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Just transition processes: From theory to practice

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Abstract

Aotearoa New Zealand needs large-scale and rapid transformations across all sectors to meet sustainability goals. Past experiences have shown that rapid economic transition is possible, but it can become deeply political, producing trade-offs, winners and losers. It can lead to conflict as politically influential and well-resourced incumbents resist change, while those less able to adjust face the brunt of the costs. As Aotearoa shifts toward a low-emissions, climate-resilient, and more sustainable economy, we have opportunities to find processes and pathways that support a just transition with socially progressive outcomes by design.

This paper explores how to move just transitions from theory to practice, through a literature review. It starts with a conceptual framework, defining what we mean by transitions, specifically sustainable and just transitions. It then reviews some of the theories that explain how transitions happen and how they are governed. It provides some further insights on governance, asking if transitions can be engineered and planned from above (top-down), or if they must instead emerge organically from below (bottom-up), concluding that a combination of both is needed. Historical examples and recent toolkits offer some insights about how to plan localised just transitions. Finally, a brief compilation of indigenous approaches to sustainability transitions is presented with a recommendation for further extension to reflect the diversity of indigenous views.

The paper is useful for policymakers in Aotearoa and beyond, seeking to understand what just transitions are; who and what drives them or blocks them; how to plan, implement and govern them; and how indigenous knowledge can contribute to the process.

JEL codes

Q01, Q54, Q58, Z18

Keywords

Just transition, Aotearoa New Zealand, climate change, sustainable development, social justice

Summary haiku

Our just transition:

Fair, inclusive processes

Outcomes serve us all

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1 Conceptual framework: What are (sustainable and just) transitions?

The term **"transition**" is broadly used in many scientific disciplines to refer to a non-linear shift from one dynamic equilibrium to another (Loorbach et al. 2017). In the social sciences, transitions are described as "systemic" (with multiple causes and at multiple levels), "radical" (disrupting existing modes of economic and social activity), and "non-linear" (involving an abrupt move from one system state to another) (Scoones et al. 2015; Loorbach et al. 2017; Newell and Simms 2020). Transitions require the reconfiguration of the socio-technical systems that provide us with basic services, such as food, energy, shelter, mobility, and health, as well as the financial system and other institutions underpinning them. Transitions therefore happen beyond individual industries, technologies, or fuel sources, combining technical and social elements and encompassing whole value chains (EEA 2017).

History provides plenty of examples of transitions driven by technological innovation. These include the industrial revolution propelled by the internal combustion engine, the age of mass production and the automobile, and the digital revolution using electronics, information technology, and telecommunications. In some cases, the transitions had environmentally positive outcomes, such as the transition from coal to gas in the UK in the 1980s or, arguably, the transition from fossil fuels to nuclear electricity in France. These transitions were opportunity driven, as emerging technologies provided enhanced services at a lower cost and were more profitable than the ones they replaced. There are also examples of transitions driven by health emergencies, such as the shift from open sewers to public sanitation, or the banning of coal after the Great Smog of London. Shifts in cultural values were behind other transitions, like the rise of feminism, the abolition of slavery, and the recognition of indigenous rights.

The **sustainability transition** has no precedent. It is a conscious and purposeful transition towards collective environmental and social outcomes at the international, national, and community levels. It has an increased emphasis on issues of the global commons, especially climate change, and is driven by the realisation that dominant systems of production, consumption, and wealth accumulation are ecologically and socially destructive. Globally, we need a new equilibrium that keeps us within planetary boundaries while securing social foundations: living well, but within the limits of our planet (Rockström et al. 2009; Raworth 2017). This could involve having to produce and consume less, challenging the current paradigm

of infinite growth. Meeting sustainable goals could also require investment in pathways that may be less profitable or convenient than the incumbents driven by extraction of fossil fuels and other non-renewable resources. We are witnessing, for example, a movement towards the phase-out of powerful and profitable industries, like coal and gas (Newell and Simms 2020).

