



ELSEVIER

Contents lists available at ScienceDirect

Futures

journal homepage: www.elsevier.com/locate/futures

Original research article

Participatory backcasting: Building pathways towards reconciliation?

William Nikolakis

University of British Columbia, 2424, Main Mall, Faculty of Forestry, University of British Columbia, Vancouver, British Columbia, V6T1Z4, Canada



ARTICLE INFO

Keywords:

Backcasting
Normative scenarios
Indigenous peoples
Storytelling
Rural communities
Reconciliation

ABSTRACT

Stories create shared meaning between people. Scenarios are stories that provide people an opportunity to share their personal narratives of the future. This study documents how a participatory backcasting approach enabled communities to produce a range of normative scenarios and the policy pathways to achieve these desired states. The study created a space for constructive face-to-face dialogue in a community historically characterised by land use conflict. The sharing of scenarios through storytelling, helped bridge epistemic and cultural divides and created shared narratives of the future. Scenarios were place-based and focused on transforming the economy towards sustainability, and enabling political and economic reconciliation between First Nations (Indigenous peoples) and non-First Nations peoples. This approach fostered social learning, and strengthened networks across groups. The involvement of change-makers to action policy pathways was important for advancing post-workshop cooperation, and catalyzed meaningful steps towards reconciliation.

1. Introduction

Stories create shared meaning between people (Kearney, 2002). Scenarios are stories, “a set of hypothetical events set in the future constructed to clarify a possible chain of causal events as well as their decision points” (Kahn & Wiener, 1967: p. 6). Scenario analysis involves people collaboratively exploring scenarios (future states) and then developing strategies to adapt to (Star et al., 2016) or to transform the future (Kahane, 2012). Scenario analysis is not predictive, but expands thinking on a multiple range of futures, and guides policy in light of limited information (Rickards, Wiseman, Edwards, & Biggs, 2014).

Backcasting is a structured scenario analysis approach, where participants develop explicitly normative scenarios together; testing the feasibility and implications of these scenarios; and mapping out policy pathways to achieve desired futures (Robinson, 2003). Backcasting can tackle important societal problems, empowering communities to action measures to achieve their desired futures (Dreborg, 1996; Robinson, 1990). Unlike forecasting (which aims to project the future), backcasting fosters social learning between different actors as they express their narratives of the future and the appropriate measures to achieve these futures. Gordon (2020) argued the process of developing scenarios is more important than the scenarios produced. Futures studies, and tools like scenario analysis, have been critiqued for being dominated by western methods and approaches, and in doing so, colonizing the future (Sardar, 1993, 2010). Indeed, planning in general is viewed as an instrument of colonialism, organizing the extraction of natural resources, and determining the movement and lives of Indigenous peoples (Jackson, Porter, & Johnson, 2017).

Inayatullah (2008) wrote that scenario planning decolonizes the future by creating a space for actors to challenge and deconstruct basic concepts and assumptions about the future. Inayatullah observed that scenario planning also builds capacity among Indigenous

E-mail address: William.Nikolakis@ubc.ca.

<https://doi.org/10.1016/j.futures.2020.102603>

Received 30 September 2019; Received in revised form 17 June 2020; Accepted 3 July 2020

Available online 06 July 2020

0016-3287/ © 2020 Elsevier Ltd. All rights reserved.

peoples to control their own futures. This study examines the power of participatory backcasting – what [Robinson \(2003\)](#) terms “second generation backcasting” – to produce social learnings and to foster reconciliation between Indigenous and non-Indigenous populations in Clayoquot Sound, British Columbia, Canada. Clayoquot Sound is home to the Ahousaht, Tla-o-qui-aht, and Hesquiaht First Nations, and is a designated UNESCO Biosphere Reserve with some of the world’s largest remaining stands of old-growth temperate rainforest. The region saw “one of the most heated and protracted environmental conflicts in Canadian history”, due to the unsustainable over-extraction of forests and fisheries ([Lertzman & Vredenburg, 2005: p. 239](#)). The First Nations remain impacted by colonialism, being largely excluded from the economy, and regaining control of land and natural resources is an important goal ([Nikolakis & Nelson, 2015](#); [Nikolakis, Akter, & Nelson, 2016](#)). The underlying question this study answers is whether a participatory backcasting approach can build shared futures among Indigenous and non-Indigenous peoples, and map out the policy measures to get there. The study offers insight into whether backcasting offers a pathway towards reconciliation.

2. Scenario analysis

Scenarios are stories that sketch a “mental map” of the future. Scenarios in second-generation backcasting give expression to people’s values and represent a fusion of perspectives, and are an emergent property of different knowledge systems and experiences ([Robinson, 2003](#)). Scenarios demonstrate how different parts of a system interact and evolve under different conditions to create the future ([Ringland, 1998](#)). Scenarios are future oriented, plausibly possible, influenced by the external context (like events, shocks, trends), offer a narrative description (story of the future), and are a set or group of stories that may be inter-dependent – yet these can be comparatively different alternatives that have normative qualities ([Spaniol & Rowland, 2019](#)).

Scenario development or analysis is focused on creating stories about the future ([Spaniol & Rowland, 2019](#)). Scenario analysis explores ‘alternative future pathways’, often defined in “explicitly normative terms” ([Robinson, 2003: p. 845](#)). Scenarios provide a fuzzy picture of the future, but these are not predictive and identify multiple possibilities for communities to build adaptive strategies ([Ogilvy, 2002](#)). In scenario development, different stakeholders give expression to mental models of the future, and through sharing and synthesising these models social and policy learning occurs ([Bezold, 2010](#); [Rickards et al., 2014](#)). Scenarios disrupt collective views of the future and the present, and weave together complex variables and drivers of change into coherent and plausible future states ([Amer, Daim, & Jetter, 2013](#)), and in doing this, scenarios expose power relations and serve as a basis for action ([Dator, 2002](#)).

A focus on the social context is critical for understanding the role of actors and organizations in shaping the future ([Slaughter, 2002](#)). Scenario analysis provides “a heuristic device for helping diverse stakeholders to identify, deliberate, and explore key assumptions and decisions” ([Rickards et al., 2014: p. 646](#)). However, despite its promise, there is no clear insight for how scenarios shape the policy process, and power dynamics are likely to bear a significant influence in both scenario planning and the policy process ([Rickards et al., 2014](#)).

