replacing the Resource Management Act*. Available at: https://www.beehive.govt.nz/speech/speech-replacing-resource-management-act. (accessed on 6 June 2025)

City Planning Act (都市計画法). (1968). Available at: https://laws.e-gov.go.jp/law/343AC0000000100. (accessed on 8 June 2025) (in Japanese)

Cretney, R., White, I., & Hanna, C. (2024). Navigating adaptive futures: analysing the scope of political possibilities for climate adaptation. *Kōtuitui: New Zealand Journal of Social Sciences Online*, 20(2), 227–248. https://doi.org/10.1080/1177083X.2024.2344497.

Early, L., Chapman, Howden-Chapman P., & Russell, M. (Eds.). (2015). *Drivers of Urban Change*. Steele Roberts Aotearoa.

Fast-track Approvals Act 2024. (2024). Available at: https://www.legislation.govt.nz/act/public/2024/0056/latest/LMS943260.html. (accessed on 8 June 2025)

Flessa, A., Fragkiadakis, D., Zisarou, E., & Fragkos, P. (2023). Decarbonizing the Energy System of Non-Interconnected Islands: The Case of Mayotte. *Energies*, 16(6), 2931. https://doi.org/10.3390/en16062931.

Hantrais, L. (2009). *International Comparative Research: Theory, Methods and Practice*. Bloomsbury Publishing.

Harada, K., & Glasby, G. P. (2000). Human impact on the environment in Japan and New Zealand: a comparison. *The Science of The Total Environment*, 263(1–3), 79–90. https://doi.org/https://doi.org/10.1016/S0048-9697(00)00668-9.

Jin, T., Wang, K., Xin, Y., Shi, J., Hong, Y., & Witlox, F. (2024). Is a 15-Minute City Within Reach? Measuring Multimodal Accessibility and Carbon Footprint in 12 Major American Cities. *Land Use Policy*, 142. https://doi.org/https://doi.org/10.1016/j.landusepol.2024.107180.

Low Carbon City Act (都市の低炭素化の促進に関する法律). (2012). Available at: https://laws.e-gov.go.jp/law/424AC0000000084. (accessed on 8 June 2025) (in Japanese)

Memon, P. A., & Gleeson, B. J. (1995). Towards a New Planning Paradigm? Reflections on New Zealand's Resource Management Act. *Environment and Planning B: Planning and Design*, 22(1), 109-124. https://doi.org/10.1068/b220109.

Ministry for the Environment. (2022a). National adaptation plan and emissions reduction plan: Resource Management Act 1991 guidance note. Available at: https://environment.govt.nz/assets/publications/national-adaptation-plan-and-emissions-reduction-plan-guidance-note.pdf. (accessed on 6 June 2025)

Ministry for the Environment. (2022b). Towards a productive, sustainable and inclusive economy: Aotearoa New Zealand's first emissions reduction plan. Available at: https://environment.govt.nz/assets/publications/Aotearoa-New-Zealands-first-emissions-reduction-plan.pdf. (accessed on 6 June 2025)

Ministry for the Environment. (2024). Our journey towards net zero New Zealand's second emissions reduction plan 2026–30. Available at: https://environment.govt.nz/assets/publications/climate-change/ERP2/New-Zealands-second-emissions-reduction-plan-202630.pdf. (accessed on 6 June 2025)

Ministry for the Environment. (2025). Changes to resource management. Available at: https://environment.govt.nz/what-government-is-doing/areas-of-work/rma/changes-to-resource-management/. (accessed on 6 June 2025)

Ministry of Land, Infrastructure, Transport and Tourism. (2022). Recent Topics about Compact Cities (コンパクトシティに関する最近の話題). 17th Compact City Formation Support Team Meeting, Document 1. https://www.mlit.go.jp/toshi/city_plan/content/001489164.pdf. (accessed on 7 September 2022) (in Japanese)

