Exploring Participatory Approaches to Policy Development for Decarbonising Transport to and within Loch Lomond and the Trossachs National Park

SEFARI Fellowship with Loch Lomond &Trossachs National Park

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About this Report

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The production of this report was funded by the Scottish Environment, Food and Agriculture Research Institutes (SEFARI) Gateway, as part of their fellowship scheme, which are bespoke opportunities co-constructed with key partners to deliver solutions to priority policy and practice needs.

Executive Summary

The climate emergency presents a double challenge for public bodies as they reduce their greenhouse gas emissions and learn to adapt to the already changing climate. The Scottish government is committed to deliver a Just Transition to Net Zero by 2045 meaning that public entities must come up with innovative ways to meet these targets.

The Loch Lomond and the Trossachs National Park covers a largely rural area in the west of Scotland and want to address the 'wicked issues' of rural car dependency and carbon-intensive travel to LLTNP.

This research explores the evidence for an inclusive and user-led approach that might be developed using participatory policy development approaches. The findings are not exhaustive due to the scope and time of this fellowship but are key in starting a conversation about best practices in stakeholder engagement in the national park.

Key findings from this report include:

- There is a clear willingness to move beyond traditional consultation methods towards more creative, deliberative co-design methods.
- The most effective methods for stakeholder engagement must be developed on a case-by-case basis, reflecting the desired outcomes and the available time and capacity of stakeholders and park staff.
- There is potential for the LLTNPA to implement deliberative processes which can act to both tackle the issue at hand while creating an opportunity for deeper learning and cultural shift amongst stakeholders.
- It is crucial to understand the unique values and interests of all stakeholders and the complex relationships between them.
- Combining different approaches can foster collective learning and lead to more inclusive and robust policy solutions to both immediate and larger scale issues.
- LLTNPA could develop an internal ethos and protocol around best practices in stakeholder engagement informed by both the findings in the literature and the rich experiences of park staff.
- A strategic framework could be developed to help guide when stakeholder engagement is most pertinent and outline the most effective methods for engaging stakeholders on a variety of strategic planning issues.
- Approaches should cater to the place-based needs, values and interests of a diverse range stakeholders and be sensitive the power-dynamics that exist between entities.
- Findings from this report and future engagement efforts by the park can help inform best practices for wider climate policy engagement in Scotland.

Introduction

Scotland joined international efforts to mitigate the effects of climate change by committing to net zero by 2045 with the Climate Change (Scotland) Act 2019. Transport is Scotland's biggest emitting sector, accounting for nearly 36% of greenhouse gasses, with 40% of those coming from cars. The transition to a decarbonised travel system throughout Scotland is already underway and is tied closely to ongoing efforts to improve rural accessibility and reduce rural car dependency.

Loch Lomond and the Trossachs National Park (LLTNP) exemplifies the importance of environmental protection and climate change mitigation. Unfortunately, car-dependant travel to and within the park has resulted in high emissions, congestion, visitor management pressures and a non-inclusive recreational opportunity[1]. Furthermore, the unsustainable trend of car-dependency within LLTNP was heightened during the COVID-19 pandemic as "stay-at-home" restrictions began to ease.

The Scottish Government is determined to ensure a Just Transition for everyone in Scotland by working with multiple stakeholders to plan for a net zero future[2]. Deliberative democracy is seen as a key way to help address wicked problems like the climate crisis by ensuring a diverse range of stakeholders are included in the political decision-making process. As demonstrated by the Scottish Climate Assembly and countless other examples, participatory methods can help integrate diverse opinions into policies for climate action and enhance transformational change across different sectors.

On the heels of COP26 in Glasgow, the UK, and Scotland particularly, are in the public eye when it comes to meeting ambitious decarbonisation goals. As government travel restrictions enacted during the COVID-19 pandemic begin to ease, the question remains whether Scotland will commit to building back better particularly in the transportation sector.

This report aims to highlight the participatory tools available to help inform LLTNP's journey to decarbonising travel to the park and provides a list of recommended approaches and opportunities for further research based on a rapid evidence review and interviews with key park staff. The implications of this work will be relevant across rural Scotland in general and perhaps beyond.

[1] These issues were raised in a LLTNPA Board discussion paper which can be read here.
[2] Read more about the Just Transition Commission's response from Scottish Government here.

Context

Research has shown that while the tourism industry contributes to more than 10% of global gross domestic product (GDP) and provides for one in ten jobs in the world (D'Arco *et al.*, 2021) it also contributes to between 5% and 14% of CO2 emissions (Lee and Jan, 2019). The transport sector, including for tourism, is growing rapidly and has been responsible for approximately 23% of global energy related CO2 emissions (Creutzig *et al.*, 2015).

The unsustainable trend of car-dependency within Loch Lomond and the Trossachs National Park (LLTNP) was heightened during the COVID-19 pandemic. Visitation rates by domestic visitors with personal vehicles to the park skyrocketed as "stay-at-home" restrictions began to ease. Visitors, employees, and residents within LLTNP must be included in a participatory process to define best practices to formulate a plan to begin a just transition towards more sustainable forms of travel within the park.

Public participation in policy making comes in different forms. Figure 1 summarises three popular models of participation referenced in the literature. There are varying levels of participatory involvement moving from methods which inform (lower on the ladder) to those which support existing community initiatives (higher up the ladder). For the purposes of this paper, multiple methods are discussed which may be placed at various points along the ladders although the goal is to move further up the ladder as possible.

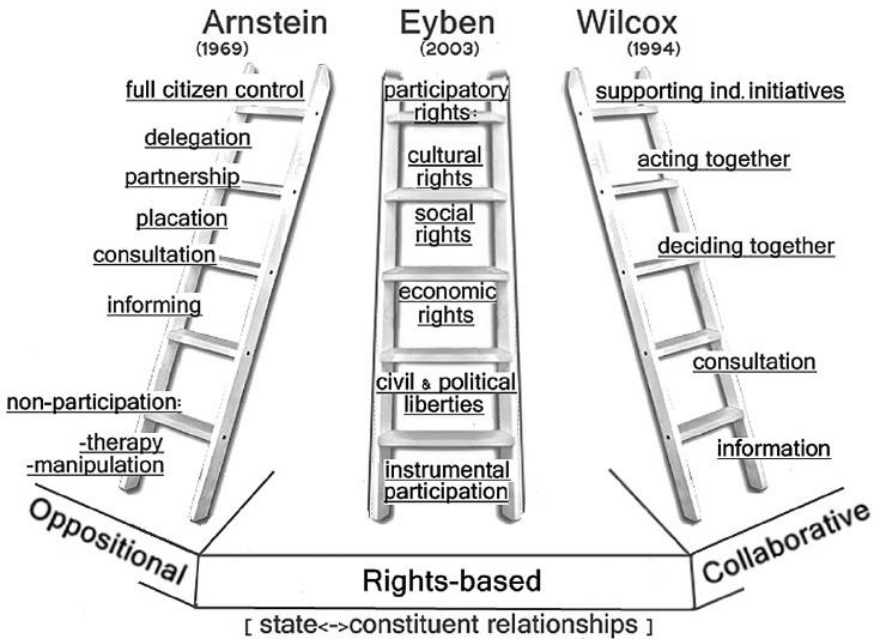

Figure 1: "Three models of participation (Arnstein, 1969; Eyben, 2003; Wilcox, 1994) summarised using the common visual metaphor of the ladder. Participatory processes are seen to progress up the rungs of the ladder from insincere and manipulative fora to ones which give citizens increasing power and autonomy. At the base of each ladder is a term denoting the perceived nature of power and state-society relationships implicit in each model." Figure and caption taken from Aylett (2010).

Participatory approaches to sustainable transport issues are necessary because

a) without participation of all key stakeholders, it may be impossible to explore all available options and implement difficult policy choices,
b) participatory approaches are needed to deal with cross-sectoral issues like transport,
c) and the transport system is reliant on users which should be involved in policy decision making through participation (UN.ESCAP, 2003).

Good public participation improves governance, increases the quality of services provided by the public sector, revitalises democratic practice, maintains the stability of society, guards the public interest and increases community cohesion and unity (UN.ESCAP, 2003). Staff involved in policy making at LLTNPA are interested in stakeholder engagement strategies that meet all these criteria to help them make good policy decisions for sustainable transport to the park and other policy and planning efforts.

There are a variety of methods that can be used to engage stakeholders in policy development. However, due to the highly contextual nature of stakeholder engagement, there is no one particular method or process that should be prescribed to any type of policy creation and planning (UN.ESCAP, 2003). This research aims to connect information on best practices with practical themes uncovered by the interviews and signpost to additional readings and research that should be considered prior to deciding on good practices for the park to consider.

Process

A rapid evidence assessment was completed which considered pertinent research and good practices in participatory and inclusive policy development that is best placed to

a) be put into practice in the National Park and/or
b) in addressing rural car-dependency in the context of the Just Transition. Four research questions were used to help guide the process.

The rapid evidence assessment is available as an Appendix to this final report.

Interviews with key staff from LLTNPA were conducted to gain an understanding of which participatory methods are most used in the park, what is needed to improve stakeholder engagement in the park and what park staff see as the purpose of stakeholder engagement for LLTNPA.

This final report integrates the findings from the rapid evidence assessment and the interviews.

Key Findings from Rapid Evidence Assessment

- There is a wealth of information that can be further explored on this topic.
- There is considerable literature on best practices in participatory design including a guide specifically designed for participatory approaches to sustainable transport.
- There is evidence pointing to the benefits of a multi-methods approach incorporating different levels and modes of stakeholder engagement.
- It is important to consider the wider socio-political context that the issue of sustainable transport and rural car dependency (and car dependency in general) sits within.
- Bottom-up approaches to problem solving should be met with top-down support, which can be fostered by LLTNPA.
- Stakeholder analyses are essential for understanding the stakeholder values, power dynamics, and in preventing/managing potential conflicts.

Key Findings from Interviews

- Stakeholder engagement is a critical aspect of policy and planning in the park. It can also be used to encourage positive behaviours, create transformational societal change, and connect with wider regional and national goals.
- Practitioners find value and benefit in the co-design stakeholder engagement method and believe early and constant involvement of stakeholders is key to gaining support for park policies and ensuring stakeholders feel empowered and capable.
- It is important not only to understand stakeholder groups through stakeholder mapping, but also to understand them as individuals with unique values and goals. Building relationships with stakeholders is key.
- There is a desire to ensure diverse voices are sought out and provided with an appropriate platform to engage. Engagement strategies should be purposeful and tailored to the desired outcomes of the project and needs of the stakeholders.
- Park staff are already engaging in cutting edge stakeholder engagement, but more time, training, and capacity are needed to capitalise on existing talents and motivations.

Themes from the Findings

The following themes reflect key insights identified in the interviews and rapid evidence assessment on stakeholder engagement and participatory policy making in general. Figure 2 provides a list of key findings under each theme. Sometimes quotes are used to help contextualise the themes. More detail on the themes discussed and references mentioned can be found in the Appendix. Stakeholder engagement is also abbreviated to SE throughout the remainder of this report.

Building an ethos around stakeholder engagement	Determining best methods for stakeholder engagement on a case-by-case basis	Overcoming barriers to stakeholder engagement in the park
•SE is a critical exercise for policy making within LLTNPA. •SE can connect LLTNPA specific policy goals with wider regional and national policy goals. •SE must be purposeful and inclusive. •SE must include diverse and often unheard voices to ensure proper representation. •SE is about building relationships and meeting people where they are at to help LLTNPA gain insight on policy creation. •SE must start early and happen often to ensure continued participation in policy creation. •Stakeholders should decide how best to be engaged.	•All SE must first start with stakeholder mapping and analysis to help set the context for the issue being addressed. •SE methods should vary depending on the desired outcomes of the engagement strategy. •Mixed methods approaches work best in involving a wide range of stakeholders in policy creation. •SE should aim to move beyond traditional consultation strategies and encourage more creative approaches to solving issues and gaining feedback. •SE should employ systems thinking and aim to address wider sustainability goals. •Virtual and in-person engagement should be utlised when appropriate.	•LLTNPA staff need enhanced time, capacity, and training to engage stakeholders effectively in policy creation and decision making. •Power dynamics amongst stakeholders and engagement coordinators must be considered. •LLTNPA could utilize strategic partnerships and board member relationships for more support in SE strategies. •Adaptive governance techniques can be used to provide top-down support to bottom up initiatives. •Sometimes it may be appropriate to bring in external support.

Figure 2: Summary of themes from the findings.

General good practices in Stakeholder Engagement

The literature review and interviews pointed to several good practices in SE when it comes to policy development. Some of the general good practices the literature refers to are included below and in Box 1. As this is not an exhaustive list, future research could delve further into these good practices to uncover other specific tools that LLTNPA may want to consider using.

- **Understanding the context of the issue and deciding the purpose of the SE activity.** This can come from bottom-up forces (i.e., communities asking for support in dealing with recurring transport infrastructure issues) or top-down (i.e., mandates to move towards net-zero which put pressure on existing transport infrastructure).
- **Identifying who the key stakeholders are and their potential roles in SE based on their potential level of interest by completing and interest and power matrix.** This exercise can help identify which stakeholders should be engaged with closely and considered in more inclusive methods of engagement (higher ladder engagement) versus those who may have less interest and power in the issue yet should be kept informed (lower ladder engagement) (see Box 7).
- **Understanding stakeholder values by involving stakeholders appropriately early in the process.** For example, those with more power and interest may be invited to a workshop or meeting to discuss their values and opinions on the issue, whereas stakeholders with less interest or power may be asked to participate in a survey to collect data on their opinions.
- **Paying close attention to power dynamics at various stages in the SE process.** Bell and Stockdale (2016) provide insight to the questions that should be asked when determining power dynamic issues that may occur when engaging stakeholders (see Box 10).
- **Deciding on a mix of SE strategies/methods which tailor to the unique context of the issue, purpose of the engagement, and interests of the stakeholders. It is good practice to include stakeholders in deciding which methods they feel are best for them.** There is no one-size-fits all approach when it comes to stakeholder engagement for policy making. Examples of different techniques which can be employed are provided in the Appendix and a list of other common techniques are also featured in Box 9.
- **Establishing communications and relationships with the key stakeholders to ensure they feel valued from the start**. This can be done by attending meetings and events where stakeholders are already present, organising one-to-one or group engagements ranging from grabbing cups of tea or larger potlucks, and identifying community leaders and approaching them to assist in relationship building with the wider community (for an example of relationship building see Box 7).

Box 1: Generating good outcomes from stakeholder engagement

Reed et al. (2018) developed a theory for why different SE processes are more successful than others in delivering beneficial outcomes. The variation in outcomes across the different types of participation are determined by the context of the issue, the process design chosen, how power dynamics are managed, and how well fit the process is in terms of scale and timing/length (see Figure 3).

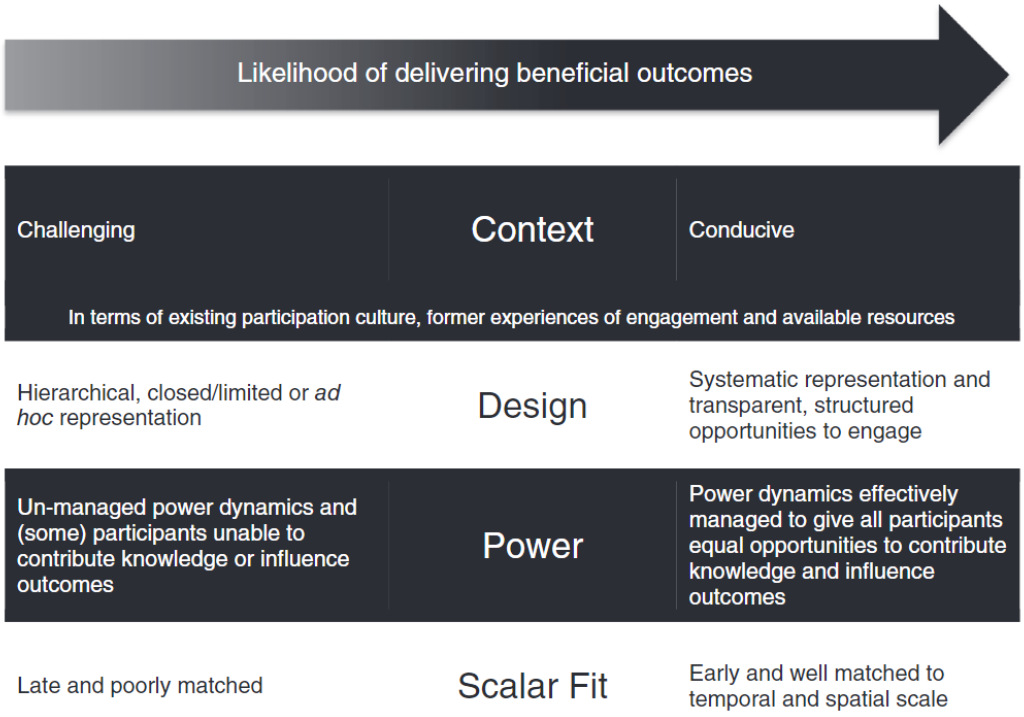

Figure 3: A theory of participation that explains how the outcomes of stakeholder and public engagement in environmental management are explained by context, process design, the management of power dynamics, and scalar fit. Figure and caption taken directly from Reed et al. (2018).