2.1. The scenario building process

[Keough and Shanahan \(2008\)](#) document steps for scenario building: define the issues; identify key drivers, stakeholders, trends, constraints and important issues systematically; and, the rank these items by importance and uncertainty. The ambition is to identify three to five plausible scenarios, and two types of scenarios can be developed: exploratory and normative. Exploratory scenarios “describe a range of diverse, possible futures, with scenario teams working to assess the consequences of specific decision options” ([Star et al., 2016: p. 90](#)). Whereas normative scenarios are developed backwards from a desired future state, and identify policy pathways and actions to achieve this end-state ([Bezold, 2010](#)), mindful of the existing information, technologies and barriers ([Ogilvy, 2002](#)). In a backcasting approach, diverse actors collaboratively produce normative visions of the future, rooted in the worldviews of participants ([Robinson, 1990](#)). [Robinson \(2003\)](#) described backcasting as an approach to exploring “the feasibility and implications of achieving certain end-points, in contrast to forecasting studies aimed at predicting the future” (p.841). Robinson provided two justifications for backcasting over forecasting. First, predicting the future is challenging, there is too much uncertainty, especially with information, innovation and human decision-making. Second, the most likely future may not be socially desirable (particularly for alienated groups).

The main purpose of backcasting is “... in the context of discovery rather than in the context of justification” ([Dreborg, 1996: p. 813](#)). Dreborg reflected that backcasting has a teleological quality, where participants express normative states and policy choices, thus providing insight to intention that causally determines behavior. Dreborg noted that backcasting is not prescriptive, but identifies the scope and limitations for social choice, with particular focus on the means to the end. Backcasting enhances our understanding of the issues at stake, and the researcher does not commit to one definite solution, but highlights the consequences, and the costs and benefits of different solutions and strategies. Backcasting is important where: a societal problem is complex and involves diverse actors; there is a need for transformative change; where dominant trends cause problems; where the problem is an externality; and, when the time horizon is long enough to enable deliberate policy choices to meet challenges ([Dreborg, 1996](#); [Robinson, 1990](#)).

A combination of quantitative and qualitative data and inputs are used in scenario building processes. Importantly, who leads the process has important implications for scenario analysis – is it expert or participant driven? In expert driven approaches, experts work with participants to create, evaluate and identify scenarios, often using data and formalized modelling to help construct these. Participants drives scenario development in participatory approaches, and are free to determine plausible and extreme scenarios, considering drivers and trends for change. In the past, participatory and expert-led scenarios were exclusive ([Star et al., 2016](#)). Increasingly these co-exist, particularly in climate-based scenarios where these combine with mixed methods to develop place-based

scenarios (Star et al., 2016). Integrating expert analysis with stakeholder input fosters a cross-pollination of knowledge between scientists and managers, producing learning, capacity building, and empowering communities in futures decision-making (Ogilvy, 2002).

3. Scenario development and reconciliation

Reconciliation is an important goal in many societies with histories of inequity and conflict. Reconciliation is not simply 'saying sorry' for past injustices, but involves actions to undo past and existing wrongs, such as through re-distributing wealth, power, land and resources, to those wronged (Regan, 2010). Reconciliation is a complex task, where strategies for institutional change, power and sovereignty sharing, must be combined with social processes to encourage understanding, healing and co-existence (Tully, 2000). In societies with conflict and structural divides, where does dialogue and engagement take place about the future? Too often engagement and dialogue occur in adversarial settings that do little to advance reconciliation (Nikolakis et al., 2016). Gordon (2020) described the power of scenario planning in a South Africa transitioning towards reconciliation and establishing institutions to engage in the global economy. However, few studies exist on the power of backcasting to build shared futures and reconciliation among First Nations and non-First Nations in the Canadian context. Indeed, there are few studies like this globally.

Critical future studies scholars have called for more participatory methods that include diverse voices in creating futures (Sardar, 1993, 2010). Sardar (2010) outlined important aspects of methods to decolonize the future, these are participatory, diverse, and outcome oriented approaches for future studies. However, there are concerns that simply including diverse participants in backcasting studies is insufficient to create equitable futures (Sardar, 1993). Creating more diverse methods, rooted in diverse worldviews, is critical for equitable futures. Sardar (1993) cautions against simply adapting non-western methods in future studies, as these may produce distorted outcomes, and could simply reproduce western dominance. Indigenous futures studies explore ways Indigenous peoples can strengthen their own futures through their own methods (Whyte, 2017, 2018).

Few studies have focused on Indigenous research methods in futures studies, meaning there is little understanding on their interaction or integration with tools commonly used, like scenario planning (Milojević & Inayatullah, 2018; Whyte, 2018). The use of Indigenous research methods has increased globally, and storytelling is advanced as one of these, which involves participants orally sharing their own narrative and integrating a variety of important elements into this narrative (Bessarab & Ng'andu, 2010). Storytelling is described as a legitimate, engaging and accessible way to share knowledge in Indigenous communities (Drawson, Toombs, & Mushquash, 2017). Scenarios are defined as stories about the future (Ogilvy, 2002; Spaniol & Rowland, 2019), and scenario building has a storytelling like quality. Backcasting takes this a step further to construct the policy pathways to achieve these futures (Robinson, 2003).

3.1. Reconciliation in Canada: A planning perspective

Reconciliation in Canada involves restoring rights to resources, lands and peoples to First Nations, so that they can meet their own goals, without coercion or duress from the settler state (Nikolakis, 2019). Tully (2000) documents reconciliation as one of five strategies for First Nations to address claims against Crown sovereignty. First Nations have challenged Crown sovereignty through different mechanisms, including direct action, litigation, and negotiation (Nikolakis, Nelson, & Cohen, 2014; Lertzman & Vredenburg, 2005). A reconfiguring of Crown and First Nations relationships involves the creation of new governance forms, collaborative governance and shared jurisdiction (Nikolakis & Nelson, 2019). However, reconciliation also needs inter-group social processes to repair and build trust – there is a strong psychosocial dimension for achieving reconciliation between the transgressor and victim (Kelman, 2008).

Lane and Hibbard (2005) document planning in general can be “emancipatory”, with the “potential to transform the structural dimensions of oppression” (p. 172). Planning, in its traditional meaning in settler contexts, has been distinct to Indigenous knowledge systems and worldviews, and the “epistemological and ideological character of planning conducted as part of modern statecraft” (p. 147). Jackson et al. (2017) concur with Lane & Hibbard, arguing planning is an instrument of colonization, organizing natural resources and peoples into the colonial model. Planning, it is argued, must be decolonized to empower Indigenous peoples and support reconciliation.