The shift away from our unsustainable system will render some production and consumption patterns obsolete, threatening jobs and investments. This realisation brought the idea of a **just transition,** which in essence means that "the cost of the necessary changes that deliver all of us a more stable climate must be spread evenly and not fall heavily and disproportionately on workers, particularly those in carbon-exposed industries" (Huggard 2019), or on the most vulnerable. The concept of just transitions originated from trade unions dealing with the labour impacts of environmental policy. For that reason, it initially focused on jobs and on the required interventions to deal with distributional impacts (Healey and Barry 2017). Since then, the concept has evolved from a focus on worker justice and resilience to the resilience of whole communities and to multiple dimensions of justice. Three main types of justice should be ensured in the process: distributional (fair distribution of costs and benefits), procedural (inclusion in decision processes), and restorative (healing past inequities and restoring the environment to its previous healthy condition) (Winkler 2020; Krawchenko and Gordon 2021; White and Leining 2021). Some argue that retributive justice, involving punishing offenders for transgressions, is also critical (White and Leining 2021).

As the concept of just transitions has broadened, it has come to encompass a diversity of goals and principles. Those most consistently included by the literature (as reviewed by Winkler 2020 and Crawford 2021) are:

1. The aim is a low-emissions economy.
2. Employment and social impacts are assessed.
3. Investment in low-emissions and labour-intensive technologies and sectors is prioritised.
4. Long-term planning is required to minimise disruption caused by the transition.
5. Distributional justice is achieved as workers in legacy sectors get support in their transition to new jobs that are green, decent,[1] and of equal or better quality than previous jobs.

[1] Decent work "involves opportunities for work that is productive and delivers a fair income, security in the workplace and social protection for all, better prospects for personal development and social integration, freedom for people to express their concerns, organize and participate in the decisions that affect their lives and equality of opportunity and treatment for all women and men" (International Labour Organisation).

6. Distributional justice is also achieved through compensation to communities whose livelihoods are at risk.
7. Communities become resilient through economic diversification and new ownership models; for example, community ownership of renewable energy.
8. Consumers get affordable access to sustainable products and services (such as energy, mobility, or food).
9. Procedural justice is achieved through meaningful citizen participation.
10. Restorative justice is achieved as the damaged environment is returned to a healthy condition.
11. Rights acknowledged in domestic and/or international law, including basic rights and the rights of indigenous peoples, should be maintained throughout the process.

2 Theoretical framework: What drives and prevents transitions?

Diverse academic and policy communities are theorising about how "just" and "sustainable" transitions happen, what drives or prevents them, and how they are governed. Their different perspectives can be classified as socio-ecological, socio-technical, socio-economic, and socio-institutional. Socio-ecological perspectives have roots in ecology and resilience theory. They understand transitions as non-linear shifts from one dynamic equilibrium to another. Socio-technical perspectives, with roots in science and technology studies, study the socio-technical regimes that have emerged around dominant technologies. They use the multi-level perspective to explain how transitions happen. Socio-economic perspectives focus on how the capitalist model of production and wealth accumulation, with its growth imperative, has shaped human identity and contributed to our destructive behaviour. Socio-institutional perspectives focus on the role of agency and governance in transitions, looking at how incumbent routines, power politics, interests, discourses, and regulations create path dependencies and how these are challenged by transformative social innovations (EEA 2017 and EEA 2019).

Some commonalities of the different perspectives are an understanding of transitions as complex and systemic (combining multiple causes, actors, and actions at multiple scales); evolutionary (based on searching, experimenting, reflecting, and learning); uncertain (they cannot be fully managed or controlled); non-linear (crises, tipping points, and extreme events can accelerate systemic change); slowed down by path dependencies or lock-in of existing systems; and steered by leaders and change agents that can transform mindsets and

worldviews. Transitions are also conflictual and deeply political, producing trade-offs, winners and losers. Accordingly, the great societal challenges driving the just transition (ending poverty and climate change, and safeguarding human rights and wellbeing) must be understood as systemic and requiring fundamental society-wide changes. Just outcomes cannot be taken for granted, given the political nature of transitions.

