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# Developing a Policy Framework with Indicators for a ‘Just Transition’ in Aotearoa New Zealand

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## Abstract

As Aotearoa New Zealand responds to climate change, policymakers are being challenged to ensure a ‘just transition’ for workers, households and communities. However, no domestic consensus exists about how to define, measure, monitor or manage a ‘just transition’. Maintaining public support for ambitious domestic decarbonisation will require an integrated policy framework which operationalises principles of justice and safeguards wellbeing. This article examines the concept of a ‘just transition’ for climate change and explores three tools for improving policy: inclusive, informed and iterative processes for decision making; an assessment framework for social resilience to change; and progress indicators.

**Keywords** climate change, justice, policy, indicators, transition

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**T**o achieve its climate change targets by 2050, Aotearoa New Zealand will need to increase the scope and ambition of policies to reduce greenhouse gas emissions and enhance removals by forestry and other sinks (referred to as climate change mitigation or low-emissions policies). It will also need policies to adapt to the unavoidable effects of climate change. While climate change

policies – and climate change itself – will have an impact on all New Zealanders to some degree, many of these impacts will not be distributed equally or equitably across the population. They will also interact with multiple drivers of wellbeing, for better or worse. This raises critical questions of social justice in the design of climate change policies.

Aotearoa currently lacks an integrated policy framework for bridging the concepts of an ambitious transition and a ‘just transition’ to an economy that meets the challenges of climate change. If designed well, such a framework could be used not only to design climate change policies that avoid or mitigate disproportionate distributional impacts across communities, but also to help remedy societal inequalities and inequities and contribute to increased wellbeing. Government commitment to a ‘just transition’ will be essential to sustaining social licence to accelerate climate action and delivering outcomes that serve current and future generations.

Turning the concept of a ‘just transition’ into a policy reality will require changes to policymaking processes and refinement of

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**Table 1: A framework for relevant dimensions of social justice**

Types of justice	Sample justice principles	Domains of social justice
Distributive	Equality	Cultural
	Equity	Disability
	Need	Economic
	Capability	Environmental
Procedural	Consistency	Intergenerational
	Representativeness	Racial
Retributive	Fairness	Worker
Restorative		
Interactional	Respectfulness	
	Non-discrimination	
Informational	Truthfulness	
	Adequacy	

tools for identifying, measuring, monitoring and managing the distributional impacts of those policies. To support improved policy decision making, this article examines the conceptual underpinnings of a ‘just transition’ and the New Zealand government’s policy approach. It then explores three policy tools to help achieve just outcomes from climate change policies: inclusive, informed and iterative processes for decision making; an assessment framework for social resilience to change; and progress indicators. A case study illustrates how they might be applied. While we focus particularly on low-emission policies, these tools could apply broadly across climate change policies.

**Conceptualising a ‘just transition’ for climate change**

This section provides historical context for the concept of a ‘just transition’ for climate change. It then considers relevant dimensions of justice, reviews insights from academic literature, and summarises the New Zealand government’s policy response to date.

*Historical context*

The term ‘just transition’ has been applied in multiple environmental contexts and for social transitions of variable scale and complexity. Its use originated in the 1990s with North American unions urging support for workers who had lost their jobs due to policies to protect the environment, particularly in sectors with large environmental footprints such as fossil fuel production (Just Transition Centre, 2017; Atteridge and Strambo, 2020). From the standpoint of unions, this

concept has evolved towards concentrated and inclusive efforts to plan for, invest in and transition into environmentally sustainable jobs, sectors and economies (ILO, 2015; ITUC, 2020).

The concept of a ‘just transition’ has broadened over time to encompass further elements of social justice. In current use, it calls for consideration of how climate change and associated policies impact on human rights and wellbeing across different regions, sectors, socio-economic groups and generations, as well as on the environment and biodiversity. It also calls for greater participation of affected communities in decision making and for remedying past injustice alongside avoiding further exacerbation of injustice (Schlosberg and Collins, 2014; Just Transition Research Collaborative, 2018; Atteridge and Strambo, 2020; CSIS and CIF, 2020).