Modern planning methods have become more collaborative – various approaches for facilitating Indigenous access to planning include radical planning (Friedman, 1987), insurgent planning (Sandercock, 1998) and Indigenous planning (Matunga, 2013). Friedman outlines “transformative theory”, a planning approach that identifies structural, systemic and institutional forces that sustain inequities; and enables participants to develop strategies for transforming these structures and institutions. Through dialogic processes, networks and alliances are developed, mutual learnings are fostered, and transformative strategies are produced (Friedman, 1987: p. 175).

Lane and Hibbard (2005) examined collaborative planning in Clayoquot Sound, and whether planning could transform structural, systemic and institutional forces to support Indigenous futures. The Clayoquot Sound Central Region Board was developed out of conflict, to implement joint management and providing First Nations with joint decision-making authority over land use, through a consensus-based approach. The Board sought to integrate First Nation's values into decision-making. Lane and Hibbard (2005) saw this as evidence that planning (and its implementation) can strengthen Indigenous peoples' autonomy and transform the structures that maintain inequity. They argued this Board provided First Nations with “...meaningful control over both their current circumstances and their destinies within the context of (modified) state systems” (Lane & Hibbard, 2005: p. 182).

Since the study by Lane & Hibbard, the Clayoquot Sound Central Region Board was dissolved, leaving a vacuum over land use

planning decisions. There exist no processes for collaborative land use planning let alone for reconciliation. The researcher and the partners explored the concept of scenario planning to build connectivity between the different communities, and through this process different groups could share their vision for the future. As [Inayatullah \(2009\)](#) observed, in scenario building processes, people create the world in which they wish to live. The ways in which backcasting can shape reconciliation are socially important in this place-based setting.

4. Clayoquot sound project

4.1. Context

Ahousaht, and Tla-o-qui-aht First Nations have lived in Clayoquot Sound for millennia, sharing the Nuu-cha-nulth language, and values like *Hishuk ish Tsawalk*, ‘everything is one and all is interconnected’, and *Iisaak*, ‘a respect for all living things’ ([Atleo, 2007](#)). Since contact, First Nations have resisted unsustainable resource extraction of old-growth forests and fisheries, culminating in protests during the 1990s over unsustainable clear-cut logging. The outcomes of these protests, led to reductions in timber harvesting and the designation of a biosphere reserve. Today, over a million tourists come to Clayoquot Sound from around the world, with profound impacts but few benefits for First Nations.

Various social science methods have been used to examine land use in Clayoquot Sound. In 2011, the researcher conducted face-to-face interviews with First Nations leaders to explore goals from forestry, and how these fit with community livelihood and conservation objectives ([Nikolakis & Nelson, 2015](#)). In 2013, choice surveys on land use were conducted with First Nation members living on and off-reserve, factoring in collective deliberation. The data revealed ‘Conservation & Restoration’ as the most preferred land use option, followed by ‘Tourism’ ([Nikolakis et al., 2016](#)). The researcher then explored conservation financing options to support a conservation-based economy, and to protect forests and fisheries. In 2015–2016, a voluntary Ecosystem Stewardship Fee (ESF) paid by tourists was discussed in five focus-groups to test its acceptability to First Nations governments (including hereditary organizations), Municipality officials, NGOs, local business, and the public. The results highlighted the ESF was acceptable, however, there were competing views about its appropriateness and how monies should be spent. While these methods provided insight into different perspectives over land use (primarily from First Nations), these approaches did not illuminate the desired future states of different community members. A research gap was identified to investigate, whether a conservation-based economy was a shared goal.

5. Method

Futures theory is tightly coupled with methods and tools developed through practice ([Robinson, 1990](#)). In this study, the normative scenarios developed in backcasting workshops were “emergent properties of structured conversations about future options, consequences and tradeoffs, that [combine] expert understanding with the knowledge, values, and preferences of citizens and stakeholders” ([Robinson, 2003: p. 854](#)). The normative scenarios emerged through scenario analysis and dialogue, which [Robinson \(2003\)](#) observed produces social learning among participants. In this study, facilitators supported the creation of scenarios through expert insight, which included qualitative data and models on future trends, as well as questioning in scenario building. The facilitators convened and facilitated the workshops; mediated between different participants in a self-reflexive way to encourage diverse expression; documented and analyzed the outcomes from the workshops and surveys; reported outcomes to the public; and one prepared this article from the documentation ([Wittmayer & Schöpke, 2014](#)).

There are three key parts to backcasting: it is a participatory and consensus-based approach; participants work through alternative scenarios until a normative or desirable scenario is agreed; and the process is not to predict futures, but to develop and evaluate desirable futures, and to assess their feasibility and the policy actions to get there. Participants could express their narrative on the future, they could change their minds on learning about alternative futures, or in understanding how their desired future may impact the desired future of others. Dialogue about the future with a storytelling quality was foundational to the workshop. Storytelling is a familiar and safe tool for Indigenous peoples that can decolonize research as “...relationality is inherent in storytelling... [and] can help ensure that the participants are respected as equal partners in the uncovering of knowledge” ([Drawson et al., 2017: p.14](#)). Research has historically been ‘on, rather than with’ Indigenous peoples, often identifying deficits in communities rather than capabilities to shape the future ([Drawson et al., 2017](#)). Storytelling offers promise for Indigenous peoples to integrate their epistemologies, values and goals in futures studies. This study focused on whether participatory backcasting could produce the social learning documented by [Robinson \(2003\)](#), in this case for communities historically divided. Three questions guided the scenario building sessions: (1) What will Clayoquot Sound’s economy look like in 2050? (2) What do people want for future generations in the region? And, (3) How do we get there?

5.1. Participants

There was an open invitation circulated through the community for people to attend the workshops with date, time and location from the researcher (through email, social and local media). The invitation also set out the ambition of the workshops: to create scenarios about Clayoquot Sound’s future and to identify the policy measures to get there. Maintaining participant diversity was essential, and leaders from diverse groups attended, supported by an informal steering committee of First Nations and civic leaders. This provided a cohort of people who could effect change ([Gordon, 2020](#)). Empowering First Nations to guide the design and

development of the workshop prioritized Indigenous values and ways of knowing throughout the project (Drawson et al., 2017).