Ministry of Land, Infrastructure, Transport and Tourism. (2024a). The situation regarding the development of Location Normalisation Plans (立地適正化計画の作成状況). Available at: https://www.mlit.go.jp/en/toshi/city_plan/content/001876614.pdf. (accessed on 6 June 2025) (in Japanese)

Ministry of Land, Infrastructure, Transport and Tourism. (2024b). The situation regarding the development of Low Carbon City Development Plans (低炭素まちづくり計画作成事例). Available at: https://www.mlit.go.jp/toshi/city_plan/eco-machi-case.html. (accessed on 6 June 2025) (in Japanese)

Newsroom. (2025). *Govt criticised for go-slow on lobbying reform*. Available at: https://newsroom.co.nz/2025/03/05/govt-go-slow-on-lobbying-reform-criticised/. (accessed on 8 June 2025)

NZ Transport Agency. (2022). NZUP Queenstown package information brochure. Available at: https://www.nzta.govt.nz/assets/projects/queenstown-package/nzup-queenstown-frankton-project-update-oct-2022.pdf. (accessed on 6 June 2025)

Otago Regional Council. (2024). Queenstown Public Transport Business Case. Available at: https://www.orc.govt.nz/media/rasnp1qg/queenstown-public-transport-business-case-final-2024.pdf. (accessed on 6 June 2025)

Rauland, V., & Newman, P. (2015). *Decarbonising Cities: Mainstreaming Low Carbon Urban Development*. Springer Cham.

Resource Management Act 1991. (1991). Available at: https://www.legislation.govt.nz/act/public/1991/0069/latest/DLM230265.html. (accessed on 8 June 2025)

Resource Management Review Panel. (2020). NEW DIRECTIONS FOR RESOURCE MANAGEMENT IN NEW ZEALAND. Available at: https://environment.govt.nz/assets/Publications/Files/rm-panel-review-report-web.pdf. (accessed on 6 June 2025)

RNZ. (2025a). *Councils plead for bipartisan Resource Management Act reform*. Available at: https://www.rnz.co.nz/news/political/562732/councils-plead-for-bipartisan-resource-management-act-reform. (accessed on 6 June 2025)

RNZ. (2025b). *Climate change scientists accuse government of 'ignoring scientific evidence'*. https://www.rnz.co.nz/news/national/562938/climate-change-scientists-accuse-government-of-ignoring-scientific-evidence. (accessed on 8 June 2025)

RNZ. (2025c). *Landscape architects worried RMA replacement could jeopardise NZ's unique 'everyday' scenery*. Available at: https://www.rnz.co.nz/news/political/556668/landscape-architects-worried-rma-replacement-could-jeopardise-nz-s-unique-everyday-scenery. (accessed on 6 June 2025)

Sato, C., Kato, H., & Xu, F. (2025). The Status and Challenges of City Decarbonization Consideration in the Location Normalization Plans and Related Plans. *Journal of the City Planning Institute of Japan*, 60(1), 46-55. https://doi.org/10.11361/journalcpij.60.46. (in Japanese)

Taylor, B., Wallington, T., Heyenga, S., & Harman, B. (2013). Urban Growth and Climate Adaptation in Australia: Divergent Discourses and Implications for Policy-making. *Urban Studies*, 51(1), 3-21.

https://doi.org/10.1177/0042098013484529 (Original work published 2014).

The Guardian. (2025). *New Zealand will not be 'guilt-tripped' over environment, resources minister says*. Available at: https://www.theguardian.com/world/2025/may/26/new-zealand-resources-minister-shane-jones-mining-environment. (accessed on 6 June 2025)

White, I., Fu, X., & Serrao-Neumann, S. (2024). Understanding amenity and travel time preferences, and how this differs: towards the equitable translation of new urban imaginaries to practice. *Planning Practice & Research*, 1–21. https://doi.org/10.1080/02697459.2024.2442804.