The goal of a ‘just transition’ has entered government policy internationally. The 2015 Paris Agreement calls for parties to take into account ‘the imperatives of a just transition of the workforce’ and to respect, promote and consider a range of human and development rights, as well as gender equality, empowerment of women and intergenerational equity (United Nations, 2015). At the 2018 international climate change conference, leaders from 56 countries signed the Solidarity and Just Transition Silesia Declaration, calling for a just transition of the workforce through participatory and representative processes (UNFCCC, 2018). ‘Just transition’ principles and processes are being integrated into government policy in many countries.

*Dimensions of justice*

The concept of social justice is highly complex and widely debated in the context of both individual virtues and social systems. Multiple dimensions of social justice are potentially relevant to a ‘just transition’ for climate change, and a thorough assessment is beyond our scope. To support our analysis, we have drawn from expert reviews to offer a simple (and non-exclusive) framework, shown in Table 1.

Distributive justice focuses on outcomes from allocation (e.g., of resources, responsibilities, costs, benefits, burdens and opportunities) and procedural justice on the methods and processes for decision making. Retributive justice applies to punishment of offenders for transgressions, whereas restorative justice involves addressing the needs of victims and communities as well as offenders in responding to injustice. Interactional justice refers to how individuals treat each other. Informational justice refers to the adequacy of the informational basis for decisions (Cook and Hegtvedt, 1983; Jost and Kay, 2010; Hegtvedt, 2018).

In the context of distributive justice, Hegtvedt (2018) compares the rule for equality (receiving an equal share of outcomes) with that for equity (alignment of outcomes with the inputs of recipients) and needs (alignment of outcomes with the needs of recipients). The ‘capability approach’ to distributive justice emphasises the assessment of levels of multidimensional wellbeing and the freedom to achieve wellbeing (Nussbaum and Sen, 1993; Robeyns, 2017). Key principles for procedural justice include consistency and representativeness (Hegtvedt, 2018). Retributive and restorative justice can be guided by the principle of fairness regarding whether the remedies for an injustice are commensurate with the harm.

‘Just transition’ considerations extend across multiple social justice domains. Each domain brings its own painful legacies of injustice, aspirations for the future and priorities to decision making on climate change. The challenges of climate change cannot be solved in isolation from any of those domains. Their interdependence creates both complexities and opportunities for synergistic solutions. Supporting a ‘just transition’ for climate

change is only one piece of the broader puzzle of improving social justice outcomes across multiple drivers of change.

#### *Academic literature review*

We reviewed academic literature focused on principles and processes for a 'just transition' for climate change. Newell and Mulvaney (2013), Eisenberg (2019) and Heffron and McCauley (2018) look at the interplay between a 'just transition', achieving a low-emissions future, and the relationship with law, equity and justice. According to Newell and Mulvaney, one of the significant challenges facing a global 'just transition' is addressing 'energy poverty'. This involves achieving emissions reduction targets as well as ensuring that the impacts from the transition are not disproportionately felt by vulnerable groups. Eisenberg argues that the term 'just transition' has two primary definitions in literature: (1) a transition to a low-emissions future which is fair to the most vulnerable populations; and (2) the protection of workers and communities that depend on high-emission industries against disproportionately facing the costs of a low-emissions future. She argues that the latter definition should be used by policymakers. Heffron and McCauley conclude: (1) justice takes three forms (distributional justice, procedural justice and restorative justice); (2) a 'just transition' should be universal in recognition; and (3) clear definitions of space and time are vital for a successful 'just transition'. Weller (2019) explores the importance of framing for 'just transition' strategies, using the handling of coal mine closures in the Latrobe Valley, Australia as a case study: it shows the importance of collaboration and trust with communities as factors for a successful transition.

Just Transition Research Collaborative (2018) explores the history of a 'just transition' and provides a meta-analysis of approaches to a 'just transition' around the world. The authors map the approaches using four potential outcomes from a 'just transition': status quo, managerial reform, structural reform and transformative approaches. They focus on five main questions: who is negatively affected by the policy; how will energy be effectively controlled and distributed; what kind of society is envisaged for the future; whether

'just transitions' can be adapted for developing countries; and whether the approaches and initiatives for 'just transitions' are actually 'just'.