5.2. Participatory backcasting workshops

There were three workshops convened from September to December 2017, at two locations at Tofino. The first workshop, held over two-days September 2017, began with First Nations and the municipality presenting their land use and community visions. Question and answer discussion followed this. After lunch, three sub-groups were curated to develop scenarios, with representatives from First Nations and different stakeholder groups (15 people, with 5 people in each group). Information was provided to participants on the purpose of the session and some general rules about respect and confidentiality. Three questions were discussed, focused on 2050 as the future date: (1) What will Clayoquot Sound's economy look like in 2050? (2) What do people want for future generations in the region? And, (3) How do we get there? This fits with backcasting which works on 25–50 year time frames in spatially specific areas (Robinson, 2003).

Facilitators led groups in scenario building, supporting the groups in questioning, probing and visioning. Each individual expressed their narrative of the future. These narratives took into consideration preferred futures, as well as the futures people feared. Contextual factors like climate change, population growth, and energy and food security were important drivers in discussion. The scenarios reflected ideal states for resilient and self-sufficient communities. Participants also considered the effect of evolving Aboriginal rights and title jurisprudence, and what the 'land question' and Indigenous jurisdiction may look like in 2050. These scenarios were tested against the community visions and plans, as well as expert analysis. The group then discussed how to get to this ideal future state. Four scenarios of the economy and the future were produced, as well the changes required to get there were prepared by each group. These scenarios and policy pathways were presented to the broader group after lunch.

The scenarios from each group were presented to the broader group by a small-group member. These scenarios were documented on whiteboards and collectively deliberated and agreed through consensus with the assistance of facilitators. These scenarios were synthesised to four scenarios for each question, based on criteria of "plausibility, logic and feasibility" (Segal, 2007). There were no 'best' or 'worst' scenarios, simply idealized states of what representatives wanted for future generations and how to set in place the actions required to achieve these states (given the information and experiences available to participants). Scenarios were validated according to five basic criteria: at least two scenarios were needed to reflect uncertainty; each scenario must be plausible; scenarios must be internally consistent; each scenario must be relevant to the group; and scenarios must produce a new and original perspective on the future (Amer et al., 2013).

The strategies to achieve the desired future states were then documented, with actionable steps for implementing these strategies. Following an afternoon coffee break, the gaps, weakness and opportunities in existing community plans and land-use visions were discussed. The session was then concluded with next steps specified, including sharing of information from the session and further workshop dates.

Following the backcasting sessions, a post-session online survey was conducted with participants to bring deeper insight to their perspectives (Star et al., 2016). There were six questions in the survey, focused on confirming the participant's perspectives on the future, the economy, land use, and the policy measures to achieve the future. Fourteen representatives answered the survey. The results from the survey were used to validate insights from the scenario building sessions. Fig. 1 illustrates the scenario development process.

A second two-day workshop held during November 2017, involved 20 new participants. The scenarios and policy measures from the first workshop were shared with participants. Like the first workshop, participants were curated into four groups of five participants who engaged in facilitated scenario building, with questioning and visioning from facilitators. The groups prepared four scenarios on the economy in 2050 and what they want for future generations. These scenarios were either new or built upon the original four scenarios. The small groups also mapped out the policy pathways to achieve these futures. After lunch the scenarios and policy pathways were collectively synthesized with the results from the first workshop, drawing on plausibility, logic and feasibility criteria. A set of four scenarios for each question and policy measures were finalized. A post-workshop survey was conducted, and the results from the workshop shared with all participants.

Scenarios were presented over to a broader public in a third workshop in December 2017 (one-day). The implications of these scenarios and policy measures for land use and community visions were deliberated. There was general consensus on the scenarios and policy measures, and a final report was prepared and shared with the broader community.

6. Results

6.1. What will clayoquot Sound's economy look like in 2050?

Table 1 presents four normative scenarios on Clayoquot Sound's economy in 2050. First, is "Food and energy secure": Clayoquot Sound will produce its own energy and food. Second, a "Diversified tourism economy", where high-end tourists will stay longer and visit for a First Nations cultural and sustainability experience. Third, a "Technology driven" economy, where people sell education services through the internet-of-things. Fourth, a "Conservation economy", where natural capital is conserved and not mined.

6.2. What do people want for future generations in the region?

Table 2 shows four scenarios on what people want for future generations. First is "Food and energy sovereignty", where future

Participatory Backcasting Approach

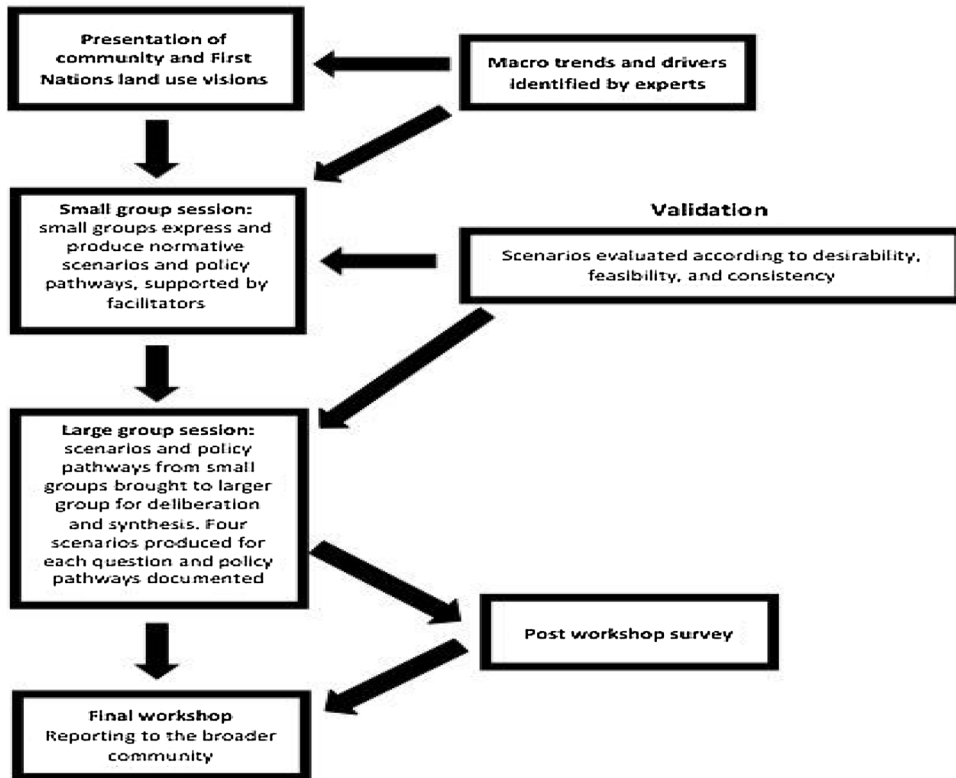


Fig. 1. Participatory Backcasting Approach.