2.1 Who or what prevents sustainability transitions?

From socio-ecological perspectives, complex systems such as ecosystems tend to settle in stable states. A system will tend to gravitate back to its stable state after a shock, unless the disturbance is so large that it causes a regime shift or transition to an alternative equilibrium. As a consequence, when systemic change does occur, it tends to take the form of abrupt and radical shifts, rather than being gradual, predictable, and reversible. According to this understanding of system dynamics, a system's resilience reflects the magnitude of disturbance that the system can tolerate without undergoing a shift to a new stable state (EEA 2017).

Socio-technical perspectives use a similar language, observing that the diverse elements in socio-technical systems co-evolve to form a stable configuration of technologies, regulations, user behaviours, infrastructures, cultural discourses, and norms, also known as a "regime" (Geels 2004). Radically altering these systems will disrupt jobs, investments, consumption patterns, and behaviours, provoking resistance. Socio-technical regimes are therefore path dependent, locked into a dynamic equilibrium. Although change still occurs, it proceeds incrementally and relatively predictably (Dosi 1982). When systemic change happens, it follows a punctuated equilibrium dynamic with long periods of relative stability, punctuated by brief periods of abrupt change. The basic mechanisms of interactions and feedbacks in socio-technical systems are broadly equivalent to those in ecological systems.

Lock-ins and barriers to change in socio-technical systems, which favour stability in a regime, are summarised in Table 1.

Table 1: Lock-ins and barriers in socio-technical systems

Economic and social barriers	Political barriers	Systemic interlinkages
Increasing returns	Sectoral policies	Rebound effects
Sunk costs	Vested interests	Burden shifting
Jobs and earnings	Distributional effects	Market failures
Industry networks	Globalisation and jurisdiction	
Division of labour	Short-termism	
User practices and lifestyles		

Source: adapted from EEA (2019)

For example, the main lock-in mechanisms for our fossil fuel-based energy system are sunk costs of upstream extraction, energy conversion, and transportation infrastructure; the jobs in the energy sector; the vested interests of oil companies, utilities, and other fossil fuel-related firms; user practices; and lifestyles, such as those requiring electricity to be available on demand. Lock-ins for the mobility system include the sunk costs of road infrastructure; user practices and lifestyles, including commuting to work, taking children to school and activities, or enjoying the outdoors; and cultural discourses that associate the private with freedom and status. Lock-ins for the food system include the sunk costs and debt of intensive farmers; vested interests (the food and drink industry is one of the most important employers and exporters in Aotearoa); and consumer practice, with high meat and dairy consumption, and an increasing shift towards processed and convenience foods that has reduced consumers' engagement with the source of their food (EEA 2019).

2.2 Who or what drives sustainability transitions?

2.2.1 Socio-technical approaches: The multi-level perspective

These barriers, links, and lock-ins make it very difficult to transition away from unsustainable socio-technical regimes. The dominant analytical framework within socio-technical research, which helps us understand how these barriers are transcended, is the multi-level perspective (MLP). Drawing from historical research, the MLP explains the dynamics of transition processes as arising from the interplay of developments at three analytical levels: regime, niche, and landscape (EEA 2019).

A regime is a dominant and stable system providing the goods and services that humans need. Niches are protected spaces for innovation and experimentation outside the established regime, without direct exposure to market forces, and sometimes created and funded by the state. Such spaces include research and development (R&D) labs, subsidised demonstration projects, and small market niches such as the military or space sectors. Finally, the landscape

refers to exogenous factors such as demographics, political ideologies, or sudden shocks like pandemics, war, recession, or accidents.

Opportunities for regime change can emerge when pressures from inside, above, and below lead to cracks, tensions, and windows of opportunity. Internal regime pressures can include diminishing returns, technical problems, supply chain constraints, increasing negative externalities like climate change or biodiversity loss, and social discontent due to rising inequality. Landscape pressures such as geopolitical conflicts disrupting the fossil fuel supply chain could further destabilise the dominant regime, making incumbents doubt its long-term viability and seek diversification. A window of opportunity could then open for niche innovations to establish themselves. The increasing momentum of niche innovations can create bottom-up pressure on the regime, while landscape developments could accelerate its demise. Initially, incumbent actors would defend the system with incremental changes (for example, increasing efficiency, exchanging electric vehicles for internal combustion engine private vehicles, or moving manufacture to countries with lax environmental requirements). But if pressures continue, the regime will destabilise further, opening the door to a wider diffusion of niche innovations.