To ensure beneficial outcomes they recommend:

1. Taking time to fully understand the context of the issue and adapt the design of the participatory method to this.
2. Involve affected stakeholders in dialogue as soon as possible to develop shared goals and encourage co-production based on relevant stakeholder knowledge.
3. Ensure power dynamics are managed to make sure all participants' contributions are valued - this can be done by ensuring professional management of the SE strategy and mediation where necessary.
4. The length and frequency of engagement should match the issue. Deeper rooted issues may take longer to untangle and deliberate.

LLTNPA should consider this advice and explore whether there are other tools available to help determine the context and scale of the issue of car dependence and sustainable transport in the park.

Building an ethos around stakeholder engagement in the park

What stakeholder engagement means for LLTNPA

Interviewees described SE as more than just a "tick box exercise", but rather a critical process to ensure policy development reflects the needs and wants of the stakeholders whom they affect. They advocated for the need to understand stakeholders' values and wants and to provide a safe space for all stakeholders to discuss issues. The literature points to the importance of understanding stakeholders' values before engaging in decision making exercises (see Lee et al., 2018; Lee and Jan, 2019; Castro-Arce and Vanclay, 2020; D'Arco et al., 2021).

Stakeholder values have been understood through in-depth interviews (see Davenport and Anderson, 2006; Lee et al., 2018), questionnaire surveys (see Liu, Ouyang and Miao, 2010), and informal conversations (see Lee et al., 2018). LLTNPA may want to utilise the progress triangle framework to understand the conflicts that may exist or arise between stakeholders on the issue of sustainable transport to and within the park (see Box 2).

Box 2: Progress Triangle Conflict Management Framework

Lee et al. (2018) used the progress triangle conflict management framework to understand how conflicts which arise from differing stakeholders' perspectives influence attitudes towards park management in San Antonio Missions National Historic Park. The framework outlines three dimensions of conflict which were used to formulate questions asked during stakeholder interviews (see Table 1):

- substance: the values, interests, and opinions of each stakeholder regarding park management
- procedure: how decisions are made, how resources are managed, and how stakeholders are included in the process.
- relationship: attitudes, behaviours, and interactions towards and amongst stakeholders including dynamics of trust, respect, communication, and power.

Table 1: Interview questions used to inform each dimension of the conflict (Lee et al., 2018).

Topic	Questions
Substance	What do the San Antonio Missions mean to you? How would you characterize them? In what way(s) do you use the San Antonio Missions? Think of any type of activity that you perform in or related to the missions and how often you engage in those
Procedure	Are you actively involved in any effort to improve the San Antonio Missions? If yes, what kind of efforts and with whom?
Relationship	What is your relationship with San Antonio Mission's park management or any group that is related or interested in the San Antonio Missions in this community? Has this relationship(s) changed over time? Where do you see this relationship going in the future? How would you like the future of the San Antonio Missions to be?

Interviewees identified SE as a method to connect internal park development and policy goals with wider regional and national goals. Interviewees believe stakeholders are key in assisting the park in carrying out policy directives, so SE is important in galvanising support and action. Adaptive governance, learning, and scenario planning were among some of the concepts identified in the literature. These approaches work first from an overarching goal to shift paradigms in addition to solving specific problems (see Dougill et al., 2006; Clark and Clarke, 2011; Chirozva, Mukamuri and Manjengwa, 2013; Ernst and van Riemsdijk, 2013; Schultz et al., 2015; Castro-Arce and Vanclay, 2020).

Adaptive governance is described as collaborative learning between stakeholders which improves management of sustainable development of social-ecological systems. Adaptive governance relies on bridging organisations, which are entities that use collaborative mechanisms to bring diverse actors together (Castro-Arce and Vanclay, 2020). Clark and Clarke (2011) found that adaptive governance can lead to successfully implemented sustainability initiatives in national parks (see Appendix for more detail).

LLTNPA have an opportunity to play a role as a bridging institution by bringing multi-level stakeholders together to transform sustainable transport policy in rural Scotland. The principles of adaptive governance should be considered by LLTNPA when deciding best practices in participatory methods and placing the process within wider regional, national, and international sustainability goals (see Box 3).

Kolb's theory of learning was considered by several studies (see Dougill et al., 2006; Lee and Jan, 2019). This theory suggests that learning takes place in four phases: concrete experience, reflective observation, abstract conceptualisation, and active experimentation. LLTNPA may want to further investigate the methods used by these researchers to encourage learning amongst all stakeholders (see Box 4).

Scenario planning can also help local communities develop responses to impacts and is ideal in dealing with issues which have a high level of complexity and uncertainty. Adaptive management and scenario planning techniques were used to engage stakeholders in climate change decision making for two national parks in Alaska, USA (see Box 5). As decarbonising transport to the park sits within the purview of climate change planning this could be a helpful technique that should be further investigated.

Box 3: Adaptive governance used to assess rural development in Costa Rica

Castro-Arce and Vanclay (2020) used an adaptive governance framework (see Figure 4) to assess a regional development project in rural Costa Rica, which included the construction of a national road.

Local interests and contexts build social innovation (background triggers). Bridging institutions help create cross-sectoral links and play a key role in ensuring bottom-linked governance is fostered (initiating mechanisms). Formal, cross sectoral support for social innovation and shared power and decision-making leads to transformative regional governance (transformative processes). Along the way there are changes in knowledge, attitudes, skills and aspirations of all actors involved. Finally the outcome is social-ecological regional development which enhances local wellbeing, sustainability, and resilience (outcomes).

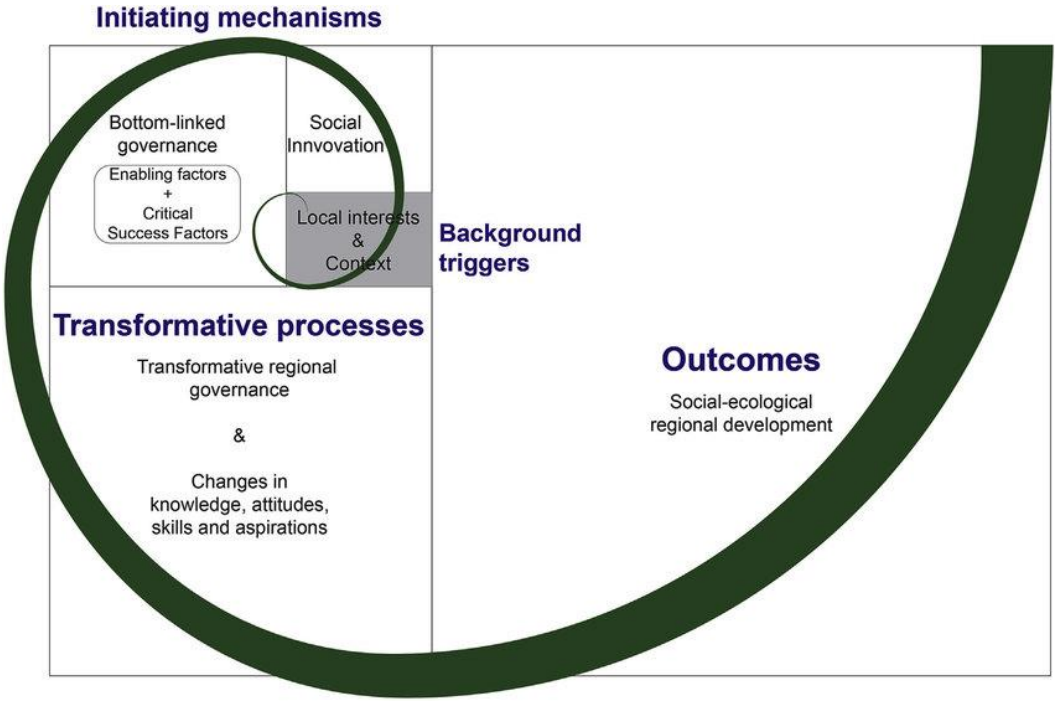

Figure 4: Analytical framework for transformative social innovation taken directly from Castro-Arce and Vanclay (2020).

Box 4: Adaptive learning techniques used at Peak District National Park

In the Peak District National Park, stakeholders were engaged in a deliberative exercise to help inform policy regarding land management issues in the park. Kolb's theory of adaptive learning was implemented in three phases which included: 1.) establishing the context of the system and boundaries of the project (which included a stakeholder analysis), 2.) developing goals, scenarios and models that help bring stakeholders together to learn from each other and 3.) identifying and refining management options that feedback into context and goal setting.

A range of participatory approaches were used to facilitate inclusive environmental planning, policy development, and adaptive learning including interviews, questionnaires, site visits, workshops, scenario development, meetings, and focus groups (see Figure 5).

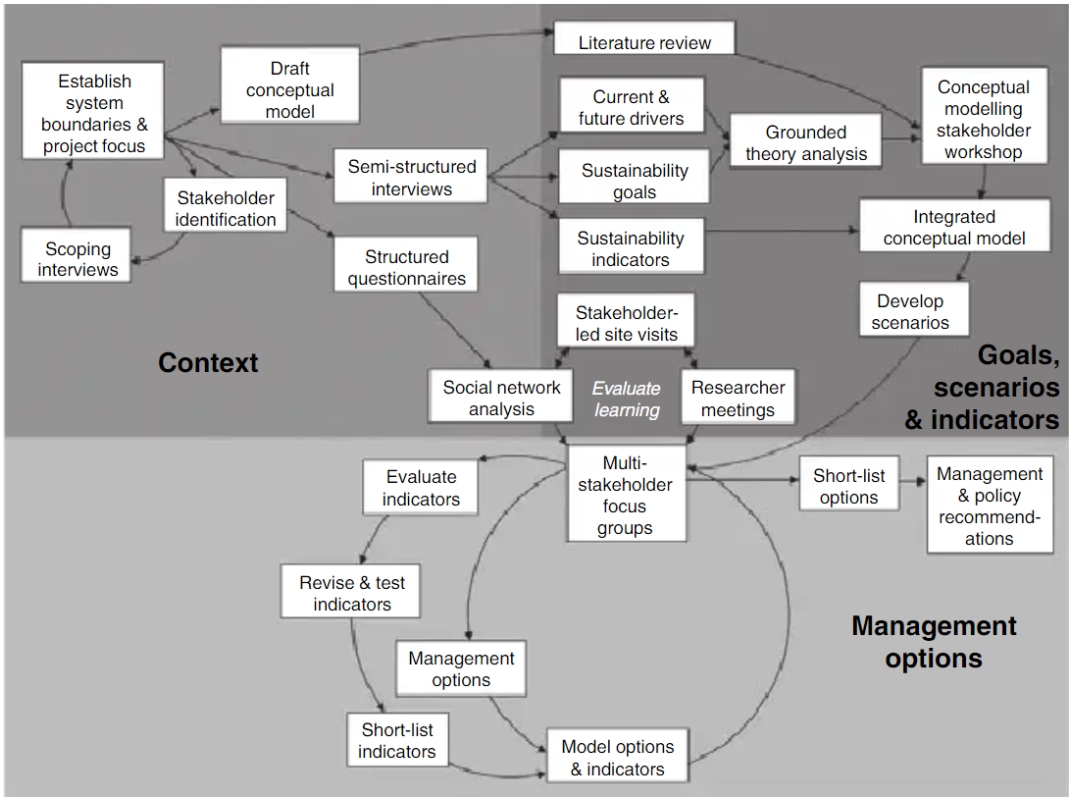

Figure 5: Methods used to bring stakeholders together in an adaptive learning process. Taken directly from Dougill et al., (2006).

Box 5: Climate Change Scenario Planning for Alaskan National Parks

National Park staff, participants from other state and federal agencies, and stakeholders form local communities and Alaska Native villages were asked to participate in a series of climate change scenario planning workshops.

Overall, the outcomes of the process were positive. Participants felt heard and wanted to bring climate change decision making beyond the constraints of the project. However, some stakeholders argued for more diverse stakeholder involvement - particularly from Alaska native representatives. Additionally, the power dynamics between stakeholders could have been better analysed and understood before-hand so that the facilitators could have avoided additional conflict or unease (Ernst and van Riemsdijk, 2013).

Findings from this study deepens the understanding that stakeholder participation contributes to robust decisions, can provide information about attitudes towards climate change related projects, that decision making and learning are dynamic within heterogenous communities, and scenario planning can help ensure diverse voices are considered (Ernst and van Riemsdijk, 2013).

Interviewees understand that SE is not about trying to please everyone. However there is a genuine intent to engage stakeholders in a meaningful conversation to ensure policies are reflective of people's needs. It is important that LLTNPA meet a high standard of meaningful stakeholder engagement to create policies that meet the needs of most people.

Interviewee 6: "It's critical to us as an authority. It's critical to the park's success…I can't think of one team in the organization who won't at some point touch upon engagement with some type of audience outwith the park authority It really just goes hand in hand with all the work that we do."

Purposeful stakeholder engagement

Interviewees suggested that LLTNPA decide on a shared ethos around SE. Key aims would involve better inclusion of diverse (and often unheard) voices, a focus on building relationships with stakeholders, meeting stakeholders "where they are at" and involving stakeholders early and often in the decision-making process.

There was a clear understanding amongst interviewees that the park could improve their identification and involvement of diverse and sometimes completely unheard voices. Interviewees urged that SE efforts should aim to reach beyond the usual suspects bring together stakeholders who are in ethnic minority groups, may be unknown to the park,

those with quieter voices, or those without a voice (such as non-human entities like nature, wildlife, etc.).

Interviewee 1: "I suppose it's not just about trying to buldoze through your way of seeing the world, it's positioning it, listening to other people, hearing what they've got to say, and trying to find solutions that are mutually beneficial, that will still achieve the outcome that we're looking to get for the National Park"

Findings from the literature explain that engaging immigrants and minorities in planning activities should be a complementary and long-term strategy to be adopted in addition to the current short-term initiatives focused on increasing visitation (Khazaei, Elliot and Joppe, 2017). Care should be taken to identify and involve ethnic minority groups in the ways that are most meaningful to them based on what they value and the opportunities they would like to have in relation to the park, rather than imposing a goal, such as increased visitation, which they may not share (Khazaei, Elliot and Joppe, 2017). This is relevant for LLTNPA as one of the goals with enhancing rural accessibility via sustainable transport includes engaging under-represented ethnic minority groups (see Box 6).

Box 6: Good practices in engaging immigrant and minority communities

Immigrant communities are seen as the "fringe segments of heterogenous communities" and are not engaged as often in civic participation (Khazaei, Elliot and Joppe, 2017). However, it is important to involve them as the wants and needs of local communities and fringe stakeholders are ever changing and participatory initiatives should evolve to consider new interests. The authors identified five underlying principles for inclusive community engagement (Figure 6).

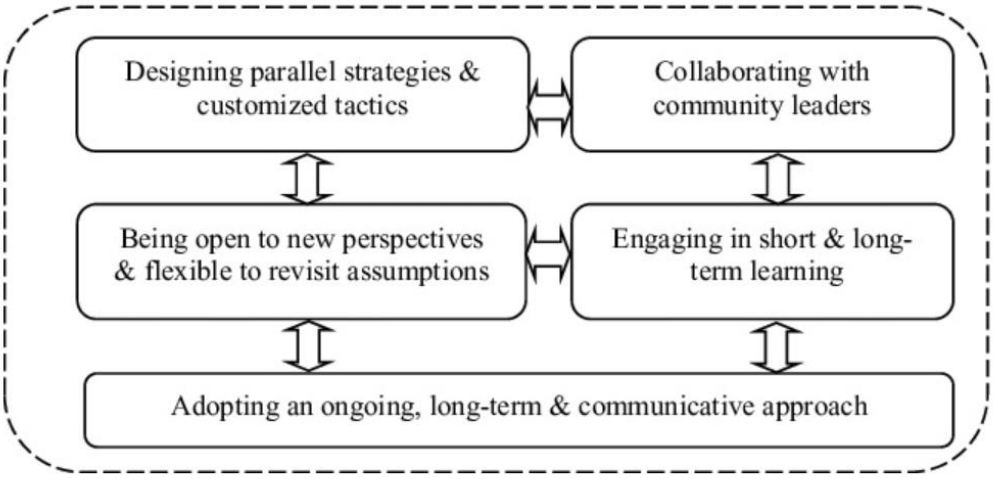

Figure 6: Underlying principles of more inclusive community engagement processes. Figure and caption taken directly from (Khazaei, Elliot and Joppe, 2017).

Relationship building was identified as a crucial step in understanding the motivations, values, and reasons behind different stakeholder positions. Interviewees mentioned that relationship building can help identify shared desired outcomes and lead to solutions with mutual benefit. There was a clear desire to move beyond tokenistic consultation towards authentic involvement.

Several papers qualified the importance of relationship building and argued that trust, respect, and reciprocity are necessary for successful engagement and co-creation in decision making and are determined by communication, outreach, transparency, and co-learning (Sterling et al., 2017). Findings from the literature review also support the notion that stakeholder mapping and analysis is a key first step to avoid token representation (Hiwasaki, 2005; Johansen and Chandler, 2015).