generations meet their own food and energy needs in a low carbon economy. Second, is “Equality”, where First Nations and non-Indigenous peoples are on equal socio-economic footing, and people’s values and rights are respected. Third, is ‘Housing for everyone’, which is currently not the case. Fourth, a ‘Conservation based and sustainable economy’, where the region invests in healthy ecosystems and people stewarding the land.

6.3. How do we get there?

Table 3 presents the policy pathways identified by participants for achieving these ideal states. Six policy actions were prepared, and these are interdependent and viewed as feasible. First, building “social and physical infrastructure”, to build a resilient future. Physical infrastructure should be designed and built to accelerate a low carbon economy (green power) and to support food sovereignty (mindful of climate impacts like sea rise). A focus on building connectivity and social capital (social infrastructure) between people in the local community is critical, particularly between First Nations and non-Indigenous peoples. Second, is a focus on “building capacity”, through investments in education and health, especially among youth. Third, building true “partnerships with First Nations”, where non-Indigenous governments and industry recognize and respect First Nations jurisdiction, and economic prosperity is shared. This is foundational to achieving reconciliation and closing the socio-economic gap. Fourth, processes to “build political will for change” is essential, including a nation-wide commitment to achieve reconciliation and to achieve food and energy sovereignty. Fifth, “conservation finance” mechanisms are created to support ecosystem stewardship and build a conservation-based economy must be built. These instruments draw on private and public funding to reinvest in natural capital, and can generate sustainable livelihoods for First Nations communities through stewardship activity. Sixth, a focus on “safe housing”, where people have access to safe, affordable and healthy homes. Actions by government include rezoning for more density, and facilitating the flow of local materials and local expertise to build more sustainable houses.

6.4. Survey

Fourteen respondents answered an anonymous online post-session survey with six questions. The first question asked participants whether economic change would occur: incrementally, radically, or if the status quo would be maintained. All but one agreed the economy would change incrementally. Ten respondents believed change would be positive, with an increased ‘recognition of ecosystem services’, ‘opportunities in the conservation economy’, and ‘meaningful involvement of First Nations in the economy’. These

Table 1
What will Clayoquot Sound's economy look like in 2050?

Scenarios	Description
<p>Food and energy secure: Clayoquot Sound produces enough energy and food to meet its needs, and is not reliant on imports.</p>	<p><u>First session:</u> A desired state is one where Clayoquot Sound is food and energy secure. The focus was on green energy and organic food production, and creating sustainable local jobs. Participants emphasized risks like, carbon taxes increasing energy costs, or drought impacting food production in the United States or Mexico. A resilient community is energy and food reliant.</p> <p><u>Second and third sessions:</u> Participants agreed food and energy security is a priority. Participants, however, emphasised the importance of stable wild salmon stocks and healthy forests to food security. Developing a conservation based economy to sustain wild salmon stocks and forests was critical. New forms of finance must be developed to support the conservation economy (like carbon credits). There was also discussion about 'micro-grids' for energy security, and tidal, wave and hydropower energy-sources.</p>
<p>Diversified tourism economy: Tourism-economy focused on longer-stay and higher-income tourists experiencing First Nations' culture and sustainability.</p>	<p><u>First session:</u> Participants wanted a diversified tourism economy – including high-end tourists who stay longer. Tourism will grow to include nearby Ahousaht First Nation, who will share in the benefits. First Nations culture will be important to tourism, keeping the region globally competitive.</p> <p><u>Second and third sessions:</u> Participants wanted a more diversified tourism economy, including 'volunteer tourism' opportunities, where tourists pay to work restoring ecosystems or with First Nations. Clayoquot Sound would become a destination to learn about sustainability, learning from Indigenous knowledge.</p>
<p>Technology driven economy: Clayoquot Sound is connected to the technology economy, selling education and other knowledge through the internet-of-things.</p>	<p><u>First session:</u> Clayoquot Sound is engaged in the web-based knowledge economy, selling education services on sustainability. This will diversify the economy as mass-tourism is constrained by a low-carbon economy.</p> <p><u>Second and third sessions:</u> Participants agreed harnessing technology to sell education or healthcare services, will be important components of the region's economy. Establishing the soft and hard infrastructure to facilitate this is crucial.</p>
<p>Conservation economy: Clayoquot Sound's economy will not mine natural capital, but will generate net positive ecosystem services from forests and oceans, like clean air, carbon storage, and clean water.</p>	<p><u>First session:</u> Investing in natural capital (healthy forests and oceans), rather than depleting these will be the norm. Conservation finance, like payments for ecosystem services, carbon markets, and alternative forms of forestry, will support the conservation economy. The conservation economy will enhance First Nation's livelihoods and the tourism economy in the region.</p> <p><u>Second and third sessions:</u> Participants agreed a conservation economy, based on "reciprocity" payments made by visitors to sustain healthy forests and fisheries, will be support healthy communities.</p>

individual perspectives affirmed the collectively generated scenarios.

The biggest drivers for economic change to 2050 were identified as 'climate change' (four respondents) and the environment (four respondents), followed by population change (two respondents), technological change (two respondents) and global markets (two respondents).

Ten of fourteen respondents wanted conservation/restoration as the primary source for economic growth in 2050 (the remaining wanted tourism). Survey results validated what was found in the backcasting sessions, some selected comments on the respondents' economic vision for the region are:

- "[Having] greater respect for the land than post-contact generations before them."
- "Living off the watershed in truly sustainable fashion, from local food, (limited) tourism, and a thriving cultural economy (both settler and First Nations)."
- "[Using] conservation and green energy as [sources of revenue] and job creation."
- "Endeavors [such as] protecting forests for carbon sequestration, restoring salmon populations, and working and innovating with First Nations."