Hall (2019) compiles essays presenting 'just transition' perspectives in Aotearoa. For example, Sharman (2019) explains how different regions and sectors will face distinctive challenges from the low-emissions transition and notes the influence of conflicting values and world views. Bargh (2019) calls for a 'tika transition' that upholds Māori tikanga

policy frameworks and techniques to minimise disproportionate impacts.

Fell, Pye and Hamilton (2020) view the identification of distributional impacts of low-emissions policies and longer-term transitions as risk management. The risk comes from potentially negative policy impacts, and risk management allows policymakers to reduce the probability of negative outcomes and identify and compensate for impacts that cannot be avoided. The authors point to energy justice frameworks, where policymakers

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(customary practices and procedures guided by deeply held values), the Crown's responsibilities under te Tiriti o Waitangi/ the Treaty of Waitangi, and the United Nations Declaration on the Rights of Indigenous Peoples (2007). She points to failures in the government's approach to climate change policy in each of these regards. Lawrence (2019) identifies gaps in strategic planning for adaptation and calls for improved processes and funding, with greater integration between mitigation and adaptation policies. Boston and Hall (2019) conclude with a list of 13 principles for a 'just transition' in Aotearoa.

We also reviewed academic literature focused on the social impacts of low-emissions policies. Fell, Pye and Hamilton (2020) and Markkanen and Anger-Kraav (2019) examine high-level low-emissions transition and climate change policy literature. Their work provides evidence that policies can have both co-benefits and adverse side effects. They also provide

consider policies' distributional impacts on population subgroups and review subgroup representation in the decision-making process.

Markkanen and Anger-Kraav (2019) discuss the complex distributional and inequality impacts of low-emissions policies. Their work builds on the literature which shows that the outcomes of climate change policies depend on contextual factors, policy design and implementation, and mitigating action taken to address negative impacts. Many of the policy outcomes they identify emerge through dynamic relationships.

Bhatta et al. (2008), Cai, Mu and Chen (2014) and Miller, Vine and Amin (2017) identify social impacts of low-emissions policies. Bhatta et al. examine forest management in Nepal and find evidence that disproportionate stakeholder representation in decision making, including civic participation, is a contributing cause of disproportionate

impacts from policy. Miller, Vine and Amin look at the specific disproportionate social impacts on the elderly population related to household energy efficiency policies in Australia. They provide evidence of the oversights that can occur from policies which do not appropriately consider social impacts. Cai, Mu and Chen look at the employment impacts of a transition to a low-emissions energy sector in China. They show that distributional impacts models are a relatively effective tool to determine social impacts of low-emissions policies.

and climate change strategies, and this has been extended by the Labour government over 2020–23 (New Zealand Government, 2021a).

While overarching climate change policy development rests with the Ministry for the Environment, the Ministry of Business, Innovation and Employment created a Just Transitions Unit in 2018 to lead partnerships, visioning and advice. Its work programme was framed using four distinct concepts: understanding the different pathways to transform the economy; partnering with

development, infrastructure and transport, health and wellbeing, the arts, environmental sciences, regulatory authorities, and metrics and evaluation. A 2021 progress report showed that 85 actions are complete or underway, 38 are partly underway and 43 actions are remaining (Ngā Kaiwhakatere o Taranaki, 2021). The government also aims to support a locally led 'just transition' in Southland, due to the impending closure of the Tiwai Point aluminium smelter (New Zealand Labour Party, 2020). Long-term monitoring and evaluation of these early efforts will be critical to improving localised transition planning in other areas.

Independent Crown entities have also recommended policies for a 'just transition'. The Productivity Commission (2018) included analysis of contributors to an 'inclusive transition' in its recommendations for a low-emissions economy. It emphasised that firms and households need predictability about the direction of change for a transition to be successful and will require support to manage shocks to labour markets, as well as increased energy, transport and food costs for low-income households. He Pou a Rangi Climate Change Commission highlighted 'just transition' considerations in its inaugural climate change mitigation advice to the government in May 2021. It called for a well-signalled, fair, inclusive and equitable transition to a resilient, low-emissions economy. It recommended an equitable transitions strategy, enabling proactive transition planning, improved education to prepare the future workforce, support for workers transitioning from high-emission industries, and distributional impact assessments for all climate policy and strategy. It emphasised a partnership approach between the Crown and iwi/Māori to give effect to the principles of te Tiriti o Waitangi/the Treaty of Waitangi and enable a strategy for a Māori-led approach to an equitable transition for iwi/Māori and the Māori economy. It also called for more effective mechanisms to incorporate public views into policy development (Climate Change Commission, 2021).