> *Interviewee 2: "Relationships I think are really important in this kind of process, especially when we're trying to engage [harder to reach groups] with topics that they might not talk about on a day to day basis. You know, it's really hard to explain what a park partnership plan is to someone who has no idea what a National Park is or why it might be needed. So developing that relationship and that trust is really important and actually that takes time and I think to be really successful."*

The concept of "meeting stakeholders where they're at" was discussed by several interviewees. It is important to meet the needs of stakeholders and make it easier for them to participate. This should be achieved by creating opportunities for engagement in line with what feels user friendly and comfortable for particular groups. This could include literally meeting stakeholders in their physical locations or creating opportunities for virtual engagement to allow for wider participation.

Interviewees also felt that the language used in communications should also be accessible for wide audiences. One paper emphasises the importance of effective outreach techniques and engaging community liaisons to encourage local participation (see Box 7).

Box 7: Stakeholder relationship building in California

Public participation was used to support the redesign of California's system of marine protected areas as part of California's Marine Life Protection Act Initiative (Sayce *et al.*, 2012). The value of relationship building was seen as a key element to the effort's success. Relationship building took considerable staff time, resources, and genuine interest. The initiative established an outreach team which was tasked with engaging with local communities. They attended public meetings and events, had "cups of tea" and potlucks with community members, and created an environment where the public could voice concerns.

This strategy of ensuring there were key contacts that members of the community could have frequent contact with helped inform the process and strengthen relationships (Sayce *et al.*, 2012). A state-wide interest group (SIG) and regional stakeholder group (RSG) were also established. Members of the RSG were responsible for leading the outreach in their own communities. As the process evolved there was a recognition of the value of cross-interest relationships. RSG members met constituents in their locations (for example sometimes this was remote coastal communities) to provide updates on progress and gather stakeholders' reflections.

Interviewees stressed the importance of including stakeholders early in the planning and policy making process and the need for continual engagement throughout the process to build consensus and avoid conflict. The literature supports this, and one paper argues that environmental planning should be a process of continuous shared learning with opportunities for feedback and refinement throughout the deliberative process (Dougill et al., 2006).

One way to enhance agency is to involve stakeholders in deciding which engagement methods are most appropriate for their needs. Literature supports the notion that stakeholders should be involved early (Sterling et al., 2017; Reed et al., 2018) and have autonomy and control of the process (see Sterling et al., 2017). Concrete examples of how to do this were not found in the initial research but should be further explored as this was deemed an important step.

Interviewee 3: "So making sure there's opportunities to engage throughout that process as well, whether that's the kind of early engagement around the research, having those big conversations, going away to actually draft those plans. But making sure that stakeholders are still feeding into that at that drafting phase and then final consultation as well, so that there are so many different ways to engage but also opportunities to engage as these things move along. "

Determining best methods for stakeholder engagement on a case-by-case basis

Stakeholder mapping as a key first step

Most interviewees identified stakeholder mapping and analysis as a key first step in really understanding who the audience is and ensuring diverse voices are heard. Multiple authors stress the importance of completing a social network analysis at the onset to identify potential conflicts amongst stakeholders and ensure marginalised groups are identified and included (see Box 8). If there are particularly tense conflicts around the topic at hand, the progress triangle conflict management framework could be consulted (see Box 2).

Interestingly some research warned that public participation in national parks may lead to a shift towards national parks acting as service provision rather than that of conservation if there are multiple stakeholders with competing interests (Dupke, Dormann and Heurich, 2022). Furthermore, some research points to the pitfalls of typical stakeholder analyses, such as consultations, as they can result in "cognitive and institutional blind spots that lead to recurrent inclusion (and possible professionalization) of 'usual suspects' and under-representation of marginalized or less visible groups" (Sterling *et al.*, 2017, p. 166).

Multi-method approaches based on desired outcomes

Interviewees felt that multiple methods should be used to engage stakeholders. The methods used should be dependent on the desired outcomes of the engagement and the capacity of stakeholders. The literature points to the benefit of offering a variety of methods for stakeholders to engage with. Sterling *et al.* suggest that the participatory process is ever evolving and that different types of SE will be beneficial at different points in the process (2017).

Mixed method collaborative participation approaches were mentioned by several sources. Offering a variety of options for involvement allows diverse stakeholders with varying levels of knowledge, time availability, and comfort communicating publicly to participate (Sayce et al., 2012). SE methods uncovered in the rapid evidence assessment are listed in the Appendix. Examples of other approaches are listed in Box 9.

Box 8: The art and science of stakeholder identification

Colvin, Witt and Lacey (2016) point to the limitations of stakeholder mapping methods which often lead to repeated identification of the 'usual suspects' particularly in issues related to environmental and natural resource management (ENRM). Some of these 'usual suspects' include industries in the private sector like mining, forestry, etc., jurisdictional governments, conservationists and NGOs, and communities (Colvin, Witt and Lacey, 2016).

Colvin, Witt, and Lacey (2016) interviewed ENRM practitioners and found that stakeholder identification and mapping was described as both a science and an art (see Table 2). Seeking methods of finding stakeholders rely on practitioners looking outwards to society to find stakeholders. Whereas creating approaches to finding stakeholders involves looking towards who might be most relevant based on the geographic or political landscape of the issue. Intuition or past experiences may also be used to identify stakeholders. Finally, they touch on the phenomenon on stakeholders self-selecting themselves to engage on a particular issue - this is the only bottom-up approach they identified. While they urge that more research is needed, they explain how stakeholder identification is usually approached. LLTNPA may want to consider these different approaches and look further into how these can be accomplished for the issue of car dependency and sustainable transport in the park.

Table 2: The 'art' and 'science' of stakeholder identification by ENRM practitioners. Caption and table taken directly from Colvin, Witt and Lacey (2016).

Approach to stakeholder identification			Description
Science	*Seeking*	Key informants & snowballing	Utilise knowledge and networks of stakeholders
		Use of media	Use of a range of media to find evidence of stakeholders
	Creating	Geographical footprint	Determine geographical scope of issue as stakeholder catchment
		Interests	Analysis of interests triggered by issue to identify corresponding stakeholders
		Influence	Analysis of those with power to influence issue and other stakeholders
Art		Intuition	The use of tacit skills and understanding to identify stakeholders
		Past experiences	Reflection on past experiences to inform identification of stakeholders
Phenomenon		Stakeholder self-selection	Stakeholders approach practitioner for engagement in issue

Box 9: A helpful guide prepared by the United Nations

UN.ESCAP (2003) provides a wealth of information on the steps involved in developing the best participatory process for policy development on sustainable transport. This detailed guide can be very helpful for LLTNPA to look at closer to when the participatory process is being designed. The authors list several participation methods they find most common when engaging with stakeholders based on the purpose of engagement and size of the stakeholder group (Table 3).

Table 3: Examples of techniques of participation suitable for different purposes. Table and caption taken directly from UN.ESCAP (2003)

Purpose	Technique	
	Small Group	Large Group
Providing Information	community forum, consultation documents, public documents (a draft plan, for example), briefings	public meetings (at different levels), media coverage, exhibitions, newsletters, brochures, open house, information repositories, newspaper inserts, websites
Collecting Input	interviews, focus/user groups meeting, advisory/consultative forum, task force, nominal group process	social survey, public hearing, referendum, surveys through the internet and other electronic media
Negotiation	nominal group process, mediation, public community partnerships, consensus building techniques	interactive website, workshops
Problem Solving/Plan Preparation	design charrettes, citizens juries, panels, people's plan, task force	workshops with interactive working groups supporting
Supporting People's Initiatives	joint working committee	project committees

As mentioned, different methods are beneficial depending on the desired outcome of the stakeholder engagement process. For example, the desired outcome may be shared learning which means working collectively to achieve a common objective while also understanding new insights from one another. In this case, Kolb's theory of adaptive learning (see Box 4) or Argyris and Schön's (1978) theory of single, double, and triple loop learning may be helpful to explore (see Clark and Clarke, 2011). If the desired outcome is tied to wider climate change goals, adaptive management and scenario planning techniques may be useful to explore (see Boxes 3 and 5). If the desired outcome is improving access to the park, the definition of "accessibility" should be assessed (see

Farrington and Farrington, 2005). While not exactly a participatory method, choice experiments could be used to help determine parking fees or other fees associated with more sustainable transport methods to the park (see González, Román and Ortúzar, 2019). More details on each of these can be found in the Appendix.

Some researchers argued that "systems thinking, complexity science, and socio-technical transition theory" should be considered (Hunter *et al.*, 2021, p. 2). Hunter *et al.* explain that car dependency is a "multi-level, multi-sectoral" wicked problem which is shaped at the level of the individual (micro level), as well as by social norms (meso level), and the socio-economic and political environments (macro level). Multiple elements must be considered if LLTNPA is to inspire a modal shift amongst stakeholders. More information on the framework they used to inspire this approach is in Box 10. Further research may be warranted if this approach is of interest.

Box 10: Reducing car dependency in Belfast - an ongoing study

Although not in a rural setting, there was a very relevant and interesting study protocol on research into efforts to reduce car dependency in Belfast, Ireland. Issues of car dependency and potential solutions were explored using the principles of the INDEX framework which includes: 1) involving stakeholders; (2) reviewing evidence and theories; (3) collecting primary data; (4) understanding the context; (5) paying attention to future implementation; and (6) designing and refinement (Hunter et al., 2021).

The tasks to be completed integrate a variety of participatory methods including a stakeholder network analysis, policy interviews, group model building, discrete choice experiments, citizen juries, and a workshop. This mixed-methods approach is particularly helpful to the current research as LLTNPA may want to integrate multiple best practices to ensure various stakeholders are included at several levels and stages of the decision-making process.

Furthermore, interviewees expressed a desire to move beyond more traditional engagement techniques towards those that are more hands on, creative, and inspiring. Giving people the space and opportunity to imagine their pie in the sky ideas rather than dismissing them due to perceived logistical barriers. For example, visual storytelling and engagement through visual media or prototyping could help stakeholders envision alternative ideas rather than simply discuss them. Further research on creative engagement methods may be worth exploring.

Balancing face-to-face with digital engagement tools

While virtual engagement is becoming a new normal, there is still value in face-to-face interactions. Virtual town halls have increased the number of people who are able to participate in some cases but perhaps prevented those with broadband access issues from participating. However, some groups will prefer to converse in person and in some

cases meet in the park. Most examples from the literature used a mix of in-person and online methods of collaboration.

> *Interviewee 3: "Just the ability to hold things virtually has allowed us to take a big step forward because we've had some young women join who have said that, 'I've been able to do this because I've got my kids here rather than having to actually come to a set event about something specific or go to my community council meeting'."*

Interviewees had mixed reviews of social media as a tool for engagement. While it can serve as an informal form of consultation, it should not be relied on too heavily as a main engagement technique as it can miss the stakeholders who do not use social media regularly or for engagement purposes. Examples of SE from the literature discuss the value of social media and blogging in keeping stakeholders informed and providing opportunities for easy engagement rather than as the main method of co-development (Knoll *et al.*, no date; Brown and Weber, 2011; Albright and Crow, 2015).

Overcoming barriers to stakeholder engagement in the park

Building time and capacity of LLTNPA staff and stakeholders

Time and capacity were identified as the two main barriers to successful SE. There are many staff at LLTNPA who are passionate about meaningful SE and have a wide range of existing knowledge on and experience in SE methods. Suggestions around creating additional time for SE in job descriptions and on particular projects and providing training on best methods and latest techniques were discussed.

Additionally, it is crucial to understand the time and capacity of stakeholders to engage. The literature points to best practices in understanding how much time is needed and compensation is appropriate depending on the nature of the issue and complexity of the relationships amongst stakeholders involved. Reed et al., (2018) discuss the importance of matching the length and frequency of engagement to the goals of the process. They also suggest "matching the representation of stakeholder interests and decision-making power to the spatial scale of the issues being considered" (Reed et al., 2018, p. s15).

Interviewee 2: "I actually think that most people across the park will engage well if they have time. The problem is, I think that all of us are way over capacity in terms of what we're trying to deliver. So therefore, the hard outcomes are prioritized over the softer outcomes around engagement. So I think one of the things that would really help with that and that's it. This is a really live topic for us internally is about mapping out resource requirements. So you know, plant the teams that are leading on these big strategic pieces that need engagement. I think we really need those to be planned out. So people know when input is required. Probably highlighting, I would imagine key staff that have good relationships with these groups of people that we want to go and engage with and use them."

Paying attention to power dynamics

It is important to pay attention to power dynamics associated with policy making in the national park, particularly given the context of rural development. Visitors may often be from urban settings and so it is crucial to ensure rural residents, employees, and visitors feel valued and therefore incorporated in the decision-making process from the onset.

National parks must be cautious when considering the power dynamics and preconceived notions held by stakeholders. Examples in the literature from UK national parks point to the need for assessing power dynamics throughout several stages of the SE (see Box 11). Some researchers suggest mapping out mechanisms of power for a particular social context using grounded theory to ensure proper participatory methods are chosen and delivered effectively (see Johansen and Chandler, 2015).

Box 11: Considering power dynamics in National Parks

Bell and Stockdale (2016) explored issues of power dynamics particularly in the establishment of national parks in the UK (see Appendix for more detail). The authors examine three dimensions of power: covert, overt, and latent power. The most salient power dynamic issues in stakeholder engagement may appear during the following stages:

- initiation stage: who started the discussion, what topics were discusses, who was invited to lead, who was invited to participate,
- the deliberation stage: where micro-tensions occurred internally and special power is given to those who are working most closely with and in line with the initiator's agenda,
- the reporting stage: where those who are crafting and communicating the narrative have control over its tone and message,
- and finally in the policy implementation stage: where those with policy making power may exert it during the process and afterwards in their decisions to enact policies or not potentially disregarding the outcomes of the consultation process (Bell and Stockdale, 2016).

These findings are relevant to the present study as LLTNPA will need to assess its own power in the context of this issue and decide what their role should be in various stages. The concept of power dynamics should be further studied and explored ahead of the participatory process design phase.

Recognising limitations and relying on external support

There is also an understanding that despite additional time and capacity building, there is only so much the park authority can do. This is particularly poignant in the context of LLTNP where most of the land is not owned by the park authority. There may be value in recognising the limitations around SE and relying on external partners for support including strategic partners and board members. The park authority could be seen as a partner in decision making rather than the overarching decision maker.

The concept of adaptive governance was referenced by several papers (see Clark and Clarke, 2011; Castro-Arce and Vanclay, 2020). Adaptive governance can lead to successfully implemented sustainability initiatives in national parks. National Park authorities are in a unique position and have capacity to act as bridging organisations and bring together "resources, ideas, interests and actors at different levels and scales for learning purposes" (Clark and Clarke, 2011, p. 316). Participatory methods led by bridging organisations should aim to connect social innovations led by stakeholders with the governing sectors who can provide top-down sustainable support.

Moving from both a top-down and bottom-up approach, it is important to recognise that there may be local grassroots organisations already working to solve the issue of sustainable transport to and within the park. These organisations, if they exist, should be

approached at the onset to determine how LLTNPA can offer top-down support and which participatory approaches would best engage them

In addition, external consultants or facilitators could be brough in to help address uneven power dynamics and diffuse potential tensions.

Wider Implications

Rural Development and Accessibility

Improving sustainable transport to LLTNP must consider wider accessibility goals for those working and living within the park boundaries. While "accessibility" may be seen as a spatial issue, there are also other socio-economic factors (for example, age, gender, ethnicity, and income) which affect accessibility and improving access may be accomplished by means other than improving mobility (Farrington and Farrington, 2005).

Mobility policy should consider the *opportunities* for improving accessibility - which includes the actions that could be taken but that are not required to be taken by members of society. These findings encourage a creative approach to conceptualising rural access. It is important to ensure multiple stakeholders are included in developing a holistic view of what access to LLTNP means.

Stakeholder Engagement on Climate Policy in Scotland

This research can help inform strategies to engage the wider rural population on climate policy development in Scotland. On the heels of Scotland's Climate Assembly, there are several goals and recommendations that will be carried forward by the Scottish Government. If these goals align with the goals of LLTNPA, for example improving sustainable transport, then deliberative processes like citizen assemblies can also be used to determine how these strategies would be moved forward. More information on how the Scottish Climate Assembly approached policy development using the citizen's assembly format can be found here.

Future Research

A breadth of participatory processes and best practices were uncovered in this report, however there are inevitably some processes that may have not been mentioned or not explored in further detail. The research suggests that there are multiple "best practices" in participatory methods and that these will change based on the socio-political context of the issue, location of the issue, relationships amongst stakeholders, and ultimately the time and budge set aside for the process. Due to the time constraints and scope of this fellowship information on how to best conduct stakeholder analyses, renumerate

stakeholders for their time, or other more specific details regarding good practices in the SE process could not be explored, but should be researched in the future.

Looking to the future, support should be provides to provision advice and assist on identification and implementation of stakeholder engagement strategies. Research methods could also be employed during the next SE strategy. By including social researchers in the organisation, delivery, and assessment of SE strategies, LLTNPA can better understand which strategies work best and assess where they can improve their practices.