7. Discussion

Robinson (2003) described backcasting as an "interactive social research" that brings people together to test the feasibility and implications of explicitly normative futures. Backcasting produces actionable steps for people to build their desired futures – this is

Table 2
What do people want for future generations in the region?

Scenarios	Descriptions
<p>Food and energy sovereignty: Future generations will control their food and energy production.</p>	<p><u>First session:</u> Clayoquot Sound's reliance on food and energy imports exposes future generations from global shocks. Exploring new forms of green energy and food production can ensure people have sustainable livelihoods in the region over the long term.</p> <p><u>Second and third sessions:</u> Participants agreed food and energy sovereignty is critical. This group of participants also emphasised the need to reintegrate traditional foods into First Nation's diets for food security. For example, different seaweeds are under-utilized as a food source. The importance of healthy ecosystems for food security was critical.</p>
<p>Equality: The socio-economic gap between First Nations and non-First Nations is closed. Everyone's voice and values are respected.</p>	<p><u>First session:</u> Participants constructed a future scenario of economic, social and political equality – where disparity between people is addressed, and First Nations have the same health and well-being outcomes as non-Indigenous people.</p> <p><u>Second and third sessions:</u> Participants identified a future where everyone has similar socio-economic and health status. But participants emphasised that achieving economic equality may be unsustainable. A First Nation participant articulated the goal should be for all people to “live with humility” and to reshape their values to respect natural systems and our place within these. A key component of equality was the importance of healthy First Nations peoples with healthy and vibrant cultures.</p>
<p>Housing for everyone: Affordable housing will be available to all people.</p>	<p><u>First session:</u> Participants wanted future generations to have sufficient, affordable and appropriate housing. In 2050, there would be more pressure from migration to areas like Tofino because of climate change, imposing further pressure on housing. To support this there needs to be an increase in housing stock.</p> <p><u>Second and third sessions:</u> Participants identified a future where everyone has equal housing access. Supporting local people building homes from healthy forests is one way to facilitate housing access.</p>
<p>Conservation and sustainable economies: The natural capital of the region will be conserved, not mined, to sustain healthy ecosystems.</p>	<p><u>First session:</u> Future generations will have a conservation economy that invests in maintaining natural capital for future generations. A conservation economy operates within the limits of ecosystems, and First Nations are stewards, who restore and maintain ecosystem functions and services.</p> <p><u>Second and third sessions:</u> Participants agreed a conservation economy is ideal and emphasised that achieving sustainability will require recognition of First Nations sovereignty, and empowering First Nations to manage ecosystems consistent with hahoulthee (territory)-based management through reciprocity payments.</p>

most effective where the participants have the agency to action these steps (Gordon, 2020). Indigenous and critical future studies scholars have critiqued futures studies for adopting western methods that colonize the future (Sardar, 1993, 2010). Despite the promise of social learning between populations (Robinson, 2003), the literature is unclear on whether backcasting can give voice and expression to Indigenous futures, or whether backcasting can produce shared futures between Indigenous and non-Indigenous peoples. Can backcasting reconcile Indigenous and non-Indigenous futures?

To bring insight to this question, this study applied a participatory backcasting approach in a context where land use conflict has been persistent between First Nations and non-First Nations peoples. Representatives and leaders from First Nations and non-First Nations community came together to develop rich mental images of the future, Clayoquot Sound's economy to 2050, and the policy measures to achieve these futures. The normative scenarios and the policy pathways produced by participants were emergent properties of the facilitated scenario building sessions. Four normative scenarios were constructed of Clayoquot Sound's economy to 2050: food and energy security; a diversified tourism economy; a technology driven economy; and a conservation-based economy. The collectively refined scenarios are interrelated and consistent, focusing on sustainable development, local jobs, and resilience against global energy and food shocks. For future generations, participants identified four scenarios: food and energy sovereignty; socio-economic equality, and partnerships and reconciliation with First Nations; safe housing; and a conservation-based economy (where people actively stewarded the land). The connection between sustainability, healthy ecosystems and healthy communities were a consistent theme. These scenarios were confirmed and validated in a post-session anonymous online survey, and were consistent with community land use visions.

Six policy pathways to achieve these futures were developed: building social and physical infrastructure; enhancing youth capacity through education and health investment; reconciling with and respecting First Nations as partners in governance and the economy; fostering political will for change; facilitating conservation finance opportunities; and creating safe and accessible housing. These strategies directly tackle the root causes of systemic problems, like inequity and unsustainable development – and addressing these issues can enable transformative change (Rickards et al., 2014). As Bradfield, Wright, Burt, Cairns, and Van Der Heijden (2005) argued, scenario building has evolved from simply “making sense of a puzzling situation” to developing adaptive and transformative

Table 3
How do we get there?