The MLP differentiates three stages in the transition. First, radical innovations emerge in niches. They have initially poor performance and are not a threat to the regime. Second, niche innovations start to diffuse more widely thanks to learning effects, economies of scale, cultural acceptance, and political support. We would expect struggles between niche innovations and existing regimes on multiple dimensions. The final stages involve disruption and reconfiguration, as widespread diffusion of radical niche innovations leads to adjustments in user practices, infrastructure, regulation, and cultural meanings. These changes then become institutionalised with new rules, habits, mindsets, professional standards, and technical capabilities. The niches may eventually become a new socio-technical regime. In a just transition, those affected may need to be helped or compensated to ensure equitable and sustainable outcomes.

We can see the dynamics explained by the MLP working to destabilise our fossil fuel-based energy regime, with increasing internal pressures (due to climate change), landscape pressures (due to the disruption of oil and gas supplies from Russia), and renewable energy niches becoming increasingly competitive with fossil fuel alternatives. Still, the transport system remains strongly anchored in the use of fossil fuels and the private car.

Socio-technical approaches are useful to understand transition processes but neglect issues of power and politics (Meadowcroft 2009). The study of the politics and governance of transitions provides further insights into how different actors and their narratives influence the process.

2.2.2 The politics of sustainability transitions

Actors of change – and the change of values and lifestyles they can promote – are important to achieving a just transition. Winkler (2020) proposes a socio-economic theory of just transformations based on the concept of cultural hegemony. The ruling class, held together by an ideology, exercises cultural hegemony, rather than coercion, to perpetuate the fundamental conditions under which society functions (fundamental conditions can be understood as a regime in the MLP). Fundamental conditions are material (income and assets inequality) and non-material (values and needs, identities, knowledge, power, culture). The current cultural hegemony is centred around economic growth and has led to multiple contradictions, mainly environmental unsustainability and social inequality. Change agents coming from civil society, business, or government can challenge the cultural hegemony and bring about a just transition. They must coalesce around an ideological element – the just transition – and gain broader support from other actors to establish a new hegemony that transforms fundamental conditions, shifting development pathways to achieve zero poverty and net zero carbon. Building an alliance of change actors will require political, cultural, socio-economic, and moral leadership. Gaining broader support requires persuasion. Visioning alternative system futures, scenario building, and backcasting are important tools in transition governance to build alliances of change actors and gain broader support (Loorbach et al. 2017).

Scoones et al. (2015) provide further insights into four broad narratives of green transformations: technocentric, market-led, state-led, and citizen-led. Table 2 summarises the diagnoses and solutions proposed by each of these narratives.

Table 2: Narratives of green transformations

Diagnosis	*Solutions*
Technocentric • We are about to exceed planetary limits, or have already; we are in crisis and there is urgency • Role of technology as magic bullet • Emphasis on population and scarcity	• Technologies as global public goods to tackle environmental crisis • Low-carbon transitions: new energy technologies • Technical fixes, from geoengineering to genetically modified crops; but also bottom-up, grassroots innovation • Top-down governance arrangements in favour of the planet
Market-led • Crisis results from market failures and externalities • Growth and sustainability are compatible if it is "green" growth • Corporations as agents of change	• Technological entrepreneurs, green capitalists, and consumers to lead • Prices will reflect scarcity of resources and reward ecosystem service providers • Need to allocate and enforce property rights and use institutions to this end • Economic investments and market incentives to achieve green growth and a green economy
State-led • The state needs to steer the transformation and re-embed markets • State-backed R&D and wider finance are central to a developmental state • Crisis of governance at national and global levels; the importance of institutions, agreements, and international architectures	• Green State, adopting green Keynesian industrial policies of stimulus, establishing infrastructure projects, and creating green jobs • Reformed or new international institutions • Strengthened global architectures
Citizen-led • Change comes from below; cumulative actions of multiple, networked initiatives • Linking niches, experiments, and demonstrations through movements • Behaviour change, advocacy, and demonstrating alternatives is central; "Another world is possible"; hope	• Power from below, involving connected social movements (i.e. green consumers, green living/transition towns, food, water, energy-sovereignty movements) • Radical system change required • Bio-communities, self-sufficiency, dematerialisation, de-growth