Recommendations

1. **Develop a cohesive and strategic approach** to LLTNPA led stakeholder engagement.
2. **Get internal input on the toolkit being rolled out.** LLTNPA staff should discuss the principles around stakeholder engagement as well as best practices around, which methods work best for different stakeholders, etc. all with the understanding that there's no one hard and fast approach.
3. **Potentially use the topic of Net Zero to bring stakeholders together to discuss multiple issues** and feed into the various park plans.
4. **Consider the key questions** the park wants answered and bring stakeholders together on that. In a way that doesn't overwhelm them or fatigue them.
5. **Invest in upskilling LLTNPA staff and creating more opportunities for staff to invest time in building relationships** with key stakeholders. Part of this may need to come in the form of a re-evaluation in the timing of strategic plans and stakeholder engagement.
6. **Early engagement of stakeholders is key.** It is also important to create relationships with or utilize existing relationships with those in communities which are hard to get input from.
7. **Making better use of external partners, and the board** in aiding with building relationships and running stakeholder engagement
8. **Consider creative methods to engage stakeholders** both in person and digitally and ensure that target audiences are included in those considerations.

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Appendices

Appendix A: Summary of participatory methods identified in the research

Tools identified in research	Summary	Pros	Cons	Sources
Public Participation GIS (PPGIS)	According to Brown and Weber, PPGIS is "…the practice of combining Geographic Information Systems (GIS) and mapping at local levels to produce knowledge of place" (2011, p. 2). They consider PPGIS to have great potential to advance national park planning and map opportunities for the visitor experience. PPGIS mapping and Global Positioning System (GPS) tracking was also used to monitor mountain bikers frequenting national parks in Northern Sydney, Australia (Wolf et al., 2015). The authors argue that spatial mapping tools like PPGIS and GPS can enhance park management by providing information on the underlying visitor motivations that inform patterns of park use (Wolf et al., 2015). Salonen et al., (2014) used PPGIS to understand car dependency and sustainable transport in a suburban area	PPGIS websites can be easy to use and continuously available for mapping. The results can provide basic descriptive information about visitors' experience. GPS can be used to validate visitors' self-reported travel habits and further understand motives. In Helsinki, the PPGIS approach was implemented because it engages non-experts in decision-making processes and enables the collection of large datasets of residents' experiential knowledge (Salonen et al., 2014).	In the case of Brown and Weber (2011), there were low participation rates from park staff (25%) indicating a lack in robustness and representativeness of the data collected. Also, the sampling process capitalised on increased visitor traffic during holidays which may have skewed results. Spatial attributes chosen for mapping were sometimes not as relevant (the authors mention that this can be remedied by more in depth conversations with park planners and managers regarding the attributes that are most relevant). There was also a lack of inclusion of survey questions that aim to uncover visitors' values and motivations - something which should be included in future studies (Brown and Weber, 2011). In the case of Salonen *et al.*, (2014) one downside of this method was that while internet accessibility is more	(Brown and Weber, 2011; Salonen *et al.*, 2014; Karimi, Brown and Hockings, 2015; Wolf *et al.*, 2015)

	outside of Helsinki. Salonen et al. (2014) consider conventional travel behaviour theory which explains that travel time is regarded as an important factor in guiding travel choices. However, the fastest options are seldom good for planetary and individual health. Overall PPGIS is an interesting method that could be used to visualise areas of the park that are most frequented by visitors, residents, and employees as well what modes of transport they use to reach these areas.		common, participation may have been low, and some respondents inadvertently excluded. The data was also not able to capture multi-destination trip chains.	
Adaptive Governance	Clark and Clarke (2011) describe adaptive governance as collaborative learning between stakeholders which improves management of sustainable development of social-ecological systems. Adaptive governance relies on bridging organisations, which are entities that use collaborative mechanisms to bring diverse actors together (Castro-Arce and Vanclay, 2020).	Adaptive governance techniques bring diverse actors together to solve a multi- scale issue and can be used to inspire systems change. National parks in particular are in unique positions to bring together various resources and actors to help create change at multiple levels. Adaptive governance techniques were developed specifically for the management of socio-ecological	This method is not necessarily an implementation of one tool but an agreement around an ethos of stakeholder engagement meaning that there is not a simple way to ensure adaptive governance is being used.	(Clark and Clarke, 2011; Ernst and van Riemsdijk, 2013; Castro-Arce and Vanclay, 2020)

		systems - which national parks are one example of (Clark and Clarke, 2011). These techniques can help connect specific issues to larger contexts.		
Learning	Kolb's theory of social learning was considered by several studies (see Dougill et al., 2006; Lee and Jan, 2019). This theory suggests that learning takes place in four phases: concrete experience, reflective observation, abstract conceptualisation, and active experimentation. Dougill et al. explain that "The four-phase cycle begins with tangible experiences which serve as a basis for observations and reflections upon those experiences. These reflections are then assimilated and developed into abstract concepts from which new actions can be planned. These action plans can then be actively tested before they are implemented to create new experience" (2006, p. 263). In the Peak District National Park, stakeholders were engaged in a deliberative exercise to help inform policy regarding land	Focusing on adaptive or experiential learning involves diverse voices and encourages mutual understanding and behaviour change. As people interact with one another and learn together, barriers can be broken down and new values, opinions, and pro-environmental behaviours can be formed leading to cultural shifts.	Similarly, engagement methods which aim to facilitate learning do not necessarily have a clear cut list of methods but rather establish a general ethos of wanting participants and hosts alike to learn from one another in a social learning process. This process can include a multitude of participatory methods (interviews, workshops, scenario planning, focus groups, etc.) and takes time. A social network analysis must be completed to ensure facilitators understand the potential conflicts that could arise from such a process. This approach is more time and resource intensive.	(Dougill *et al.*, 2006; Clark and Clarke, 2011; Ernst and van Riemsdijk, 2013; Lee and Jan, 2019)

		management issues in the park (particularly heather and moorland burning). A range of participatory approaches were used to facilitate inclusive environmental planning, policy development, and adaptive learning including interviews, questionnaires, site visits, workshops, scenario development, meetings, and focus groups. Learning can also happen in the form of double and single loop learning. Clarke and Clarke (2011) refer to work by Argyris and Schön (1978) and explain that "single-loop learning occurs when an individual or an organization learns in such a way that its present policies or present objectives remain unmodified. By contrast, double-loop learning results in modification of these underlying norms, policies, and objectives" (Clark and Clarke, 2011). In other words, suggestions to slightly enhance existing practices would fall under the single-learning category while a process which encourages a reimagining of the way a system	

	operates and the norms and values which perpetuate it is considered double loop learning. Clark and Clarke (2011) found that the projects chosen did use adaptive governance and, in some cases, engaged in double loop learning.			
Scenario Planning	Adaptive management and scenario planning techniques were also used to engage stakeholders in climate change decision making for two national parks in Alaska. "Adaptive management promotes interactions between institutions at multiple levels and considers the place-specific context of decisions" (Ernst and van Riemsdijk, 2013). Scenario planning can also help local communities develop responses to impacts and is ideal in dealing with issues which have a high level of complexity and uncertainty. The study did however contribute to an understanding that stakeholder participation contributes to robust decisions, can provide information about attitudes towards climate change related	Overall, the outcomes of the process were positive. Participants felt heard and wanted to bring climate change decision making beyond the constraints of the project, they were able to enhance their understanding of climate change and climate change decision making and the process provided unique geographic contexts in the process (Ernst and van Riemsdijk, 2013).	However, some stakeholders argued for more diverse stakeholder involvement - particularly from Alaska native representatives. Additionally, the power dynamics between stakeholders could have been better analysed and understood before-hand so that the facilitators could have avoided additional conflict or unease (Ernst and van Riemsdijk, 2013).	(Dougill *et al.*, 2006; Ernst and van Riemsdijk, 2013; Hunter *et al.*, 2021)

	projects, that decision making and learning is dynamic within heterogenous communities, and scenario planning can help ensure diverse voices are considered (Ernst and van Riemsdijk, 2013).			
Collaborative Participation	The California Marine Life Protection Act Initiative used a collaborative model to engage a variety of stakeholders (including the public, scientists, resource managers, agency staff, appointed stakeholder advisory groups, and policy advisors) in the redesign of California's system of marine protected areas (MPAs) (Sayce et al., 2012). Two stakeholder advisory groups were created to inform regional level and state level interests. Members of the public were also invited to contribute to the MPA proposals either individually or as part of an informal, regional external group. In some cases, public engagement specialists were brought on to help ensure effective outreach, diversity, and representativeness.	Overall, this approach proved effective in informing and involving a diverse range of stakeholders and ensuring that the planning and decision-making process was informed by the needs of affected communities (Sayce et al., 2012). There were lasting relationships formed between unlikely partners past the conclusion of the MPA planning activity.	The authors explain that the trade-offs experienced using this method include, "project funding, delivery of neutral messaging, and the perceived value of engaging the public in a multi-dimensional dialogue" (Sayce *et al.*, 2012, p. 64). The process was resource intensive (time and funding) and required the hiring of communication and community outreach experts. The stakeholders decided on neutral messaging to inform the public about the MPA to avoid being perceived as pushing an agenda and potentially alienating community members with differing opinions. The initiative placed high value on the importance of dialogue with the wider public which was criticised as being potentially cumbersome and distracting.	(Sayce *et al.*, 2012)
Planning Partnerships	Stanford and Guiver (2016) looked at the	The researchers believe that the	Planning partnerships typically do not	(Stanford and

	potential of local partnerships in encouraging sustainable travel to and within the Lake District, New Forest, and the South Downs national parks. These partnerships received funding from the UK's Local Sustainable Transport Fund and used it to improve public transport to the parks, develop information and marketing campaigns for visitors, and in some cases introduce enhanced cycling opportunities and smart ticketing.	planning partnerships served to successfully inspire pro-environmental changes through clear communication and articulating the benefits of sustainable travel to the public. Impassioned individuals helped the planning partnerships move beyond advocating simply for economic growth and consider sustainable development.	advocate for sustainable development goals so there is a reliance on impassioned individuals and wider policy structures which support sustainable transport policy and planning. If there is an overarching focus on economic growth/returns rather than public good provision then there may be solutions which are not radical enough to promote health and environmental benefits that come from switching to sustainable transport.	Guiver, 2016)

Other tools identified in research	**Summary**	**Sources**
Viable Systems Approach	D'Arco et al. developed a framework for best practices in systems-based management called the Viable Systems Approach (vSa). D'Arco et al. (2021) describe protected areas, such as national parks, as viable systems. These viable systems should be managed by a governing body that understands the environment, identifies the intrinsic value of the area for advancing socio-economic development, sets specific sustainability goals, and designs a service system which satisfies the needs and wants of different stakeholders (D'Arco et al., 2021). The authors also argue that actor engagement theory can be used to better understand the internal (psychological) and external (societal norms and existing infrastructures) factors which affect stakeholder engagement. While the two models are interesting to explore, this paper did not seem to justify their approaches or qualify the theories in a meaningful way.	(D'Arco *et al.*, 2021)
Choice Experiments: Willingness to Pay	Researchers have also studied visitors' willingness to pay for reducing CO2 emissions during their visit to Teide National Park in Spain. González, Román and Ortúzar (2019) found that visitors are willing to pay to reduce their CO2 emissions and utilize a shuttle bus within the park. While not exactly a participatory method, choice experiments	(González, Román and Ortúzar, 2019)

	could be used to help determine parking fees or other fees associated with more sustainable transport methods to the park.	
Disaster and Conflict Management	Although potentially not as relevant to this study, disaster and conflict management has been used to remedy environmental issues within national parks. After extreme flooding events in Colorado, the public was involved in deliberative measures to help inform flood recovery. Different towns in effected areas used participatory methods such as task forces, city council/commission participation, public meetings, surveys, and online information collection to help gather resources to rebuild and support their citizens (Albright and Crow, 2015). Lee et al. (2018) used the progress triangle conflict management framework to better understand how conflicts concerning cultural resource management which arise from differing stakeholders' perspectives influence attitudes towards park management in San Antonio Missions National Historic Park. LLTNPA may want to utilise the progress triangle framework to understand the conflicts that may exist or arise between stakeholders on the issue of sustainable transport to and within the park. Other methods of assessing conflict and conducting stakeholder analyses should be explored.	(Albright and Crow, 2015; Lee *et al.*, 2018)
Low Carbon Tourism Experience (LCTE)	A study of two national parks in China used participatory processes to understand visitors preference for a low-carbon tourism experience (LCTE). Low carbon tourism can manifest in multiple ways. Tourists may choose to have a low carbon experience by modifying how they travel (i.e., reducing the miles travelled or the modes of transport used), staying in their destination for longer, using environmentally friendly products while traveling, and experiencing local history, food, and culture in depth (Lee and Jan, 2019). The researchers in this study aimed to conceptualize and develop a reliable and valid scale to measure LCTE of nature-based tourists. The authors also mention the potential use of Kolb's experiential learning cycle theory to changing individual behaviour such as adapting a low-carbon travel mode (Lee and Jan, 2019). The concept of the LCTE scale could be used to understand how and why tourists may choose low carbon transport and experiences at LLTNP and how these experiences can be made more effective at continuing the promotion of low carbon behaviours. The LCTE scale could be used by LLTNPA to survey park visitors and understand the values associate with low carbon travel and tourism. This could assist in creating an improved low carbon network can consider these values. This scale could also be used after an implementation of a low carbon tourism experience to assess the values of participants associated with that experience.	(Lee and Jan, 2019)

Systems approach using the INDEX Framework	Hunter et al. highlight the importance of ensuring interventions to reduce car dependency are informed by "systems thinking, complexity science, and socio-technical transition theory" (2021, p. 2. Issues of car dependency and potential solutions are being explored using the principles of the INDEX framework which includes: 1) involving stakeholders; (2) reviewing evidence and theories; (3) collecting primary data; (4) understanding the context; (5) paying attention to future implementation; and (6) designing and refinement (Hunter et al., 2021). The researchers are implementing a mixed methods approach using interviews with key stakeholders, conducting a discrete choice experiment, setting up a citizens jury, and hosting a future scenario planning workshop. As this research is ongoing it is difficult to determine the pros and cons to this approach.	(Hunter *et al.*, 2021)

Tools discussed by interviewees organized by most to least involvement (based off categories used by UN.ESCAP (2003)***.**

Supporting People's Initiatives
Community development
Problem Solving/Plan Separation
Charettes
Co-design
Citizen's Assembly
Play/Active Creation (i.e., Lego futures, visual and speculative prototyping)
Advisory Panel
Citizen committee/Forum (Youth committee)
Steering Group
Negotiation
Workshops
Participatory Mapping
Collecting Inputs
Feedback surveys
Focus groups
Consultation (including bylaw reviews)
Place Standard Tool
Providing Information
Using Media to tell stories and help make connections
Blogging/Social Media/Website
Place-based engagement: i.e., Community Events
Basecamp
Not Categorized
Master Planning
Journey Planner App
Rumsfeld knowledge matrix

*This is an interpretation of the stakeholder engagement techniques mentioned by interviewees calibrated with the information on different levels of stakeholder engagement provided by the UN.ESCAPE (2003) Guide. Ideally further research will be done on where these engagement strategies sit within the ladder of engagement and how they can be best used to engage different stakeholders.

Appendix B: Rapid Evidence Assessment

Table of Contents

Prepared by:
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Rural Policy Centre, SRUC
18th February 2022

Introduction

Research has shown that while the tourism industry contributes to more than 10% of global gross domestic product (GDP) and provides for one in ten jobs in the world D'Arco *et al.*, 2021) it also contributes to between 5% and 14% of CO_2 emissions (Lee and Jan, 2019). The transport sector, including for tourism, is growing rapidly and has been responsible for approximately 23% of global energy related CO_2 emissions (Creutzig *et al.*, 2015).

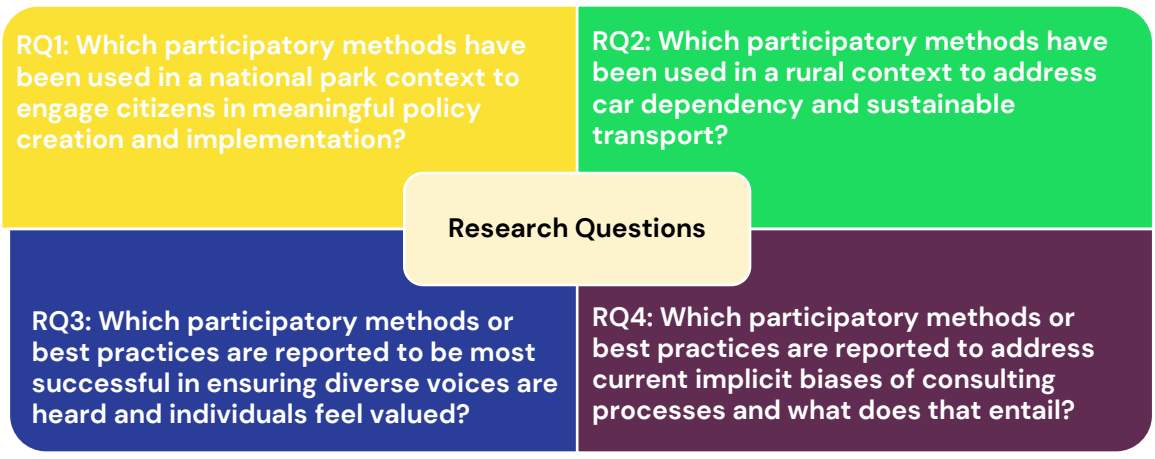
The unsustainable trend of car-dependency within Loch Lomond and the Trossachs National Park (LLTNP) was heightened during the COVID-19 pandemic. Visitation rates by domestic visitors with personal vehicles to the park skyrocketed as "stay-at-home" restrictions began to ease. Visitors, employees, and residents within LLTNP must be included in a participatory process to define best practices to formulate a plan to begin a just transition towards more sustainable forms of travel within the park. The implications of this work will be relevant across rural Scotland in general and perhaps beyond.