The New Zealand government's 'just transition' policy is at an early stage of development. Our literature review suggests considerable scope for its expansion and improvement. While

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Beyond sources noted above, we did not identify substantial academic literature providing overarching policy frameworks aimed at limiting disproportional or unjust impacts from government climate change policies.

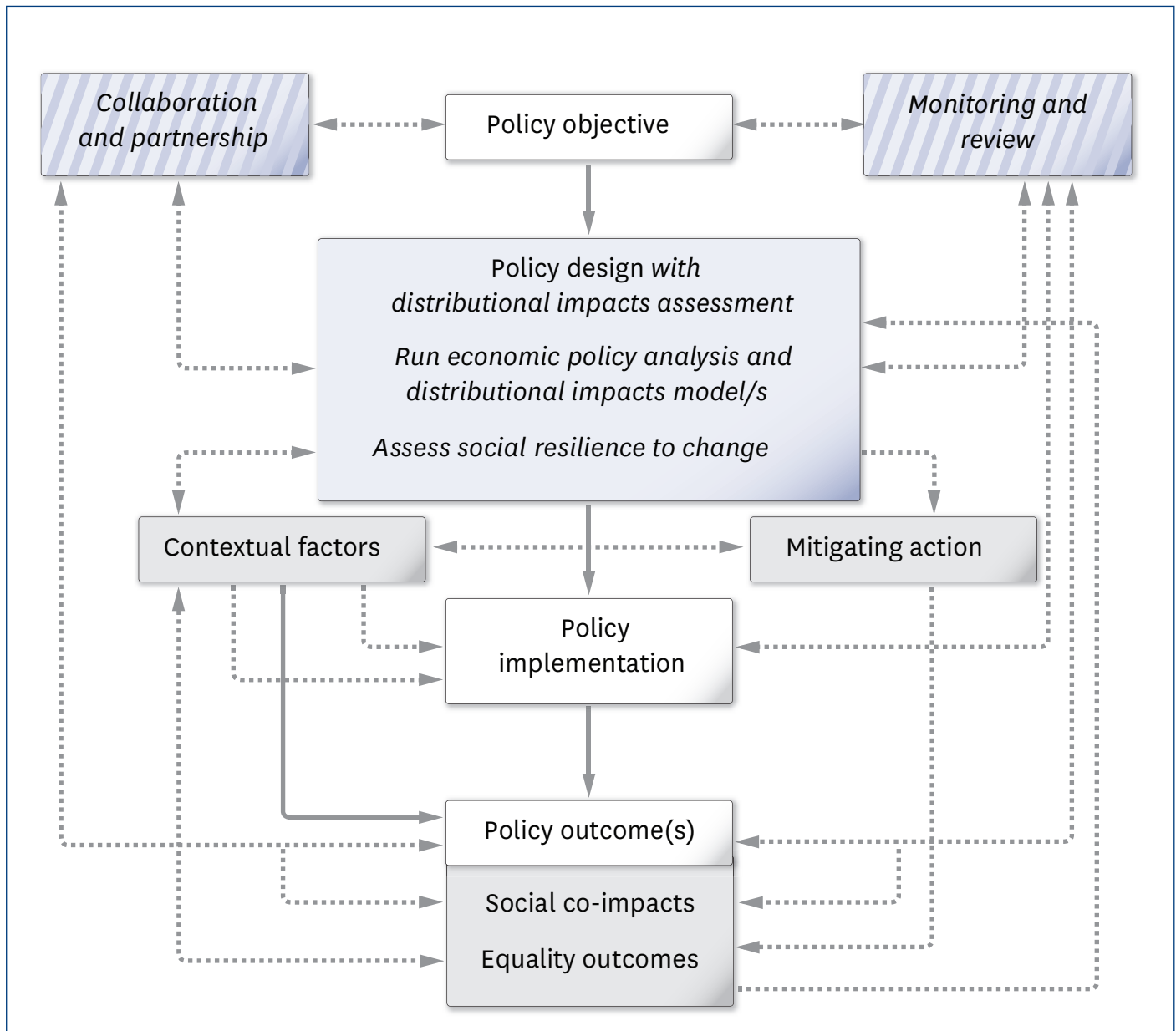
### *New Zealand government's policy response*