Source: Scoones et al. 2015

In reality, there is not a single actor or a single narrative driving green transitions; they converge, compete with, and reinforce each other (Newell and Simms 2020). Transitions are therefore polycentric and multi-dimensional. Some actors are more related to the regime, while others are more related to niches, and power asymmetries and conflicts emerge (Loorbach et al. 2017). Building alliances between these actors is central to move the transition forward.

3 Governing just transitions

3.1 Can transitions be planned and managed from the top-down or do they emerge from the bottom-up?

The study of past revolutions teaches that progressive social transformation happens through unruly struggle (Stirling 2015). Revolutions are inspired by hope and fuelled by "the urgent needs of the people" (Hall 2019). They are emancipating, rather than fear driven, and require a redefinition of cultural values and wellbeing.

Actors driving transitions from below can include civil society, civil and regional authorities, trade unions, and some businesses. Using the language of the MLP, community action can create two types of pressure for the incumbent regime. On one hand, it creates pressure from below, as grassroots innovations provide alternatives to the dominant regime. On the other hand, it creates internal pressure by delegitimising the incumbent regime through consumer boycotts, protests, and direct action (against fracking, coal mining, or oil extraction, for example). Such action can influence public policy and electoral programmes (EEA 2017).

Some international examples of community-led, bottom-up initiatives include the Transition Network[2], Global Ecovillages Network, Community Power (for people's ownership of renewable energy)[3], Open Food Network[4], and The Food Assembly[5] (Loorbach et al. 2017). Examples of civil society action driving transitions include the consumer boycotts to chlorofluorocarbons (CFCs) in the 1980s, which eventually led to the Montreal Protocol banning their use, and the campaign to stop the privatisation of forests in the UK (Newell and Simms 2020).

There are, however, limitations to what bottom-up approaches can achieve. Some critics note that bottom-up initiatives are not enough to deal with the root cause of our unsustainable way of life, which is an extractive economic system requiring continuous growth and accumulation. An overall change in society from a collection of many small local actions seems implausible, and it seems unlikely that corporations will give up profitable enterprises without a struggle (EEA 2017). There is a risk that the state delegates the responsibility for change to local

[2] www.transitionnetwork.org
[3] https://communitypowercoalition.eu/
[4] https://openfoodnetwork.org/
[5] https://laruchequiditoui.fr/en

action. Change must also happen at the macro level, and a degree of state intervention is required to break path dependence.

There is a growing recognition of the key role of the state in accelerating transitions to sustainability, and there are many examples of the proactive use of state power with this aim (Johnstone and Newell 2018). State action can include support for research, development, and innovation in its entrepreneurial form (Mazzucato 2015); price mechanisms to internalise carbon costs; fiscal policy to encourage emerging sustainable industries (Eckersley 2004); or bans of harmful products and activities, like fossil fuel extraction, single-use plastics, or petrol- and diesel-only cars. Notably, in specific markets like Germany or Spain, the rapid growth of renewable energies was enabled by mission-oriented government subsidies, which propped up wind and solar technologies until they could out-compete fossil fuels. This was a product of choice, not solely driven by market forces (Hall 2019). China also grew its wind and solar capacity much faster than any other country in the world, not only for environmental reasons but also to secure first-mover advantages for its renewable energy industry (Newell and Simms 2020). Brazil's Proalcool programme, introduced in 1975, offers another successful case of state action, achieving the substitution of ethanol for petroleum in conventional vehicles in less than six years (Sovacool 2016).

There are limits to what the state can achieve, though. Without citizen support and participation, resistance will emerge. In competitive, globalised markets, the capacity of the state to set address externalities and set sustainability standards is further diminished (EEA 2019).