This review aims to collate research which will help inform how actors can simultaneously decarbonise transport in response to the climate emergency and address the transport system(s) failure that has resulted in car-dependency for those living, working, and visiting the LLTNP.

Aims and Objectives

The aim of this rapid evidence review is to consider pertinent research and good practices in participatory methods and inclusive policy development that is best placed to a.) be put into practice in the National Park and/or b.) in addressing rural car-dependency in the context of the Just Transition.

The objectives are to address four research questions in relation to the aim:



Methods

The rapid evidence review began with a scan of relevant sources according to the search strategy criteria (see Table 1) using previously defined and other relevant keywords (see Table 2). Both published and grey literature were consulted using Scopus, Google and Google Scholar.

Articles that were deemed relevant by the researcher based on a quick scan of titles and abstracts were included in a master list of sources. Relevant sources from the master list were uploaded to Mendeley. Notes on each source were recorded in the master list. Overall, 34 sources were reviewed.

Table 4: Search strategy criteria to define the scope of work.

Scoping Category	Specific Criteria
Geographical reference	No restrictions will be applied in relation to country of research origin/publication.
Language restrictions	Searches will be limited to articles/reports published in English.
Date restrictions	No restrictions will be applied regarding year of publication.

Table 5: Keywords for evidence search. New additions in bold.

Keyword Category	Keywords	Secondary Keywords
Participatory Approaches to Policy for National Parks	participatory approaches; participatory methods	national parks; visitor management; stakeholder engagement; lakes district; snowdonia
Participatory Approaches to Policy for Addressing Rural Car Dependency	participatory approaches; participatory methods; policy planning	Rural car dependency; sustainable transport; traffic reduction; low carbon transport; low carbon travel; rural connectivity;
Participatory Approaches and the Just Transition	deliberative democracy; stakeholder engagement	just transition; implicit bias; mobility justice;

Summary of Key Findings

- There is a wealth of information that can be further explored on this topic.
- There is considerable literature on best practices in participatory design including a guide specifically designed for participatory approaches to sustainable transport.
- There is evidence pointing to the benefits of a multi-methods approach incorporating different levels and modes of stakeholder engagement.
- It is important to consider the wider socio-political context that the issue of sustainable transport and rural car dependency (and car dependency in general) sits within.
- Bottom-up approaches to problem solving should be met with top-down support, which can come from LLTNPA.
- Stakeholder analyses are essential for understanding the stakeholder values, power dynamics, and in preventing/managing potential conflicts.

Findings

RQ1: Which participatory methods have been used in a national park context to engage citizens in meaningful policy creation and implementation?

Public Participation GIS (PPGIS)

Public participation GIS (PPGIS) was cited by several sources (particularly in Australia) as a useful participatory method in both park and non-park contexts (see Brown and Weber, 2011; Salonen et al., 2014; Karimi, Brown and Hockings, 2015; Wolf et al., 2015; Pietilä and Fagerholm, 2019). According to Brown and Weber, PPGIS is "...the practice of combining Geographic Information Systems (GIS) and mapping at local levels to produce knowledge of place" (2011, p. 2). They consider PPGIS to have great potential to advance national park planning and map opportunities for the visitor experience.

Brown and Weber argue that public participation can help park managers define and assess the indicators of quality related to their park's sustainable management plans, especially considering these may be subjective to different individuals' values and interests (2011). PPGIS was used to gather insight from the public regarding their use and experience of as well as their perceptions of environmental impacts to national parks in Victoria, Australia (Brown and Weber, 2011). Before beginning data collection, a framework was developed to determine how the public's input would be used by park planners and managers in the park plan creation (see Figure 1).

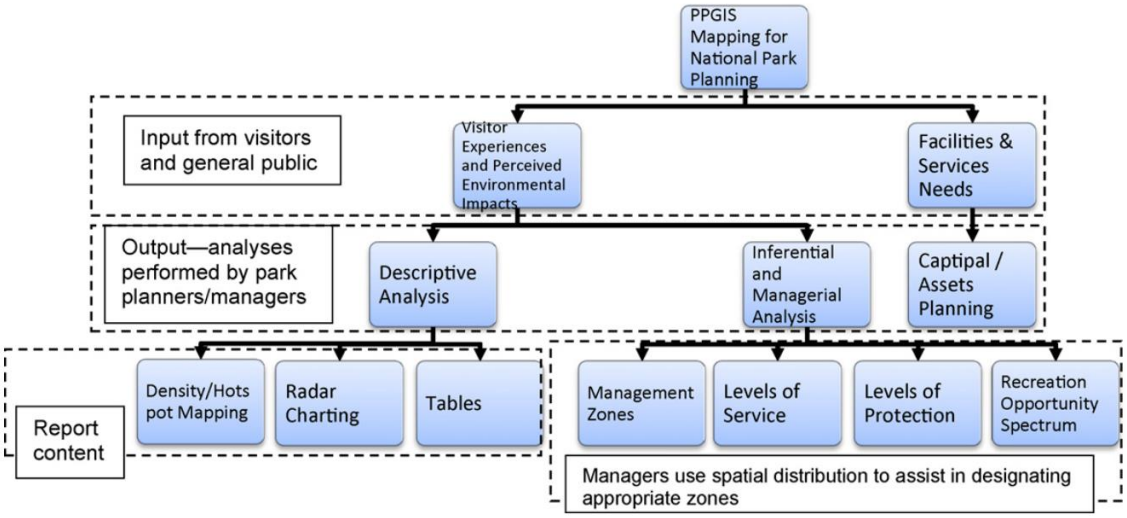


Figure 7: The framework for using PPGIS in national park planning. Figure and caption taken from Brown and Weber (2011).

Once the online PPGIS survey was launched, park visitors were recruited on site and through advertising/social media. Participants either had an access code or could request one and completed an interactive mapping exercise (see Figure 2) followed by a questionnaire. Public forums and focus groups were also used to gather data, and younger audiences were engaged using blogs and an online platform (Brown and Weber, 2011). The information gathered was then organised into a draft plan which was available for public input for a period of three months before the final plan was developed (Brown and Weber, 2011).

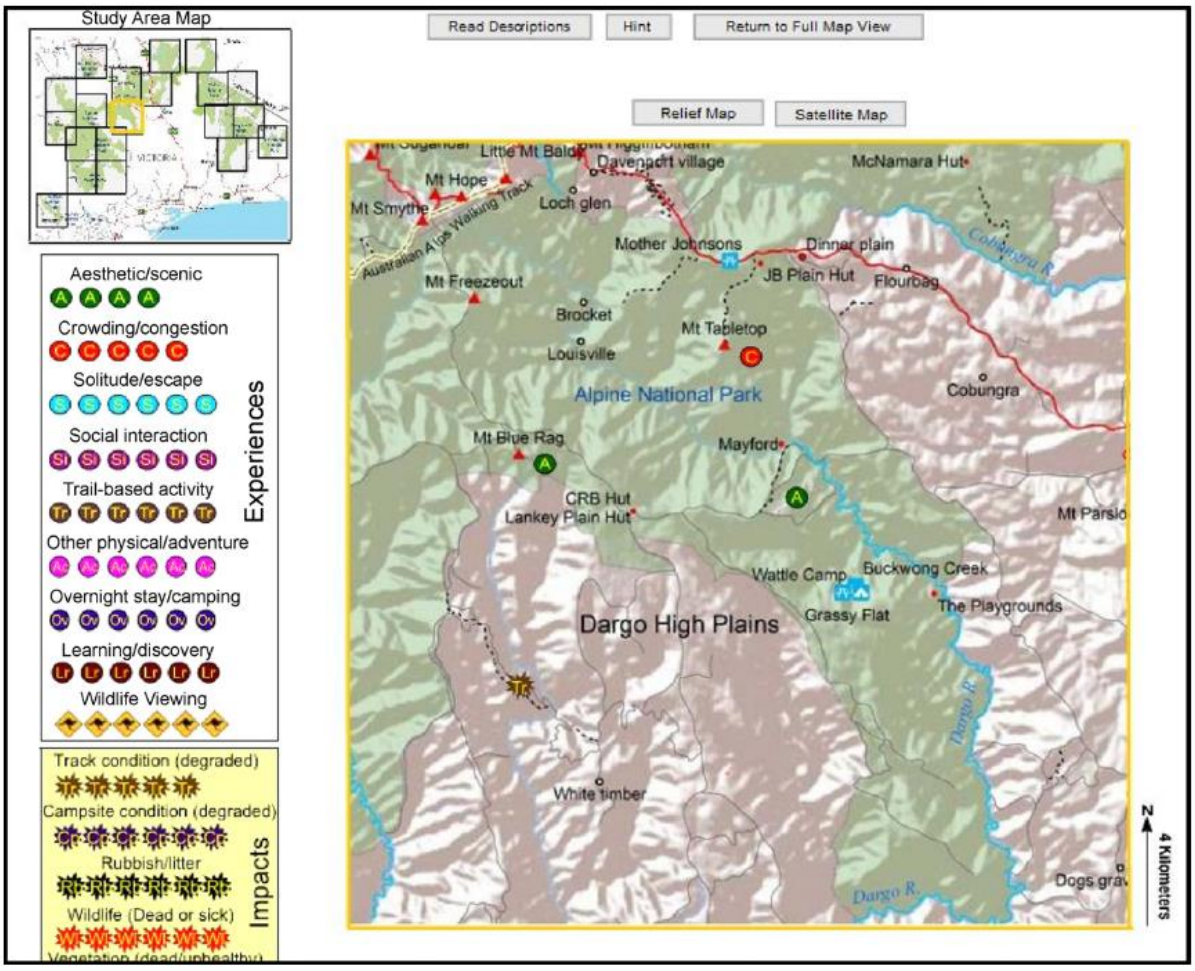


Figure 8: Screenshot of PPGIS user interface after entering access code. Participants drag and drop markers (left) onto the map image (right). Taken directly from Brown and Weber (2011).

The use of PPGIS presented mixed results. The pros of this method were that the participation rate was acceptable (50%), the PPGIS website was easy to use and continuously available for mapping, and the results provided basic descriptive information about visitors' experience which park planners felt would be useful (Brown and Weber, 2011).

The cons however were the low participation rates from park staff (25%) indicating a lack in robustness and representativeness of the data collected, a sampling process that capitalised on increased visitor traffic during holidays which may have skewed results, varying usefulness of spatial attributes chosen for mapping (the authors mention that this can be remedied by more in depth conversations with park planners and managers regarding the attributes that are most relevant), and lack of inclusion of survey questions that aim to uncover visitors' values and motivations (Brown and Weber, 2011). In the end, the authors argue that PPGIS is a helpful tool for public engagement as it is "based on both sound science and social inclusiveness, [and therefore] it has the potential to build trust in national park management" (Brown and Weber, 2011, p. 14).

PPGIS mapping and Global Positioning System (GPS) tracking was also used to monitor mountain bikers frequenting national parks in Northern Sydney, Australia (Wolf *et al.*, 2015). The authors argue that spatial mapping tools like PPGIS and GPS can enhance park management by providing information on the underlying visitor motivations that inform patterns of park use (Wolf *et al.*, 2015). Like the previous study, participants were either invited through advertising or approached in person at popular trailheads. Participants were asked to indicate which tracks they ride and how often, why they ride those tracks, and what actions are needed to along the tracks help improve the experience of the riders (Wolf *et al.*, 2015). The authors reflect that GPS can be used to validate self-reported PPGIS mapping results providing a comprehensive understanding of visitors' use of the park including their motivations behind certain choices (Wolf *et al.*, 2015).

Another study used PPGIS to map social-ecological hotspots in the Baffle-Basin in Australia (Karimi, Brown and Hockings, 2015). Participants were asked to complete a PPGIS survey where they mapped their perceived biological, intrinsic, and wilderness values of an area. The map of participant's responses was overlayed on top of a map of ecologically important sites in the area. While this paper was not deemed highly relevant to this study it could provide some interesting further reading on the statistical analysis of PPGIS mapping.

Overall PPGIS is an interesting method that could be used to visualise areas of the park that are most frequented by visitors, residents, and employees as well what modes of transport they use to reach these areas. A mapping exercise could be completed by all stakeholders to understand which areas are most important to them and why, which areas they would like to visit more often if the opportunities were available, and how they would like to move from one place to the next. Mapping data collected from each stakeholder could be overlayed and analysed statistically to see if there are stakeholder hot spots which could then be used to determine what sustainable transport to and within the park could look like.

Adaptive Governance, Learning, and Scenario Planning

Some parks drew their inspiration from theoretical, working first from an overarching goal to shift paradigms in addition to solving specific problems. Adaptive governance, learning, and scenario planning are among some of the concepts considered.

Clark and Clarke (2011) describe adaptive governance as collaborative learning between stakeholders which improves management of sustainable development of social-ecological systems. Adaptive governance relies on bridging organisations, which are entities that use collaborative mechanisms to bring diverse actors together(Castro-Arce and Vanclay, 2020). Kolb's theory of social learning was considered by several studies (see Dougill et al., 2006; Lee and Jan, 2019) . This theory suggests that learning takes place in four phases: concrete experience, reflective observation, abstract conceptualisation, and active experimentation. Dougill *et al.* explain that "The four-phase cycle begins with tangible experiences serve as a basis for observations and reflections upon those experiences. These reflections are then assimilated and developed into abstract

concepts from which new actions can be planned. These action plans can then be actively tested before they are implemented to create new experience" (2006, p. 263). Scenario planning can also help local communities develop responses to impacts and is ideal in dealing with issues which have a high level of complexity and uncertainty.

In the Peak District National Park, stakeholders were engaged in a deliberative exercise to help inform policy regarding land management issues in the park (particularly heather and moorland burning). Dougill et al., (2006) implemented Kolb's theory of adaptive learning in three phases (see Figure 3) which included: 1.) establishing the context of the system and boundaries of the project (which included a stakeholder analysis), 2.) developing goals, scenarios and models that help bring stakeholders together to learn from each other and 3.) identifying and refining management options that feedback into context and goal setting.

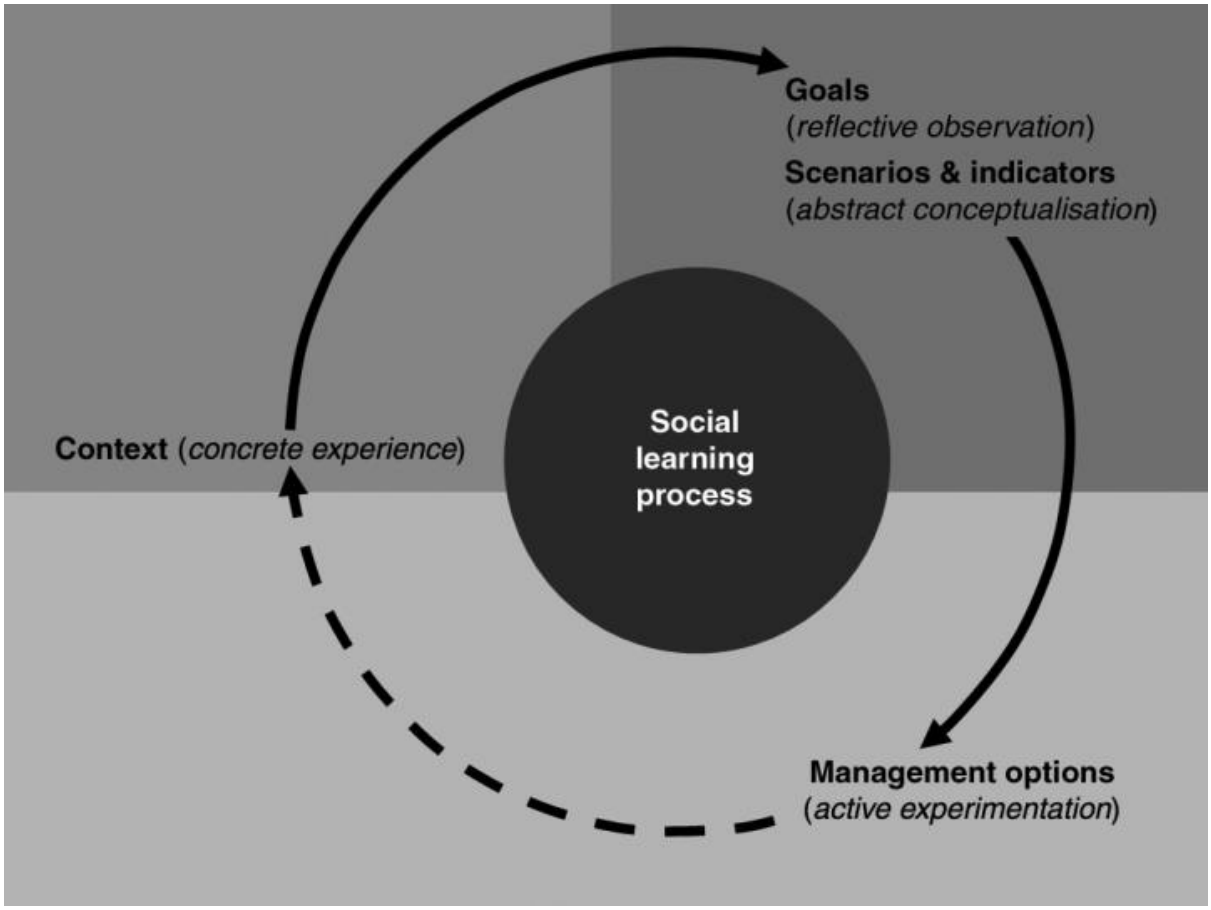


Figure 9: Adaptive learning cycle used to facilitate learning between stakeholders in the Peak District National Park. Comments in parenthesis refer to the four stages of experiential learning (Kolb, 1984). Figure and caption taken directly from Dougill et al., (2006).