As a party to the 2015 Paris Agreement, the New Zealand government has begun to incorporate 'just transition' concepts into domestic legislation and policy. Under the 2019 amendments to the Climate Change Response Act 2002, the government's five-yearly emissions reduction plans must include 'a strategy to mitigate the impacts that reducing emissions and increasing removals will have on employees and employers, regions, iwi and Māori, and wider communities, including the funding for any mitigation action'. As discussed in Shaw (2017) and Woods (2018), the Labour-led coalition government over 2017–20 integrated high-level 'just transition' objectives into its economic

iwi/Māori, local government, business, communities and the workforce to identify, create and support the transition; understanding how impacts of the transition are distributed across the economy and ensuring they are managed in an equitable and inclusive way; and building the social licence to be ambitious in the approach to transforming the economy (Woods, 2018).

The ministry initially focused on supporting a 'just transition' in the Taranaki region, whose economy is heavily dependent on fossil fuel production and will be particularly affected by the government's ban on new oil and gas exploration, as well as future changes to primary production (Ministry of Business, Innovation and Employment, 2020). Collaborative community-based transition planning was used to create a regional roadmap for change. Venture Taranaki (2019) identified 12 transition pathways, which include energy, food and fibre, tourism, the Māori economy, people and talent, innovation and research

Figure 1: A proposed decision-making process for low-emissions transition policy building (from the analysis of Markkanen and Anger-Kraav, 2019)



declaring the need for a ‘just transition’, the government has not proposed which dimensions of justice will apply, how it will reflect the values and insights from te ao Māori (the Māori world view) and mātauranga Māori (Māori knowledge and wisdom), and how it will achieve just outcomes across policy domains. Its approach to date has focused more on defining processes for analysis and engagement than priority outcomes. It has not specified targets, indicators or time frames for evaluating progress. Beyond the Taranaki region, the government has not formalised broad and inclusive social conversations about how to define and achieve a ‘just transition’ in Aotearoa.

#### Improved policy decision-making processes for Aotearoa

In Aotearoa, improved decision-making processes will be required to transform high-level principles for a ‘just transition’ into concrete policy design. Such processes will need to give effect to the principles of te Tiriti o Waitangi/the Treaty of Waitangi; be evidence-based; enable greater representation and co-design by affected groups and communities; coordinate efforts across multiple policy and social domains; and enable continual monitoring, review and improvement.

We propose expanding on the policy process developed by Markkanen and Anger-Kraav (2019) (see Figure 1). As used

by the originating authors, solid lines represent widely recognised relationships in policy analysis and dashed lines represent interactions less commonly understood by policymakers but influential in improving social outcomes. ‘Mitigating action’ includes measures introduced in tandem with climate change policies to enhance social outcomes of the policies.<sup>1</sup> The authors explain that positive policy outcomes emerge when the policymaking process is inclusive and informed by contextual factors, and when existing knowledge from previous studies is appropriately applied.

In Figure 1, we elaborate on their policy process in the following ways:

**Table 2: Potential identifiers and characteristics for reduced resilience to low-emissions policies**

Identifier	Characteristics for reduced resilience to low-emissions policies
Occupation	<ul style="list-style-type: none"> <li>Workers producing goods or services with an emissions-intensive footprint for production and/or use</li> <li>Workers with emissions-intensive mobility needs</li> <li>Workers with non-transferable skill sets</li> <li>Workers with limited access to alternative employment</li> </ul>
Economic status	<ul style="list-style-type: none"> <li>People with relatively low income and wealth</li> </ul>
Social and cultural identity	<ul style="list-style-type: none"> <li>People for whom adjusting to new policy could affect their social and cultural identity</li> </ul>
Civic participation	<ul style="list-style-type: none"> <li>People who are not well represented in the decision-making bodies and processes in Aotearoa</li> </ul>
Geographic location	<ul style="list-style-type: none"> <li>People whose location, or ability to change location, affects their change exposure, sensitivity or capacity</li> </ul>
Education	<ul style="list-style-type: none"> <li>People with specialised qualifications or a low level of education</li> <li>People who fail to understand or anticipate policy-related changes</li> </ul>
Health-related factors and disabilities	<ul style="list-style-type: none"> <li>People with disabilities</li> <li>People with underlying medical conditions or who are primary caregivers for relatives with medical conditions</li> <li>People with compromised cognitive function and other factors that influence behaviour</li> </ul>
Infrastructure access	<ul style="list-style-type: none"> <li>People with limited access to enabling infrastructure</li> </ul>
Age	<ul style="list-style-type: none"> <li>People who are at an early or late stage of life</li> <li>Future generations</li> </ul>

- *Adding an explicit process for ‘collaboration and partnership’.* This is to facilitate more effective engagement, data collection and policy co-design involving affected stakeholder groups and communities, as well as partnership approaches between the Crown and iwi/Māori giving effect to te Tiriti o Waitangi/the Treaty of Waitangi. This process can be supported by localised transition planning, creating a broader context for individual policy decisions.
- *Adding an explicit process for ‘monitoring and review’.* This is to ensure that both climate change policies and mitigating actions undergo regular assessment and continual improvement to ensure just outcomes over time. Review and monitoring processes will need to cover the integrated impacts of multiple climate change and other policies across diverse communities, as well as mitigation and adaptation. Siloed assessment of individual policies can obscure compounding effects. Effective indicators covering integrated impacts

will be essential to measuring and monitoring progress.

- *Integrating ‘distributional impacts assessment’ into policy design.* This should be supported by economic policy analysis modelling (economy-wide, sector-specific or both), as well as distributional impacts modelling, which applies the results from economic policy analysis modelling, to help identify how subpopulations will be affected by the policy in the future. This approach has been used in the modelling applied by the Climate Change Commission in developing its advice to the government (Climate Change Commission, 2021). As elaborated in the next section, this step should also include assessment of social resilience to change.

**An assessment framework for social resilience to change**

We recommend using an assessment framework for social resilience to change to help identify those who may be

disproportionately affected by the policy and/or need additional support to adjust. As a starting point, we propose a high-level framework informed by USGRP (2016), which defines groups with reduced resilience to the impacts of climate change. We consider that this approach is adaptable to assessing resilience to impacts from climate change policies (both mitigation and adaptation). Identifiers for resilience to policy change can reflect three different functions: a group’s sensitivity to risk (e.g., from policy impacts), its exposure to those risks, and its adaptive capacity (ibid.). In our context, ‘exposure’ refers to contact between a group and one or more policy-related stressors. ‘Sensitivity’ refers to the degree to which the group is affected, either adversely or beneficially. ‘Adaptive capacity’ refers to the group’s ability to adjust to policy change and take advantage of associated opportunities.

Table 2 presents a list of potential identifiers for resilience to low-emissions policies and some sample characteristics of groups whose resilience may be negatively affected by policy change. It is important to note that the resilience of some groups may also be positively affected by low-emissions policy. This framework is not exhaustive, and policy-specific assessment would be advised in its practical application. Further expansion could enable assessment of integrated resilience across climate change impacts and mitigation and adaptation policies, as well as incorporate strengths-based characteristics for those with high resilience to change.

**Progress indicators for a ‘just transition’**

The effectiveness of monitoring and review will depend on the quality of indicators used for setting goals and measuring progress. We recommend integrating two existing frameworks applied to measure wellbeing in Aotearoa: the Living Standards Framework and He Ara Waiora. Together, they provide clear and measurable domains for assessing wellbeing. To be effective, any analysis using these frameworks should be supported by data and statistical analysis.