Actions	Descriptions
Social and physical infrastructure: Investments in people and infrastructure to build a resilient future.	<u>First session:</u> Investments in physical (technology, energy and food production, etc.) and social infrastructure (education and social capital), to build a more resilient future in a low carbon economy. <u>Second and third sessions:</u> Building social infrastructure is a priority, to create new ways of relating to one another and to nature. Face-to-face engagement across populations and deepening regional networks can build social infrastructure, and support cooperation and equality. Reconciling relationships with First Nations is also an important step. A priority is building physical infrastructure by locals, and local materials, to keep money within communities and to build local capacity.
Build capacity: Capacity must be actively built in youth, through investments in education and health.	<u>First session:</u> Youth must be trained for skills in the new economy: technology, education and stewardship. Providing resources for mentoring First Nations youth into leadership and business roles is a priority. Investments in health are critical for people to engage actively in the economy, including in stewardship roles to build a conservation economy. <u>Second and third sessions:</u> Participants called for innovative ways of training youth through experiential and practical education programs. They saw opportunities to develop education and healthcare sectors in the region, built on healthy ecosystems and vibrant First Nations cultures.
Partnerships with First Nations: Partnerships between First Nations and non First Nations government and industry are built to share prosperity. Respecting the jurisdiction of First Nations is critical to achieving reconciliation.	<u>First session:</u> Recognizing First Nations' jurisdiction is critical for reconciliation, and so is engaging in meaningful economic partnerships for shared prosperity in various sectors (particularly tourism). These partnerships form the basis of locally-owned businesses and industries that keep profits in the region. <u>Second and third sessions:</u> Participants focused on developing meaningful partnerships reflecting First Nation's values. Participants called for more inclusive land and resource planning governance that integrates traditional ecological knowledge into decisions.
Build political will for change: A nation-wide commitment to meet desired future states.	<u>First session:</u> Participants emphasised that political leaders must establish a shared vision for sustainable development beyond fossil fuels. There is a need to put 'community' back into the economy. Political vision needs to ensure First Nations are engaged equitably in the economy. <u>Second and third sessions:</u> Non-Indigenous political leaders learn from Indigenous knowledge, values, and teachings, to reverse the exploitation trend. A decentralized and stewardship-based approach can create healthy ecosystems and healthy communities, promoting resilience.
Conservation finance: Draw on private and public funding to reinvest in natural capital.	<u>First session:</u> Establish conservation finance mechanisms to conserve, restore and steward ecosystems. Investments in natural capital can generate healthy fisheries, healthy forests, clean air and water, as well as aesthetics and recreation opportunities to support tourism. Payments to First Nations for stewarding ecosystems can be an important economic driver if there is long-term financial support. <u>Second and third sessions:</u> Participants emphasised the need for 'reciprocity' payments, to 'put back' into ecosystems what we 'take out'. This creates balance, an important value to local First Nations. A priority is creating the institutions to support 'reciprocity' payments, to fund First Nations' stewardship (the ESF).
Safe housing: People need homes that are safe and healthy to build a resilient future.	<u>First session:</u> Safe housing is a basic need for people to achieve their potential. <u>Second and third sessions:</u> Building appropriate houses from sustainable locally sourced materials is important to healthy communities and healthy ecosystems.

strategies (p. 806).

Few studies have examined the interaction of Indigenous and western perspectives of the future, and whether these converge. Umemoto (2001) observed that cultural and epistemic differences often constrains inter-group communication. In this study, the participatory backcasting approach, using individual and collective narrative and storytelling, offered an accessible approach to bridged epistemic and ontological divides (Drawson et al., 2017). Producing normative scenarios created opportunities for constructive inter-group dialogue and cooperation, and for social learning outside of adversarial processes. Participants ate together,

connected during coffee breaks, and shared their personal narratives of the future. The collective deliberation element of the study fit well with Indigenous collective decision making processes (Nikolakis et al., 2016) and research methods (Drawson et al., 2017), an elder who participated in the study reflected: “Each person holds a piece of the puzzle. We need everyone to bring this piece to the table to build a picture of the puzzle that is the future.”

Like Gordon (2020) documented in the South African context, the involvement of change makers was critical to taking action on the policy pathways produced in this backcasting. A summit was convened six months after the workshops that discussed broader community support of a Tribal Park, recognizing and empowering First Nations to steward contested lands, funded through a voluntary Ecosystem Stewardship Fee. Businesses participating in collecting the fee and distributing it to the First Nations can use the label “Tribal Park Allies”. This fee is a first step towards building the conservation economy, to creating partnerships between industry and First Nations, and fostering more equity in the economy.

Change requires a constituency of people who are both willing and have the agency to effect change – a narrative of ‘community’ between people is also important, as reflected in the words of Canadian Indigenous leader, Georges Erasmus: “Creating and sustaining a national community is an ongoing act of imagination, fuelled by stories of who we are” (Erasmus, 2002). Backcasting appears to produce this shared narrative through scenario building, face-to-face engagement, storytelling and social learning. Importantly, this study documents that participatory backcasting involving change makers, can catalyze the actions needed to create a reconciled future.

8. Conclusion

This participatory backcasting study, applied in a community characterised by land use conflict and economic inequity, involved Indigenous and non-Indigenous leaders creating normative scenarios of the future together. Participants also developed the policy pathways to achieve these desired states. Scenarios were place-based and focused on transforming the economy towards self-sufficiency and sustainability, and to achieve political and economic reconciliation between First Nations and non-First Nations peoples. Policy pathways to achieve the desired future states included investments in youth capacity and safe housing, political and economic partnerships with First Nations, and creating financing mechanisms for a conservation-based economy.

Scenario building facilitated the sharing of personal and shared narratives of the future – stories that bridged epistemic and ontological divides, created social learning, and strengthened networks. The involvement of change makers in backcasting meant certain policy pathways could be put into action – in this case the creation of a voluntary ecosystem stewardship fee paid by the tourism sector to advance First Nation ecosystem stewardship. This fee offers promise to build a more equitable and conservation-based economy. Post-workshop cooperation suggests backcasting can catalyze meaningful steps towards reconciliation.

Further research could examine if and how scenarios change over time, and analyze how scenarios are used in ongoing policy, adaptation and strategic planning processes. Further research could also enrich backcasting by examining conflicts about the future, and identifying methods and approaches to resolve this conflict, particularly in adversarial contexts.

Acknowledgments and funding

Thank you to the participants in this study.

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Declarations of Competing Interest

None.

References

- Amer, M., Daim, T. U., & Jetter, A. (2013). A review of scenario planning. *Futures*, *46*, 23–40.
- Atleo, E. R. (2007). *Tsawalk: A nuu-chah-nulth worldview*. Vancouver, Canada: UBC Press.
- Bessarab, D., & Ng'andu, B. (2010). Yarning about yarning as a legitimate method in Indigenous research. *International Journal of Critical Indigenous Studies*, *3*(1), 37–50.
- Bezold, C. (2010). Lessons from using scenarios for strategic foresight. *Technological Forecasting and Social Change*, *77*(9), 1513–1518.
- Bradfield, R., Wright, G., Burt, G., Cairns, G., & Van Der Heijden, K. (2005). The origins and evolution of scenario techniques in long range business planning. *Futures*, *37*(8), 795–812.
- Dator, J. (2002). *Advancing futures: Futures studies in higher education*. Westport, CT: Praeger.
- Drawson, A. S., Toombs, E., & Mushquash, C. J. (2017). Indigenous research methods: A systematic review. *International Indigenous Policy Journal*, *8*(2), 5.
- Dreborg, K. H. (1996). Essence of backcasting. *Futures*, *28*(9), 813–828.
- Erasmus, G. (2002). *The lafontaine-baldwin lectures*. Vancouver, BC.
- Friedman, J. (1987). *Planning in the public domain: From knowledge to action*. Princeton, NJ: Princeton University Press.
- Gordon, A. V. (2020). Limits and longevity: A model for scenarios that influence the future. *Technological Forecasting and Social Change*, *151*, Article 119851.
- Inayatullah, S. (2008). Six pillars: Futures thinking for transforming. *Foresight*, *10*(1), 4–21.
- Inayatullah, S. (2009). Questioning scenarios. *Journal of Futures Studies*, *13*(3), 75–80.
- Jackson, S., Porter, L., & Johnson, L. C. (2017). *Planning in indigenous Australia: From imperial foundations to postcolonial futures*. New York: Routledge.
- Kahane, A. (2012). *Transformative scenario planning: Working together to change the future*. Oakland, CA: Berrett-Koehler Publishers.
- Kahn, H., & Wiener, A. J. (1967). *Year 2000: a framework for speculation on the next thirty-three years*. New York: The Macmillan.
- Kearney, R. (2002). *On stories: Thinking in action*. New York: Routledge.
- Kelman, H. C. (2008). Reconciliation from a social-psychological perspective. In A. Nadler, T. Malloy, & J. D. Fisher (Eds.). *Social psychology of intergroup reconciliation*:

- From violent conflict to peaceful co-existence (pp. 15–32). New York: Oxford University Press.
- Keough, S. M., & Shanahan, K. J. (2008). Scenario planning: Toward a more complete model for practice. *Advances in Developing Human Resources*, 10(2), 166–178.
- Lane, M. B., & Hibbard, M. (2005). Doing it for themselves: Transformative planning by Indigenous peoples. *Journal of Planning Education and Research*, 25(2), 172–184.
- Lertzman, D. A., & Vredenburg, H. (2005). Indigenous peoples, resource extraction and sustainable development: An ethical approach. *Journal of Business Ethics*, 56(3), 239–254.
- Matunga, H. (2013). Theorizing indigenous planning. In R. Walker, D. Natcher, & T. Jojola (Vol. Eds.), *Reclaiming indigenous planning: Vol. 70*, (pp. 13–32). Montreal, QC: McGill-Queen's Press-MQUP.
- Milojević, I., & Inayatullah, S. (2018). From Skilling for new futures to empowering individuals and communities. *Journal of Futures Studies*, 22(4), 1–14.
- Nikolakis, W., Nelson, H., & Cohen, D. (2014). Are indigenous peoples important to sustainable development? Evidence from socially responsible investment mutual funds in North America. *Organization & Environment*, 27(4), 368–382.
- Nikolakis, W., & Nelson, H. W. (2015). To log or not to log? How forestry fits with the goals of First Nations in British Columbia. *Canadian Journal of Forest Research*, 45(6), 639–646.
- Nikolakis, W., Akter, S., & Nelson, H. W. (2016). The effect of communication on individual preferences for common property resources: A case study from two Canadian First Nations. *Land Use Policy*, 58, 70–82.
- Nikolakis, W. (2019). The evolution of indigenous self-governance in Canada. In W. Nikolakis, S. Cornell, & H. W. Nelson (Eds.), *Reclaiming indigenous governance reflections and insights from Australia, Canada, New Zealand and the United States* (pp. 55–70). Tucson, AZ: University of Arizona Press.
- Nikolakis, W., & Nelson, H. W. (2019). Trust, institutions and Indigenous self-governance: An exploratory study. *Governance*, 32(2), 331–347.
- Ogilvy, J. A. (2002). *Creating better futures: Scenario planning as a tool for a better tomorrow*. New York: Oxford University Press.
- Regan, P. (2010). *Unsettling the settler within: Indian residential schools, truth telling, and reconciliation in Canada*. Vancouver, BC: UBC Press.
- Rickards, L., Wiseman, J., Edwards, T., & Biggs, C. (2014). The problem of fit: Scenario planning and climate change adaptation in the public sector. *Environment and Planning C, Government & Policy*, 32(4), 641–662.
- Ringland, G. (1998). *Scenario planning: Managing for the future*. Chichester, UK: John Wiley & Sons.
- Robinson, J. B. (1990). Futures under glass: A recipe for people who hate to predict. *Futures*, 22(8), 820–842.
- Robinson, J. (2003). Future subjunctive: Backcasting as social learning. *Futures*, 35(8), 839–856.
- Sandercock, L. (1998). Framing insurgent historiographies for planning. In L. Sandercock (Ed.), *Making the invisible visible: A multicultural planning history* (pp. 1–33). California: University of California Press.
- Sardar, Z. (1993). Colonizing the future: The “other” dimension of futures studies. *Futures*, 25(2), 179–187.
- Sardar, Z. (2010). The Namesake: Futures; futures studies; futurology; futuristic; foresight—What’s in a name? *Futures*, 42(3), 177–184.
- Segal, N. (2007). *Breaking the mould: The role of scenarios in shaping South Africa’s future*. Stellenbosch: S.A: African Sun Media.
- Slaughter, R. A. (2002). From forecasting and scenarios to social construction: Changing methodological paradigms in futures studies. *Foresight*, 4(3), 26–31.
- Spaniol, M., & Rowland, N. J. (2019). Defining scenario. *Futures Foresight*, 1(2), 1–13.
- Star, J., Rowland, E. L., Black, M. E., Enquist, C. A., Garfin, G., Hoffman, C. H., et al. (2016). Supporting adaptation decisions through scenario planning: Enabling the effective use of multiple methods. *Climate Risk Management*, 13, 88–94.
- Tully, J. (2000). The struggles of indigenous peoples for and of freedom. In D. Ivison, P. Patton, & W. Sanders (Eds.), *Political theory and the rights of indigenous peoples* (pp. 36–59). Cambridge, UK: Cambridge University Press.
- Umamoto, K. (2001). Walking in another’s shoes: Epistemological challenges in participatory planning. *Journal of Planning Education and Research*, 21(1), 17–31.
- Whyte, K. (2017). Indigenous climate change studies: Indigenizing futures, decolonizing the Anthropocene. *English Language Notes*, 55(1), 153–162.
- Whyte, K. P. (2018). Indigenous science (fiction) for the Anthropocene: Ancestral dystopias and fantasies of climate change crises. *Environment and Planning E Nature and Space*, 1(1–2), 224–242.
- Wittmayer, J. M., & Schäpke, N. (2014). Action, research and participation: Roles of researchers in sustainability transitions. *Sustainability Science*, 9(4), 483–496.