A range of participatory approaches were used to facilitate inclusive environmental planning, policy development, and adaptive learning including interviews, questionnaires, site visits, workshops, scenario development, meetings, and focus groups (see Figure 4). Dougill et al., (2006) stress the importance of completing a social network analysis at the onset to identify potential conflicts amongst stakeholders and ensure marginalised

groups are identified and included. The authors also found that multi-stakeholder led future scenario modelling is a valuable exercise and focus groups are helpful for stimulating shared learning (Dougill *et al.*, 2006). Finally, the authors argue that environmental planning should be a process of continuous shared learning with opportunities for feedback and refinement throughout the deliberative process (Dougill *et al.*, 2006).

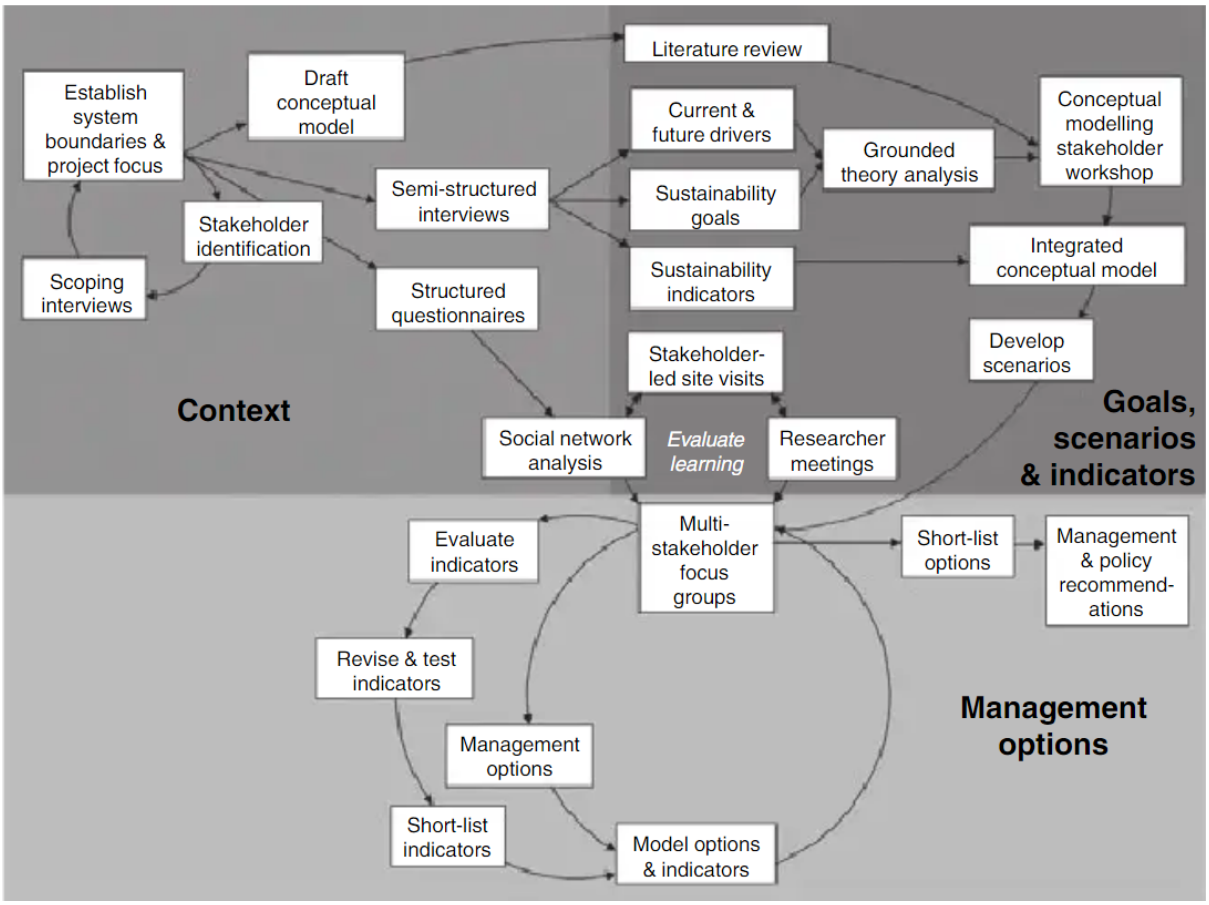


Figure 10: Methods used to bring stakeholders together in an adaptive learning process. Taken directly from Dougill et al., (2006).

Clark and Clarke (2011) looked at whether adaptive governance characteristics were present in examples of sustainability initiatives implemented in English national parks and what governance role the national park authorities played in mediating activities and behaviours within these projects (Clark and Clarke, 2011). The authors considered three adaptive governance criteria in each project by assessing 1.) whether there were cross-level and cross scale interactions, 2.) what type of learning processes was implemented and what the outcomes were, 3.) and whether there were commonly agreed understandings amongst the stakeholders relating to land use and material resources (Clark and Clarke, 2011).

Rather than drawing from Kolb's theory, the authors assessed whether stakeholders engaged in single or double loop learning. The authors refer to work by Argyris and Schön (1978) and explain that "single-loop learning occurs when an individual or an organization

learns in such a way that its present policies or present objectives remain unmodified. By contrast, double-loop learning results in modification of these underlying norms, policies, and objectives" (Clark and Clarke, 2011). In other words, suggestions to slightly enhance existing practices would fall under the single-learning category while a process which encourages a reimagining of the way a system operates and the norms and values which perpetuate it is considered double loop learning. Clark and Clarke (2011) found that the projects chosen did use adaptive governance and, in some cases, engaged in double loop learning.

Clark and Clarke (2011) found that adaptive governance can lead to successfully implemented sustainability initiatives in national parks. They point to the unique position national park authorities are in and their capacity to bring together "resources, ideas, interests and actors at different levels and scales for learning purposes" (Clark and Clarke, 2011, p. 316). Although there are some challenges which face the capacity for national parks to act as bridging institutions, they can provide promising links for projects, intervene at the right time developmentally, act as valuable repositories of multiple scaled knowledges and interests, and to enhance single and double-loop patterns (Clark and Clarke, 2011).

Adaptive management and scenario planning techniques were also used to engage stakeholders in climate change decision making for two national parks in Alaska. The authors explain that "adaptive management promotes interactions between institutions at multiple levels and considers the place-specific context of decisions" (Ernst and van Riemsdijk, 2013). The authors also reference evidence to the benefit of stakeholder participation in decision making processes in building trust, enhancing social learning, and especially in climate change decision making in enhancing the social capital of stakeholder groups and strengthening social networks (Ernst and van Riemsdijk, 2013). The researchers conducted participant-observation and semi-structured interviews at two Climate Change Scenario Planning Project (CCSPP) workshops to determine the effectiveness of climate change decision making.

NPS and personnel from a university led initiative called Scenarios Network for Alaska and Arctic Planning (SNAP) acted as facilitators. They took an active role in discussions about projections for climate change impacts and how to organise the scenario planning process. They took a passive role, however, when letting groups work through the scenarios and narratives. Facilitators jumped in only to aid in the scenario planning process rather than to provide conflict resolution. At the onset, the workshops started with webinars where facilitators led a discussion about the science of climate change and explained the scenario planning process, and region-specific climate change impacts. At the workshops, participants had time to introduce themselves and discuss the webinar content. Each workshop was limited to 40 participants, with the intent to include approximately 50% NPS participants, 25% from other state and federal agencies, and 25% from local communities and Alaska Native villages (Ernst and van Riemsdijk, 2013). The 50% 25% 25% division was intended to create diversity in the workshops, while maintaining a focus on National Park Service (NPS) planning (Ernst and van Riemsdijk, 2013).

Overall, the outcomes of the process were positive. Participants felt heard and wanted to bring climate change decision making beyond the constraints of the project, they were able to enhance their understanding of climate change and climate change decision making and the process provided uniqbriue geographic contexts in the process (Ernst and van Riemsdijk, 2013). However, some stakeholders argued for more diverse stakeholder involvement - particularly from Alaska native representatives. Additionally, the power dynamics between stakeholders could have been better analysed and understood before-hand so that the facilitators could have avoided additional conflict or unease (Ernst and van Riemsdijk, 2013). The study did however contribute to an understanding that stakeholder participation contributes to robust decisions, can provide information about attitudes towards climate change related projects, that decision making and learning is dynamic within heterogenous communities, and scenario planning can help ensure diverse voices are considered (Ernst and van Riemsdijk, 2013).

Overall, these papers point to the possible roll that LLTNPA has to play in implementing a deliberative process which can act to both tackle the issue at hand while creating an opportunity for deeper learning amongst stakeholders and socio-ecological system integration in environmental planning and management. By understanding the complex relationships between stakeholders and involving them using multiple participatory approaches, collective learning can be fostered, and more inclusive and robust solutions created to help tackle the issue at hand.

Collaborative Participation

The California Marine Life Protection Act Initiative used a collaborative model to engage a variety of stakeholders (including the public, scientists, resource managers, agency staff, appointed stakeholder advisory groups, and policy advisors) in the redesign of California's system of marine protected areas (MPAs) (Sayce *et al.*, 2012). They incorporated best practices in public participation such as: 1.) early involvement of stakeholders, 2.) ensuring participant power to influence decisions, 3.) understanding the needs and concerns of participants and communities, 4.) using multiple modes of participation, 5.) providing technical assistance to the public, 6.) encouraging the participation of native people, 7.) conducting outreach and 8.) engaging community liaisons to encourage public participation (Sayce *et al.*, 2012). Two stakeholder advisory groups were created to inform regional level and state level interests. Members of the public were also invited to contribute to the MPA proposals either individually or as part of an informal, regional external group. In some cases, public engagement specialists were brought on to help ensure effective outreach, diversity, and representativeness.

By offering a variety of options for involvement, the project was able to involve stakeholders with varying levels of knowledge, time availability, and comfort communicating publicly (Sayce *et al.*, 2012). Overall, this approach proved effective in informing and involving a diverse range of stakeholders and ensuring that the planning and decision-making process was informed by the needs of affected communities (Sayce *et al.*, 2012). While this method was used on a much larger scale than the LLTNPA would

operate in, it is still helpful to consider especially in the context of wider aims to improve sustainable transport and rural connectivity across Scotland.

Planning Partnerships

Rather than making the case for one participatory method, Stanford and Guvier (2016) argue that visitor travel planning partnerships can help inspire pro-environmental behaviours in national parks. This paper explains how tourism planning partnerships, such as those which would be involved in improving sustainable transport to LLTNP, can capitalise on existing structures and create the conditions for success. Stanford and Guvier (2016) looked at the potential of local partnerships in encouraging sustainable travel to and within the Lake District, New Forest, and the South Downs national parks. These partnerships received funding from the UK's Local Sustainable Transport Fund and used it to improve public transport to the parks, develop information and marketing campaigns for visitors, and in some cases introduce enhanced cycling opportunities and smart ticketing.

The authors also point to the larger context in which tourism planning sits which includes overarching policies and governance structures outwith the planning authority. For example, in the context of UK's national parks, the authors point out that national policy in support of sustainable transport initiatives encourages successful implementation and conversely regional or local policies which focus on economic growth may have a harder time seeing the benefits of reduced personal vehicle use within the parks (Stanford and Guiver, 2016). In this paper, one participant believed their lobbying efforts helped create a policy environment that was conducive to the success of their park's efforts.

Stanford and Guvier identified several factors which were crucial to the success of the partnership process including:

- "creating appropriate enabling conditions, possibly through lobbying;
- the role of inspired individuals facilitated by a supportive senior officer;
- strong governance structures;
- the need for public sector leadership, and the need for creating awareness and learning between private and public sectors;
- understanding the need to improve visitor experiences; and
- most significantly, communication skills, to inform all stakeholders of the benefits of the project, and notably communication of the commercial benefits of improved visitor experience quality to the private sector" (2016, pp. 501–502).

In terms of the outcomes of these processes in encouraging sustainable transport to the parks: New Forest now has several train stations in the park and a public bus network, and the Lakes District launched their Go Lakes programme which encourages sustainable travel to the park and has saved over 41,750 tonnes of carbon (Cumbria Tourism, 2015).

Viable Systems Approach

D'Arco *et al.* developed a framework for best practices in systems-based management called the Viable Systems Approach (vSa). They presented Cilento and Vallo di Diano

National Park as a case study in how a lack of a systems approach can prevent national parks from generating socio-economic benefits for local populations, resolving conflicts with local actors, or advancing sustainable tourism goals. D'Arco et al. (2021) describe protected areas, such as national parks, as viable systems. These viable systems should be managed by a governing body that understands the environment, identifies the intrinsic value of the area for advancing socio-economic development, sets specific sustainability goals, and designs a service system which satisfies the needs and wants of different stakeholders (D'Arco *et al.*, 2021).

The authors also argue that actor engagement theory can be used to better understand the internal (psychological) and external (societal norms and existing infrastructures) factors which affect stakeholder engagement. While the two models are interesting to explore, this paper did not seem to justify their approaches or qualify the theories in a meaningful way.

Willingness to Pay

Researchers have also studied visitors' willingness to pay for reducing CO_2 emissions during their visit to Teide National Park in Spain. González, Román and Ortúzar (2019) found that visitors are willing to pay to reduce their CO_2 emissions and utilize a shuttle bus within the park. While not exactly a participatory method, choice experiments could be used to help determine parking fees or other fees associated with more sustainable transport methods to the park.

Disaster and Conflict Management

Although potentially not as relevant to this study, disaster and conflict management has been used to remedy environmental issues within national parks. After extreme flooding events in Colorado, the public was involved in deliberative measures to help inform flood recovery. Different towns in effected areas used participatory methods such as task forces, city council/commission participation, public meetings, surveys, and online information collection to help gather resources to rebuild and support their citizens (Albright and Crow, 2015).

The authors found that "in a post-disaster context, communities that have suffered damage across many sectors and have limited financial capacity are likely to have motivated residents and interested organizations participate in recovery and planning processes, broadening the historically managerial approach to disaster management" (Albright and Crow, 2015). While the issues facing LLTNPA in the wake of the covid-19 pandemic are not commensurate to the impacts of a flood, learnings from this could inform participatory processes used by LLTNP. For example, LLTNPA could have an easier time gathering support and interest in such an initiative if the community sees personal car use within the park as a shared problem to be addressed.

Lee *et al.* (2018) used the progress triangle conflict management framework to better understand how conflicts concerning cultural resource management which arise from differing stakeholders' perspectives influence attitudes towards park management in San

Antonio Missions National Historic Park. Lee *et al.* (2019) explains that the framework outlines three dimensions of conflict (see Figure 5):

- substance: the values, interests, and opinions of each stakeholder regarding park management
- procedure: how decisions are made, how resources are managed, and how stakeholders are included in the process.
- relationship: attitudes, behaviours, and interactions towards and amongst stakeholders including dynamics of trust, respect, communication, and power.

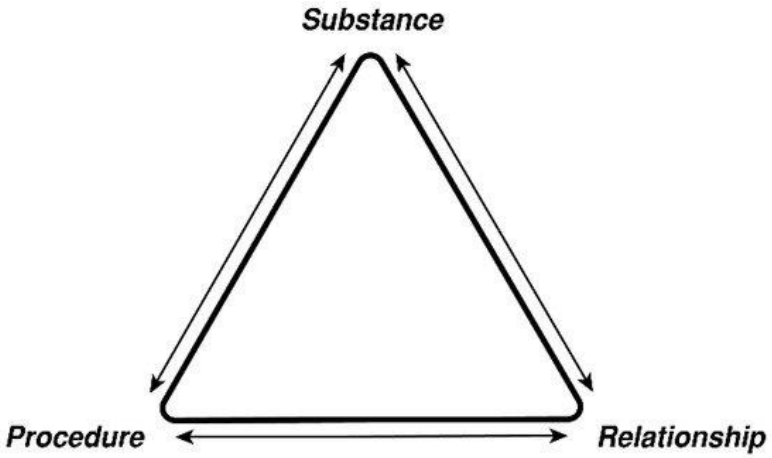


Figure 11: Progress Triangle conflict management framework. Caption and figure taken directly from (Lee *et al.*, 2018).

LLTNPA may want to utilise the progress triangle framework to understand the conflicts that may exist or arise between stakeholders on the issue of sustainable transport to and within the park. Other methods of assessing conflict and conducting stakeholder analyses should be explored.

General Best Practices

In Japan, studies have been conducted on best practices for stakeholder involvement in national park management. Hiwasaki (2005) recommends identifying the key stakeholders while also defining their roles and clarifying their responsibilities in park management. A range of stakeholders including local residents, visitors, employees, tour operators, and surrounding towns and transportation hubs should be identified and invited to have a say. They also urge that consensus-building is crucial and that this process takes time, and resources but it is necessary to avoid token representation (Hiwasaki, 2005). Stakeholder engagement should be incorporated into park management plans. Interestingly some authors warned that public participation in national parks may lead to a shift towards national parks acting as service provision rather than that of conservation if there are multiple stakeholders with competing interests (Dupke, Dormann and Heurich, 2022).