The Living Standards Framework includes a broad range of indicators for wellbeing outcomes focused on people, the country and the future. Its dashboard

approach to outcome measurement can be used to measure broad wellbeing outcomes for the New Zealand population (Treasury, 2018). The dashboard indicators are split into 12 domains of wellbeing: civic engagement and governance; cultural identity; environment; health; housing; income and consumption; jobs and earnings; knowledge and skills; safety; social connections; subjective wellbeing; and time use. These domains and their indicators could be used to identify and monitor the impacts of climate change policies on wellbeing.

A weakness of the Living Standards Framework is the absence of perspectives informed by te ao Māori. He Ara Waiora is an alternative wellbeing framework developed by Māori with the aim of providing an indigenous perspective on wellbeing for the benefit of all New Zealanders (Treasury, 2020; O’Connell et al., 2018; McMeeking, Kururangi and Kahi, 2019). He Ara Waiora is broadly built up of ends (the building blocks of Māori wellbeing) and means (principles to accomplish those ends). The ends include wairua (spirit), te taiao (the natural world) and te ira tangata (the human domain). The means include kotahitanga (working collaboratively and inclusively), manaakitanga (having a focus on wellbeing and mana and an ethic of care), tikanga (ensuring that the right decisions and decision makers are involved in the processes), whanaungatanga (strong networks and relationships) and tiakitanga (guardianship and stewardship over processes and systems). A challenge for He Ara Waiora is to develop goals and measures for systematic transformation across these ends and means in Aotearoa.

Importantly, these established frameworks do not present integrated indicators for low-emissions and climate-resilient wellbeing; nor do they define recommended thresholds for ensuring that some minimum – and equitable – standards for wellbeing are being achieved and (hopefully) improved across the population in line with climate change targets. This would be a valuable area for further work. Furthermore, individual communities may have developed their own wellbeing frameworks. For localised transition planning, policymakers should engage

with stakeholder groups, communities and iwi/Māori about the most appropriate wellbeing frameworks and indicators to use in their specific context.

#### Policy case study

The New Zealand government must decide on ‘recycling’ (redistributing) auction revenue from the New Zealand emissions trading scheme (ETS). Prior to auctioning, ETS revenue came from limited use of the fixed price option,<sup>2</sup> reaching \$637 million

amount of ETS revenue could increase significantly in the future.

When returned to the general budget, emissions pricing revenue can displace distortionary taxes, reduce public debt or increase general spending. Experience in other jurisdictions suggests there is greater public support for emissions pricing when the revenue is earmarked towards climate action or compensation for disadvantaged groups. Major emissions trading schemes have taken a portfolio approach,

## Designing policies to move towards a low-emissions and climate-resilient economy creates opportunities to avoid perpetrating future social injustice, help remedy past social injustice, and improve the wellbeing of New Zealanders.

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by March 2021 (Environmental Protection Authority, 2021). Auctioning emission units, which started in 2021, could produce Crown revenue conservatively estimated at \$3 billion over 2021–25 (Shaw, 2021a).<sup>3</sup>

Historically, New Zealand ETS revenue has accrued to the general budget. In a first step towards earmarking, in 2017 the Labour Party and New Zealand First agreed that future ETS revenue from biogenic agricultural emissions would be returned to the sector to support agricultural innovation, mitigation and forestry planting (New Zealand Labour Party and New Zealand First, 2017). In 2020 officials identified four options for ETS revenue recycling: emissions mitigation, climate change adaptation, compensation for disproportionately negative impacts of climate change policies, and purchasing offshore mitigation to bridge gaps in targets and emissions budgets (Shaw, 2021b).<sup>4</sup> In May 2021 the government announced that starting from Budget 2022, ETS revenue would be recycled to emissions reduction programmes (New Zealand Government, 2021b). Both the distributional impacts of emissions pricing and the

redistributing auction revenue through renewable energy and energy efficiency, transportation, research and development, natural resource conservation, waste diversion, adaptation, and compensation to households, communities and industries (Santikarn et al., 2019).