A combination of bottom-up and top-down action may therefore be necessary if the low-emissions transition is to succeed. As the impacts of climate change gather pace, we can expect people to demand an alternative to our dependence on fossil fuels. The state can provide direction by supporting emerging niches and creating the infrastructure and institutions for new, more sustainable paradigms. Some policy recommendations for the state's supportive role include (EEA 2019):

1. Promote experimentation with clean technologies and build transformative coalitions around them. Support social and grassroots innovation, new types of business models, and organisational change from industry at the R&D stage.

2. Reorient financial flows towards sustainable and transformative innovations. It is particularly important to support innovations that bridge the "valley of death" between research funding and commercialisation.
3. Stimulate the diffusion of green niche innovations with financial and non-financial incentives, standardisation, regulation, information exchange workshops, or awareness campaigns.
4. Support the reconfiguration of whole systems, phase out existing technologies, and alleviate negative consequences.
5. Leverage and strengthen the role of cities in sustainability transitions.
6. Promote a clear direction for change through ambitious visions, targets, and missions. Use foresight exercises, translate visions and missions into sectoral and cross-sectoral strategies, set targets, and review progress towards them.
7. Align policies between different social, environmental, and economic domains to improve policy coherence for transitions.

3.2 Can transitions be just by design?

We cannot presume a just outcome of the transition, as it will upset jobs, budgets, traditions, and lifestyles that depend on the emissions of greenhouse gases. There will be disruption to the organisations and individuals who profit from our carbon-intensive economy, as well as for those who rely on it in different roles as workers, commuters, landowners, consumers, and citizens (Hall 2019). The puzzle is that a transition that waits for universal democratic consensus and readily available and affordable solutions to replace high-carbon activities could slow down or defeat change; on the other hand, a transition that is imposed from the top-down without citizen participation will lack broad support and could lead to violence and turbulence. In the words of Hall (2019), "a transition that takes care of people along the way would be the most rapid and enduring of all transitions, because it would bring people along with it, reducing the likelihood of revolt and resistance, and creating the popular legitimacy that will sustain its reforms into the future".

A just transition must reflect the dimensions of distributional, procedural, and restorative justice. Procedural justice is key to provide legitimacy to the process by acknowledging and empowering groups, even those whose voice is often not heard. It requires transparency and meaningful citizen participation in visioning, planning, budgeting, implementation, and

evaluation processes. A rich body of participatory methods are available to support the generation of ideas and action for social change.[6]

Most case studies on the role of the state in managing just transitions focus on the coal and steel sectors of developed countries, with notable examples including Australia, the UK, Spain, Germany, Canada, and the Netherlands.

- **Transition out of coal mining in Germany.** The just transition was planned collaboratively between unions, employers, and government. Some of the actions implemented included support for workers to find new employment, reskilling for other industries, the option of early retirement, and other redundancy protection (Huggard 2019; Crawford 2021).
- **Shutdown of a major steelworks in Newcastle, Australia.** The transition was managed by three groups: a central Transition Steering Team established by the steelworks, which consisted of management, union, and employee representatives; a Common Purpose Group formed by community stakeholders, which focused on developing a vision for the region; and an Economic Development Office established by the state government to help develop an economic development for the region, informed by the efforts of the other two groups (Crawford, 2021).
- **Transition out of coal mining in the Limburg province of the Netherlands**. Some of the government's measures included subsidies for new businesses, the relocation of government industries from the capital to the mining regions, reskilling programmes for miners and offering shares in the state mining company (Newell and Simms 2020).
- **Canada's Task Force on Just Transition for Canadian Coal Power Workers and Communities.** Recommendations on how to manage the phase-out of coal-fired power generation emphasised income and labour market support, and community investment. This has resulted in federal funding for transition centres in impacted communities, as well as funding of local renewable energy infrastructure projects (Krawchenko and Gordon 2021).
- **Spain's just transition agreements.** These involved territories experiencing coal mine, coal power plant, and nuclear power plant closures. Actions to support a just transition included investments in clean energy initiatives, early retirement for miners over 48, retraining for green jobs, and environmental restoration of the affected areas (Krawchenko and Gordon 2021).

[6] For example, see https://www.participatorymethods.org/methods; https://learningforsustainability.net; or https://ctb.ku.edu/en.