While these findings do not present any new methods for stakeholder engagement, they enhance the argument that participatory processes must begin with an understanding of

the values and feelings of stakeholders as well as the dynamics of the relationships between them.

RQ2: Which participatory methods have been used in a rural context to address car dependency and sustainable transport?

It was more challenging to find specific examples in the literature on the use of participatory methods in addressing car dependency and sustainable transport in the rural context. However, sources did touch on these topics separately.

Addressing Car Dependency and Sustainable Transport

Although not in a rural setting, there was a very relevant and interesting study protocol on research into efforts to reduce car dependency in Belfast, Ireland. Hunter et al. highlight the importance of ensuring interventions to reduce car dependency are informed by "systems thinking, complexity science, and socio-technical transition theory" (2021, p. 2). The authors argue that car dependency is a "multi-level, multi-sectoral" wicked problem which is shaped at the level of the individual (micro level), as well as by social norms (meso level), and the socio-economic and political environments (macro level) (Hunter *et al.*, 2021). Issues of car dependency and potential solutions were explored using the principles of the INDEX framework which includes: 1) involving stakeholders; (2) reviewing evidence and theories; (3) collecting primary data; (4) understanding the context; (5) paying attention to future implementation; and (6) designing and refinement (Hunter *et al.*, 2021).

The authors engaged in seven research tasks which aimed to collaborate with stakeholders "to understand the underlying system, gather and synthesise the necessary evidence for action, and co-develop the interventions and policies" (Hunter *et al.*, 2021, p. 4). The tasks completed integrated a variety of participatory methods including a stakeholder network analysis, policy interviews, group model building, discrete choice experiments, citizen juries, and a workshop (see Figure 6). This mixed-methods approach is particularly helpful to the current research as LLTNPA may want to integrate multiple best practices to ensure various stakeholders are included at several levels and stages of the decision-making process.

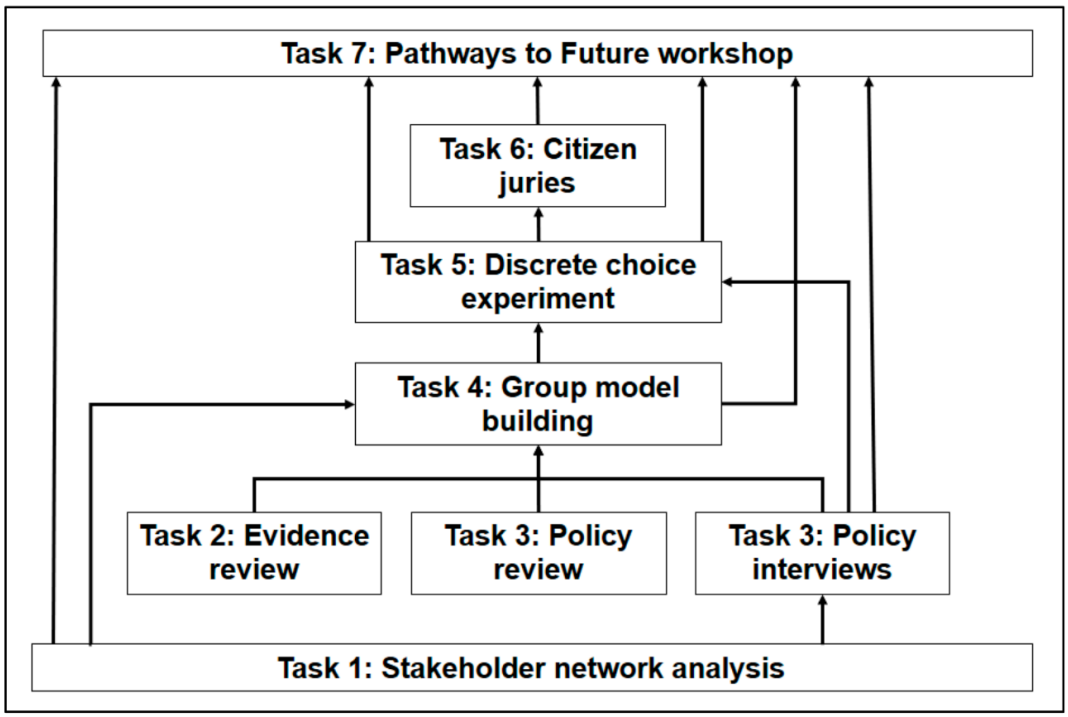


Figure 12: Schematic diagram of task integration. Tasks include: Task 1: identify and map the stakeholders influencing car dependency in Belfast and their relationships; Task 2: review the literature to learn from interventions and policies to reduce dependency; Task 3: map the policy landscape and plausible policy scenarios affecting car dependency in the Belfast region; Task 4: build mutual understanding of the system influencing car dependency in Belfast and potential co-ordinated multi-sectoral solutions; Tasks 5 and 6: understand the preferences and perspectives of car users in relation to a series of policy alternatives to reduce car trips; Task 7: agree with stakeholders on a future pathway/way forward to address car dependency in the region. Figure and caption taken directly from (Hunter *et al.*, 2021, p. 5).

Salonen *et al.*, (2014) used PPGIS to understand car dependency and sustainable transport in a suburban area outside of Helsinki. Salonen *et al.* (2014) consider conventional travel behaviour theory which explains that travel time is regarded as an important factor in guiding travel choices. However, the fastest options are seldom good for planetary and individual health. In Helsinki, the PPGIS approach was implemented because it engages non-experts in decision-making processes and enables the collection of large datasets of residents' experiential knowledge (Salonen *et al.,* 2014).

PPGIS allowed respondents to report the types of journeys they had and select several travel modes. Salonen *et al.* (2014) explain that they should have asked demographic questions about age, car ownership, or even values towards sustainable transport options to develop preference profiles for respondents. This data could have uncovered attitudes' effect on travel behaviour. One downside of this method is that while internet accessibility is more common, participation may have been low, and some respondents inadvertently excluded. The data was also not able to capture multi-destination trip chains.

Salonen *et al.* (2014) argue that by understanding the choices individuals make and why they make them and uncovering the most time efficient and less carbon intensive options, planners can aim to ensure the most heavily trafficked locations are served by more sustainable modes of transportation. This study provides another example of PPGIS in

action and provides suggestions for how to best utilise this method when considering sustainable transport improvements in particular.

A study of two national parks in China used participatory processes to understand visitors preference for a low-carbon tourism experience (LCTE). Low carbon tourism can manifest in multiple ways. Tourists may choose to have a low carbon experience by modifying how they travel (i.e., reducing the miles travelled or the modes of transport used), staying in their destination for longer, using environmentally friendly products while traveling, and experiencing local history, food, and culture in depth (Lee and Jan, 2019). The researchers in this study aimed to conceptualize and develop a reliable and valid scale to measure LCTE of nature-based tourists. The authors also mention the potential use of Kolb's experiential learning cycle theory to changing individual behaviour such as adapting a low-carbon travel mode (Lee and Jan, 2019).

Lee and Jan (2019) conceptualised the LCTE as having several dimensions of experiences including 1.) sensory experiences (using the five sense), 2.) affective experiences (positive emotional arousal), 3.) learning experiences (education or problem solving), 4.) socio-cultural experiences (engaging with local food and cultures), 5.) behavioural experiences (physical changes or new behaviours arising from the tourism experience) 6.) escapism experiences (immersive events requiring active participation), 7.) prestige experiences (activities which enhance status or inter-personal relationships).

The concept of the LCTE scale could be used to understand how and why tourists may choose low carbon transport and experiences at LLTNP and how these experiences can be made more effective at continuing the promotion of low carbon behaviours. The LCTE scale could be used by LLTNPA to survey park visitors and understand the values associate with low carbon travel and tourism. This could assist in creating an improved low carbon network can consider these values. This scale could also be used after an implementation of a low carbon tourism experience to assess the values of participants associated with that experience.

The UN has also developed a guide to the application of public participation in planning and policy formulation for sustainable transport development (UN.ESCAP, 2003). The authors explain why participation in planning and decision making is vital and list several participation methods they find most common when engaging with stakeholders (Table 3). The 55 page guide provides a wealth of information on the steps involved in developing the best participatory process as well as assessing its outcomes. There was too much information to distil in this report, but this detailed guide can be very helpful for LLTNPA closer to when the participatory process is being designed.

Table 6: Examples of techniques of participation suitable for different purposes. Based on information from various sources that include. Table and caption taken directly from UN.ESCAP (2003).

Purpose	Technique	
	Small Group	Large Group

Providing Information	community forum, consultation documents, public documents (a draft plan, for example), briefings	public meetings (at different levels), media coverage, exhibitions, newsletters, brochures, open house, information repositories, newspaper inserts, websites
Collecting Input	interviews, focus/user groups meeting, advisory/consultative forum, task force, nominal group process	social survey, public hearing, referendum, surveys through the internet and other electronic media
Negotiation	nominal group process, mediation, public community partnerships, consensus building techniques	interactive website, workshops
Problem Solving/Plan Preparation	design charrettes, citizens juries, panels, people's plan, task force	workshops with interactive working groups supporting
Supporting People's Initiatives	joint working committee	project committees

Accessibility and Development in the Rural Context

Castro-Arce and Vanclay (2020) developed an analytical framework that aims to improve an understanding of the processes by which local top-down and bottom-up forces enhance sustainable rural development (see Figure 7). The framework proposed by the authors was used to assess a regional development project in rural Costa Rica which included the construction of a national road. By implementing an adaptive governance approach and encouraging social innovation, governance systems can profoundly transform for sustainable development.

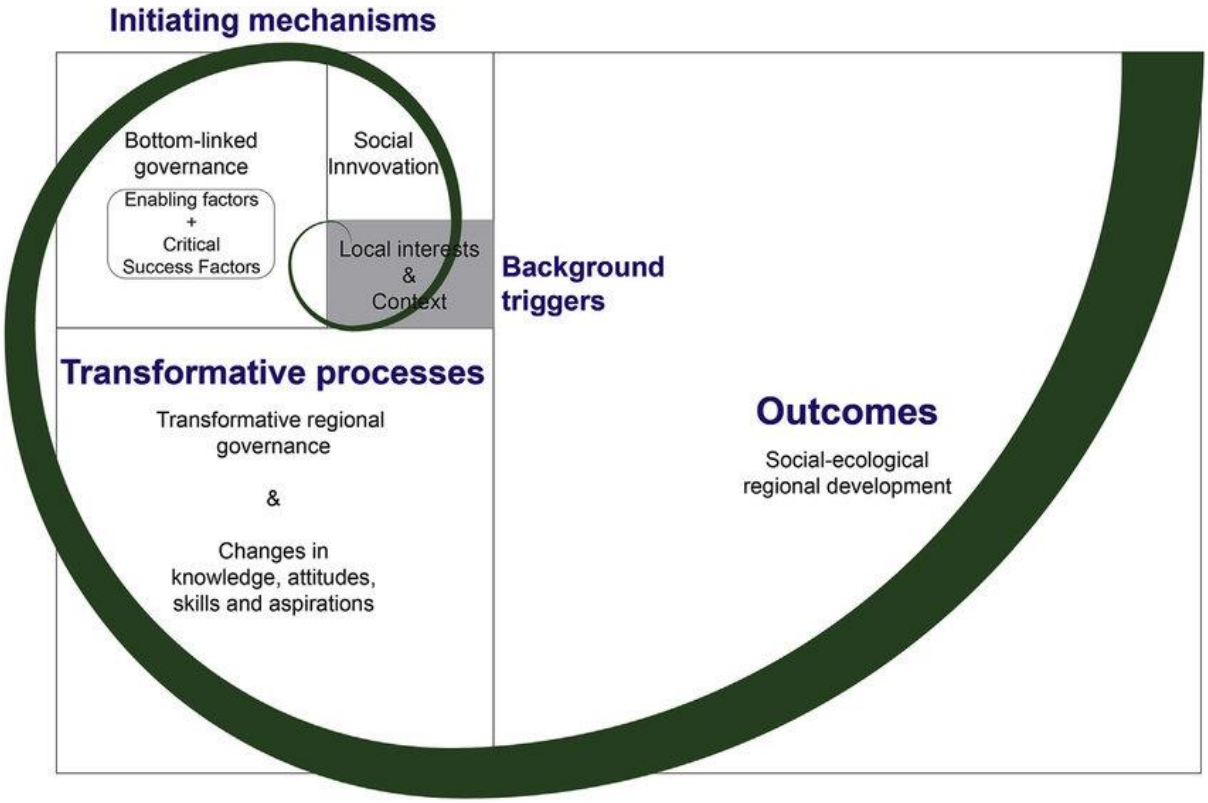


Figure 13: Analytical framework for transformative social innovation taken directly from Castro-Arce and Vanclay (2020).

The authors focus on bottom-linked governance which refers to the "collaborative middle ground where actors from varied political levels, geographical scales and industry sectors converge to share decision-making" (Castro-Arce and Vanclay, 2020, p. 45). Bottom-linked governance occurs at the interactions between top-down and bottom-up efforts and can be fostered when social innovation builds bridges amongst social groups, political arenas, geographical scales, and industry sectors (Castro-Arce and Vanclay, 2020). The authors define social innovation as "the creation, renewal or transformation of social relations in the development of new ways of working together to achieve societal goals" (Castro-Arce and Vanclay, 2020, p. 46). Bridging institutions, institutions which help create cross-sectoral links, can play a key role in ensuring social innovation and bottom-linked governance is fostered.

The authors identified four critical success factors to transformative social-ecological regional developments. These include:

1. "Acknowledging that the interests of local communities (needs, desires, aspirations), and the social-ecological context (conflicts, crises, opportunities and challenges) will change over time;
2. Acknowledging that only by scaling-up and/or rolling-out at multiple levels will local action deliver better sustainability outcomes;
3. Acknowledging that formal institutions are necessary to enable and sustain transformation;
4. Acknowledging the need for sharing power and decision making in the governance system" (Castro-Arce and Vanclay, 2020).

The concepts of adaptive and bottom-linked governance should be considered in the context of this research especially considering the wider aims of this project. To achieve sustainability, resilience, and societal well-being, the authors argue that transformative governance and social innovation is necessary (Castro-Arce and Vanclay, 2020). Further consideration should be given to this model when deciding best practices in participatory methods and placing the process within wider regional, national, and international sustainability goals. LLTNPA have an opportunity to play a role as a bridging institution by bringing multi-level stakeholders together to transform sustainable transport policy in rural Scotland.

Other Relevant Studies

Issues with traffic and lack of transportation to national parks are not a new phenomenon in the UK (see Cullinane and Cullinane, 1999). Although the study is quite outdated, Cullinane and Cullinane (1999) explored visitors' opinions of traffic problems and public transport in the Dartmoor and Lake District National Parks. They pointed to the issues that rapid traffic growth brings to rural communities, particularly when car travel is so popular and convenient, and critically analysed the effectiveness of "carrots and sticks" for instigating behaviour change. The authors describe the issues present at the time as lack of public understanding of the issues of traffic-related problems in national parks and a feeling that public transport is not a viable alternative to cars.

The authors evaluated park residents and non-residents perceived extent of traffic-related problems and attitudes towards alternative modes of transport using questionnaire surveys. They revealed that respondents did recognise there were traffic related problems in both parks and that spoiling of the surroundings due to congestion was a big problem. At the time, about half of the respondents expressed that they would not visit the parks if they could not access them by car. The two main issues respondents had with the public transport system was frequency and price of trips available. The authors go on to suggest a mixture of carrot and stick techniques to attract people to public transport and drive down car use. A deliberative process for the present issue could help inform what people's needs are around public transport in the park and if "carrot and stick" measures are implemented they will be done so with approval and support of the stakeholders who suggest them.

Holden and Linnerud (2011) identify the three different types of policy approaches to reducing greenhouse gas emissions from transport for everyday use including: improving technology that reduces the carbon intensity of fuels or efficiency of engines; changing travel patterns by encouraging more environmentally friendly travel modes through planning; and reducing travel volume. They also point that there are three main policy instruments used to make these changes: market-based, information based, and command-and-control based instruments (Holden and Linnerud, 2011). Market based instruments include taxes and subsidies (carrots and sticks), information-based instruments include information campaigns, and command-and-control policies including standards on products or major infrastructure changes (i.e., construction of better rail infrastructure). Figure 8 depicts a typology of sustainable transport policies. In relation to leisure travel, they found that found that Information and Communication Technologies (ICT) can be used to encourage the use of public transportation and multi-modal travel for leisure.