Distributional impacts of emissions pricing depend heavily on how the revenue is used (Beck et al., 2015; Kaufman and Krause, 2016; Goulder et al., 2018; Haug, Eden and de Oca, 2018; Pomerleau and Asen, 2019). For households, distributional impacts from revenue recycling vary across direct lump sum transfers, subsidies, and tax credits or swaps. For firms, such impacts vary across similar measures, as well as free allocation and research and development support. The balance between free allocation and auctioning can have significant distributional implications.<sup>5</sup>

Perceptions of justice impacts from New Zealand ETS revenue recycling will depend in part on which justice dimensions are applied. Lump sum transfers to households could satisfy the principle of equality. Different revenue recycling

options have variable equity implications across households by income. Revenue could be directed to support those whose fundamental human needs are threatened by climate change and climate change policies, or more broadly to increase wellbeing. Procedural justice would involve greater participation and representation in decision making by stakeholder groups and communities and a partnership approach between the Crown and iwi/Māori. A 'polluter pays' approach to retributive justice might direct the revenue to those most harmed by climate change and climate change policies. A restorative approach might help all sectors, as well as workers, households and communities, to transition, or support iwi/Māori and others historically disadvantaged under the economic system. Interactional justice would produce non-discriminatory outcomes. Informational justice would ensure that decisions were adequately informed by credible and accessible data and modelling. Intergenerational justice could be served by accelerating mitigation to prevent dangerous climate change impacts.

Applying the decision-making framework in this article, policy objectives for New Zealand ETS revenue recycling would align with overarching principles and strategies for a 'just transition'. Decision making would involve inclusive and representative processes, enabling collaboration and partnership. Decisions would be informed by economic policy analysis modelling and distributional impacts modelling for revenue recycling

options, alongside other policies. It would include assessment of social resilience to emissions pricing, as well as contextual factors influencing outcomes. Mitigating actions supporting a 'just transition' would be designed in the broader context of government economic development, taxation and social assistance programmes. Monitoring and review of policy outcomes, social co-impacts and equality outcomes would apply wellbeing indicators drawn from the Living Standards Framework and He Ara Waiora. A systematic, inclusive, evidence-based and iterative decision-making process enabling broad public support may be more likely to produce 'just transition' outcomes enduring across election cycles.

### Conclusion

The global call for a 'just transition' as economies prepare to mitigate and adapt to climate change has carried from the grassroots to the highest level of international climate change policy. In Aotearoa New Zealand, judgements on principles, processes, practices and indicators for a 'just transition' cannot be made successfully by government in isolation; they need to be formulated through social dialogue and validated through inclusive decision making. The development of an equitable transitions strategy for Aotearoa, and a strategy for a Māori-led approach to an equitable transition for iwi/Māori and the Māori economy, as recommended by the Climate Change Commission, could open the door for this to happen.

Designing policies to move towards a low-emissions and climate-resilient economy creates opportunities to avoid perpetrating future social injustice, help remedy past social injustice, and improve the wellbeing of New Zealanders. The decision-making framework elaborated in this article provides for collaboration with stakeholder groups and communities as well as partnership with iwi/Māori at every stage. It integrates distributional impacts assessment of policies using advanced modelling and a framework for assessment of social resilience to change. For monitoring and review, it incorporates progress indicators for low-emissions and climate-resilient wellbeing which build on existing frameworks specific to Aotearoa. An improved decision-making framework could empower central and local government, iwi/Māori, workers, stakeholder groups and communities to develop widely shared and well-informed principles and objectives for a 'just transition' in Aotearoa and co-design effective policies for making it a reality.

1. The use of the term 'mitigating' for policy co-impacts in the figure should not be confused with the mitigation of climate change through low-emissions policies.
2. The fixed price option for emissions produced through 2020 enabled New Zealand ETS participants to pay a fixed price instead of surrendering units to meet their obligations.
3. Over 2021–25, auctioning 89.6 million units (Ministry for the Environment, 2021) with an estimated average price of \$35 would generate \$3.1 billion in revenue.
4. Similar options were recommended by the Climate Change Commission (Climate Change Commission, 2021).
5. Industrial free allocation of 43 million units over 2021–25 (Ministry for the Environment, 2021) would mean forgone auction revenue of \$1.5 billion at an estimated \$35 per unit. In 2018, the four largest recipients accounted for 70% of freely allocated units (Environmental Protection Authority, 2019).

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