- **Retirement of all coal-fired power plants in Ontario, Canada.** To facilitate the transition, the government invested in cleaner sources of energy including wind, hydroelectricity, solar, and nuclear power, as well as in transmission and distribution upgrades and other investments in energy efficiency. The switch to renewables reduced health costs and created new employment (Newell and Simms 2020).

Aotearoa experienced large-scale structural change in the 1980s, but there was not a careful management of those adjustments. Tens of thousands of people lost their jobs without consideration of the impacts on them and their families (Huggard 2019). To help support the transition to a low-emissions economy in Aotearoa, the Ministry of Business, Innovation and Employment (MBIE) established a Just Transitions Unit (JTU). Within the JTU, the Just Transition Partnership team "supports regional partners to understand, plan and navigate their transition in a way that is fair and equitable – a just transition." [7] Initially, it has been involved in just transition processes in Taranaki, following the government's announcement in 2018 that new offshore oil and gas exploration would be banned, and in Southland, which faces uncertainty about the future of the New Zealand Aluminium Smelter.

In summary, programmes for the successful management of localised just transitions tend to include features such as:

- A plan for economic development and diversification away from carbon-intensive industries, co-designed and co-developed with the community (Huggard 2019; Krawchenko and Gordon 2021).
- A budget for the required interventions. A key consideration is who should pay for it. Often, it is assumed that the state will pay, so the costs of the transition are socialised, whereas the benefits of the old paradigm are private. A just transition agenda requires a more equitable distribution of costs and benefits (Montmasson-Clair 2021).
- Workforce development, including supporting employed and displaced workers with the skills, training, and information required to find and keep jobs (Huggard 2019; Krawchenko and Gordon 2021).
- Direct funding for community-level economic development. Industrial transitions not only impact the workers employed in those industries, but also the broader community. Many individuals often have deep connections and identities linked to their communities, and they will remain even if the local economy is in decline (Krawchenko and Gordon 2021).

[7] https://www.mbie.govt.nz/business-and-employment/economic-development/just-transition/

- Social protection, including access to basic financial and social supports during periods of economic change (Huggard 2019; Krawchenko and Gordon 2021).
- Environmental restoration and land management. This is a key part of the transition process but is often absent from transition plans (Krawchenko and Gordon 2021).

Localised transition planning is useful to protect specific communities whose livelihoods are under threat. It may be less useful if we define transitions as systemic change, encompassing socio-technical systems or the full economy. Localised transition planning might pay only limited attention to global value chains and to the root causes of environmental degradation, which are transboundary in nature. Evidence of managing just transitions at the scale of socio-technical systems or whole economies is scarce, though. A promising example is the Just Transition Mechanism unveiled by the European Union in January 2020, which aims to mobilise EUR 150 billion for actions across the EU. Each country in the EU will produce a Territorial Just Transition Plan to access these funds. The plans will describe the nature of the social, economic, and environmental challenges stemming from fossil fuel-related phase-outs and/or greenhouse gas reduction initiatives. They will also outline the transition process until 2030, including development, reskilling, and environmental rehabilitation (Krawchenko and Gordon 2021).

4 Indigenous views on just transitions

In many cases observed internationally and in Aotearoa, approaches to sustainability and wellbeing among indigenous peoples have proven fundamentally different to the hegemonic Western views. Although indigenous views are varied both within and among groups, research reviewed for this brief suggests they also tend to share some commonalities. Table 3, adapted from Velasco-Herrejon et al. (2022), synthesises these commonalities and compares them to Western worldviews.

Table 3: Differentiations between indigenous and Western worldviews of sustainability

Dimensions	Components	Indigenous views	Western views
Underlying philosophy	Ontology	**Relational:** no differentiation between society, nature, and spirituality	**Rational:** sets division between social, nature and spiritual dimensions
	Epistemology	**Pluralist:** traditional and scientific knowledge are valued equally	**Positivist:** predominance of scientific knowledge
Environmental dimension	Human-nature relationships	**Eco-centric:** nature is sacred and indivisible from humans, and must be respected and nurtured	**Anthropogenic:** nature as a resource or form of capital to be used sustainably and efficiently
	Ownership structures	**Commons:** communal ownership and management	**Private property:** private ownership and management
Socio-political dimension	Political governance	**Decentralised direct democracy:** bottom-up self-governance through local assemblies	**Representative democracy**: elected leaders rule through powerful national institutions
	Social justice and equity	**Equity and solidarity:** strong local structures of solidarity and reciprocity	**Meritocracy and welfare:** meritocratic market distribution of wealth and state welfare for the rest
	Role of the state	**Plurinationality:** plurinational state as opposed to oppressive nation state	**Rule of law:** nation state is key for rule of law, freedom, and welfare
Economic dimension	Economic framework	**Social and informal:** focus on social and solidarity economy, local sovereignty, and self-reliance	**Global trade and productivity:** focus on international market competition for green growth
	Perspective on economic growth and development	**Degrowth/post-growth:** gross domestic product (GDP) is not an end in itself	**Pro-growth:** GDP is a necessary and valuable end in itself
Spiritual dimension	Sense of identity and fulfilment	**Collective and immaterial:** human dignity and identify are communal and spiritual	**Individual and material:** human dignity and identity are fulfilled through individual and material aspirations
	Time orientation	**Cyclic and ancestral:** ancestors and traditions are present in rituals; time is often understood as cyclic	**Linear and future driven:** focused on future gains and returns on investments, with a linear understanding of time
	Spirituality	**Central:** integral and holistic component of social harmony	**Secondary:** left to the private sphere

Source: Adapted from Velasco-Herrejon et al. 2022

This is only a very brief compilation of indigenous approaches to sustainability transitions, which will need to be further extended in future research. In Aotearoa, iwi and hapū play a leadership role in the energy transition, having led the development of some wind, solar, and geothermal facilities. Most geothermal resources are on land controlled by Māori groups and trusts, and they are a key partner in geothermal developments. They also play a leadership role in the primary sector and in building strong and resilient communities. Drawing upon the principles of Te Tiriti o Waitangi as well as tikanga Māori and mātauranga Māori will be essential to shaping a just transition in Aotearoa. All of Aotearoa could benefit from more collective models of governance that stress the relationships between nature and people, transcending the language of commodification and individual ownership (MacArthur and Matthewman 2018).

In Ecuador, the Yasuni initiative, launched by President Correa in 2007, attempted to gain international support and funding to keep oil underground in the Yasuni National Park. The aim of the initiative was to preserve the unique biodiversity of the forest, to protect two isolated indigenous tribes living there, and to contribute to climate change mitigation. The initiative captured the global imagination and inspired hope for an alternative to extractive models of development. Regrettably, the international pledges received were considered insufficient and drilling began in 2016.

Insights can be drawn from indigenous peoples seeking energy sovereignty through decentralised energy systems directly owned and managed by the local community. Case studies about biomass for energy sovereignty in Canada (Brewer et al. 2018), indigenous environmental education in Canada (Lowan-Trudeau 2017), and wind power in Mexico (Avila-Calero 2017 and Velasco-Herrejon 2022) show that indigenous worldviews can inform alternative energy systems that are sustainable and just.

5 Conclusions

This brief has reviewed conceptual and theoretical frameworks of just transitions in the literature, as well as international examples of how just transitions can happen in practice. While it paints a picture of complexity, it also highlights enormous opportunity. As Aotearoa transitions towards a successful low-emissions and climate-resilient economy, we can learn much from the experience of other jurisdictions.

Ultimately, a shared vision for a just transition and the processes and measures we choose to achieve it must be developed by our own people, fit with our national circumstances, seek to heal past and current injustices, and realise collective aspirations for the future. It must give effect to the principles of Te Tiriti o Waitangi and support the wellbeing of all New Zealanders.

The transition before us may turn out to be more like an unpredictable spiral of disruptive systemic change than an orderly linear progression. Navigating through that transition will require the collective wisdom, motivation, innovation, and leadership of coalitions of people from different backgrounds, representing different interests, and working from both bottom-up and top-down. Both individually and collectively, we all can choose to step forward as agents of change.

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