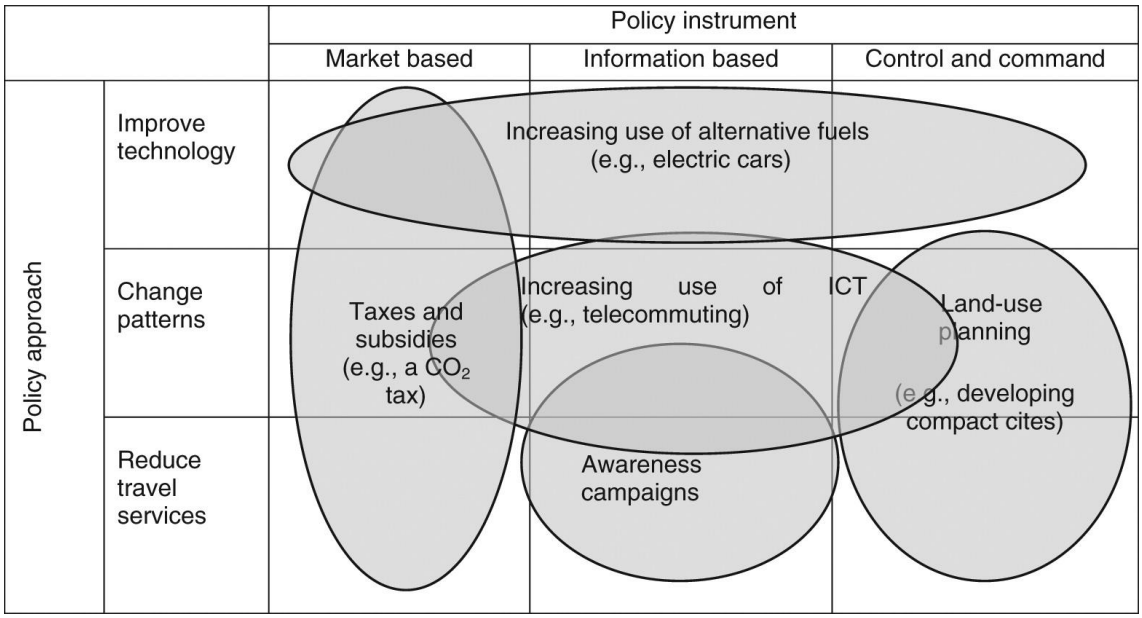


Figure 14: A typology for sustainable transport policies. Each transport policy (in circles) may be represented by a combination of one or more policy approaches and one or more policy instruments. Figure and caption taken directly from Holden and Linnerud (2011).

Holden and Linnerud (2011) argue that these policy instruments are successful in reducing CO_2 emissions from every travel yet may lead to an unintended consequence of increased personal vehicle use for leisure travel. They suggest that this occurs because the policies should be aimed at reducing CO_2 emissions from all travel. In the context of the present research. LLTNPA should consider how improvements to sustainable transport capacity to and within the park are hindered or hampered by lack of sustainable transport in the surrounding areas and throughout Scotland.

In Austria, a project called "AlltagsSPUREN" aimed to improve sustainable and active travel in rural areas. It implemented a combination of online and offline tools to engage the public. A website was created to provide information about the project and modes of

sustainable transport, basic info on the topic of sustainable mobility in rural areas, a service section for storytelling, digital analysis and scenario tools for politicians and local authorities (Knoll *et al.*, no date) digital analysis tool was going to be created to use quantitative and qualitative datasets to help inform the conditions for sustainable mobility in the chosen municipalities. In addition to the online component there were also in person workshops, 'walk-shops', events and conduction of a social environment analysis. This paper highlights an interesting approach which has not yet been proven however, there were no additional papers on this project found despite thorough searching.

RQ3: Which participatory methods or best practices are reported to be most successful in ensuring diverse voices are heard and individuals feel valued?

Again it was challenging to find sources that mapped perfectly onto the elements of this research question but there were some which touched on topics such as justice, power, and ethnic minority involvement.

Achieving a Just Transition

Farrington and Farrington (2005) more generally addressed the concept of rural accessibility and how it is positioned in the social justice and social inclusion agendas. One quote was particularly helpful in highlighting the importance of a just transition when it comes to rural accessibility:

> *"...greater social justice cannot be achieved without greater social inclusion, which requires that people have access to a range of activities regarded as typical of their society; greater social inclusion requires greater accessibility which often (but emphatically not inevitably) implies mobility and transport use. This is not to say, of course, that social inclusion of itself achieves greater social justice, and particularly it is not to say that accessibility of itself achieves social inclusion. The discussion considers the ideas and relationships in this framework, and also relates the ideas to concepts of sustainability"*
> (Farrington and Farrington, 2005, p. 2).

Improving sustainable transport to LLTNP must consider wider accessibility goals for those working and living within the park boundaries. Accessibility must also be considered in multiple formats. While "accessibility" may be seen as a spatial issue, there are also other socio-economic factors (for example, age, gender, ethnicity, and income) which affect accessibility and improving access may be accomplished by means other than improving mobility (Farrington and Farrington, 2005). The authors also argue that rather than looking simply at current behaviours and aspirations, mobility policy should consider the *opportunities* for improving accessibility - which includes the actions that could be taken but that are not required to be taken by members of society. These findings encourage a creative approach to conceptualising rural access. It is important to ensure

multiple stakeholders are included in developing a holistic view of what access to LLTNP means.

In mobility literature, the question of justice is gaining traction. Justice in energy transitions can be described by three dimensions: distributional justice, procedural justice, and justice as recognition (Schwanen, 2020). Schwanen (2020) focuses on the many grass-roots efforts, organisations, and activist groups in London that are working to enhance low-carbon travel. He argues that although these efforts are helpful, they should be supported more widely by the local state to enhance their effectiveness. He states that "...symbiotic and strongly supportive relationships between local state and citizen-led organizations—with significant autonomy for the latter—can boost the expansion of just low-carbon mobility systems..." (Schwanen, 2020, p. 134). This is helpful in the context of LLTNP because it serves as a reminder that there may be local grassroots organisations already working fervently to solve the issue of sustainable transport to and within the park. These organisations, if they exist, should be approached at the onset to determine how LLTNPA can offer top-down support and which participatory approaches would best engage them

Considering Power Dynamics

Johansen and Chandler (2015) explored the dynamics between urban facilitators/organisers and local communities during a rural development planning project in Denmark. In their case study, project planners, architects, and researchers from an urban context were brought in to help with a rural development project for two rural villages. The power dynamics between those with vested interests in the project, those brought in with expertise on participatory methods, and locals were stark. Although there was a desire to involve locals in a narrative participatory method to gain insight on local knowledge, there was a lack of meaningful local involvement in the participatory process design and delivery (Johansen and Chandler, 2015).

Dynamics of power between and amongst urban and rural actors were upheld by all parties through the creation of alliances amongst institutions with similar interests and practices of knowledge and in referring to the circumstances of power dynamics present in the project as 'unchangeable' (Johansen and Chandler, 2015). In this case, powers were undermined and there was more of a focus on making a case and winning an argument rather than co-creating solutions. Johansen and Chandler (2015) operated from Foucault's definition of power which is that "power is neither given, nor exchanged, nor recovered, but rather exercised and that it only exists in action" (Kelly, Foucault and Habermas, 1994, p. 28). They suggest mapping out mechanisms of power for a particular social context using grounded theory to ensure proper participatory methods are chosen and delivered effectively.

These findings are particularly relevant for LLTNPA because this research is largely born from the need to enhance low-carbon transport by visitors after the issues experienced during the COVID-19 pandemic. Visitors may often be from urban settings and so it is crucial to ensure rural residents, employees, and visitors feel valued and therefore

incorporated in the decision-making process from the onset. A stakeholder analysis will also help inform existing power dynamics and potential conflicts amongst stakeholder groups.

Considering the issues of tokenism and power, Bell and Stockdale (2016) explored the issues relating to public consultation and the tendencies for public engagement to fall short or completely neglect to truly 'engage the public'. Examples such as the creation of the Cairngorms National Park in Scotland were presented as a failed participatory effort due to the lack of true public engagement and the ultimate power of political entities which swayed decisions and overruled public input (Bell and Stockdale, 2016). When setting up participatory processes, special consideration should be given to the power dynamics present in who is setting up and controlling the process. Furthermore, power dynamics are present when it comes to both political power and land ownership - which can be particularly salient in the case of national parks.

The authors examine three dimensions of power: covert, overt, and latent power. In the context of Mournes National Park in Northern Ireland, perceived government manipulation of participatory processes led to mistrust and opposition (Bell and Stockdale, 2016). The public consultation process consisted of public meetings, which local stakeholders did not find sufficient in gathering diverse views and ensuring local views were respected. The authors point out that the reliance on traditional consultation methods led to "limited effective engagement, gave a platform to vested interests, fuelled conflict and intimidation and ultimately undermined the government's ability to take forward a controversial policy agenda" (Bell and Stockdale, 2016, p. 1530).

Structural flaws in the design of the participatory process and lack of involvement of local stakeholders form the beginning may have helped contribute to the failure of the Mournes planning process. The most salient power dynamic issues in this process appeared during the following stages:

- initiation stage: who started the discussion, what topics were discusses, who was invited to lead, who was invited to participate,
- the deliberation stage: where micro-tensions occurred internally and special power is given to those who are working most closely with and in line with the initiator's agenda,
- the reporting stage: where those who are crafting and communicating the narrative have control over its tone and message,
- and finally in the policy implementation stage: where those with policy making power may exert it during the process and afterwards in their decisions to enact policies or not potentially disregarding the outcomes of the consultation process (Bell and Stockdale, 2016).

These findings are relevant to the present study as LLTNPA will need to assess its own power in the context of this issue and decide what their role should be in various stages. The concept of power dynamics should be further studied and explored ahead of the participatory process design phase.

Meaningfully Engaging Ethnic Minorities

Immigrant communities are seen as the "fringe segments of heterogenous communities" and are not engaged as often in civic participation (Khazaei, Elliot and Joppe, 2017). However, it is important to involve them as the wants and needs of local communities and fringe stakeholders are ever changing and participatory initiatives should evolve to consider new interests. When engaging immigrant and minority communities in park planning initiatives, it is important to consider methods that can be used to involve those immigrants whose cultural backgrounds may not focus on outdoor recreation as all voices should be represented either directly or by institutions that represent their interests (Khazaei, Elliot and Joppe, 2017).

Most studies focus on methods which aim to boost immigrant visitation with the assumption that increased visitation leads to increased appreciation and support for national parks. Khazaei, Elliot and Joppe (2017) found that engaging immigrants and minorities in planning activities should be a complementary and long-term strategy to be adopted in addition to the current short-term initiatives focused on increasing visitation. The authors identified five underlying principles for inclusive community engagement (Figure 9).

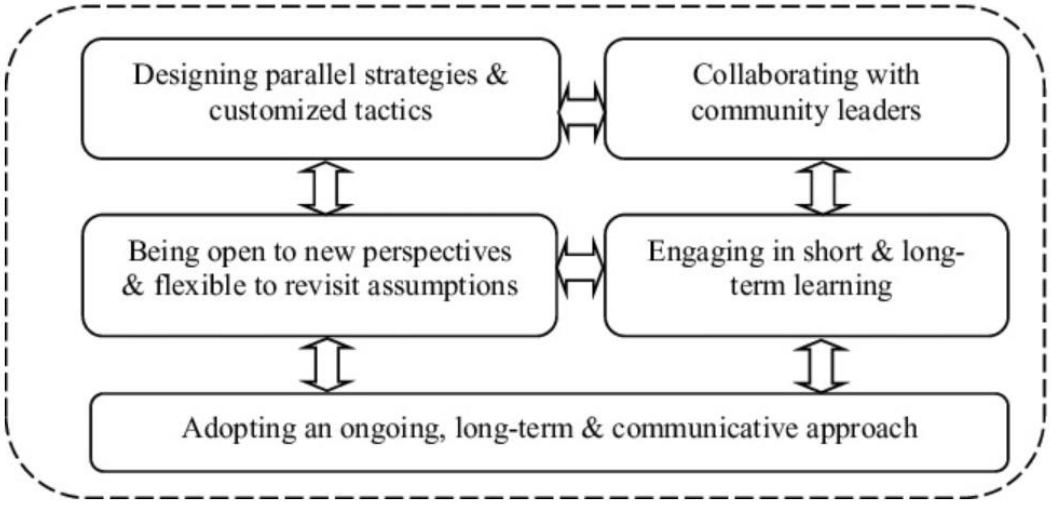


Figure 15: Underlying principles of more inclusive community engagement processes. Figure and caption taken directly from (Khazaei, Elliot and Joppe, 2017).

This is relevant for LLTNPA as one of the goals with enhancing rural accessibility via sustainable transport includes engaging under-represented ethnic minority groups. Care should be taken to identify and involve ethnic minority groups in the ways that are most meaningful to them based on what they value and the opportunities they would like to have in relation to the park, rather than imposing a goal, such as increased visitation, which they may not share.

General Best Practices

Reed et al. (2018) identified a typology of different participatory practices and developed a theory to explain why different participatory practices work best in certain situations. The authors identify four different types of engagement based on a variation of bottom-up and top down-approaches which includes: 1.) top-down one-way communication and/or consultation; 2.) top-down deliberation and/or coproduction; 3.) bottom-up one-way communication and/or consultation; and 4.) bottom-up deliberation and/or coproduction. The authors depict the four processes in a wheel of participation (Figure 10) which can be used to match the appropriate type of engagement to the purpose and context in which engagement is needed.

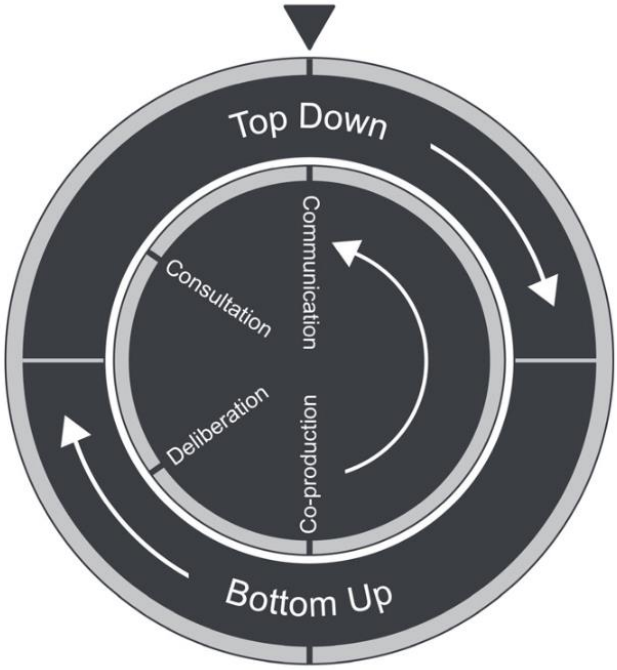


Figure 16: The wheel of participation depicting the four types of engagement taken directly from Reed et al. (2018).

The theory which explains the variation in outcomes across the different types of participation considers 1.) the context of the issue, 2.) the process design chosen, 3.) the management of power dynamics, and 4.) how well fit the process is in terms of scale and timing/length (see Figure 11).

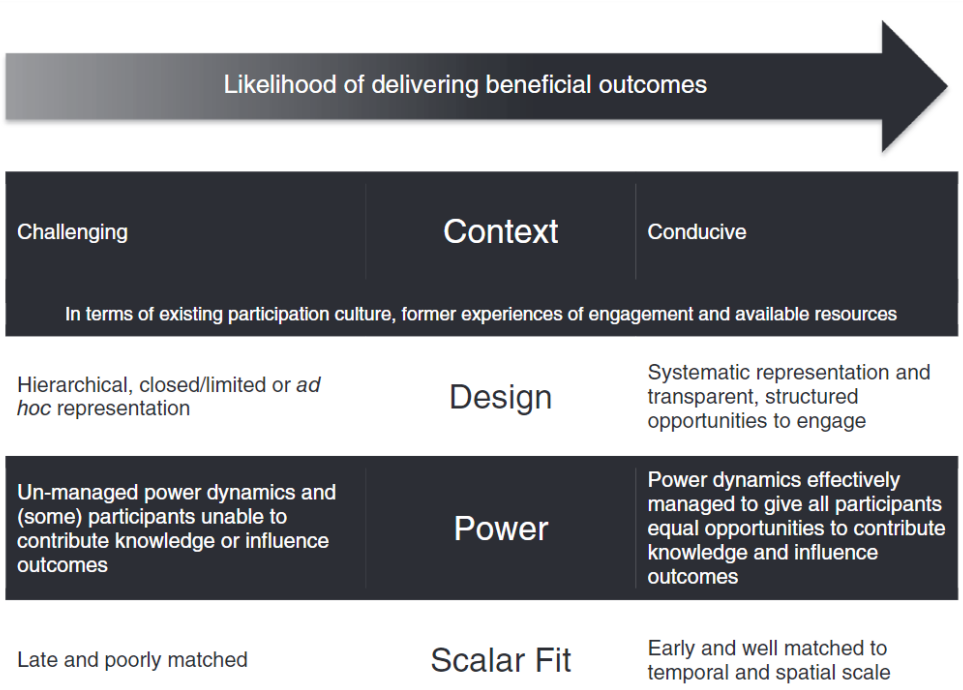


Figure 17: A theory of participation that explains how the outcomes of stakeholder and public engagement in environmental management are explained by context, process design, the management of power dynamics, and scalar fit. Figure and caption taken directly from Reed et al. (2018).

The authors make the following recommendations for best practices in stakeholder engagement:

- "Take time to fully understand local context to determine the appropriate type of engagement approach and adapt its design to the context;
- Get all affected parties involved in dialogue as soon as possible, to develop shared goals and coproduce outcomes based on the most relevant sources of knowledge;
- Manage power dynamics, so every participant's contribution is valued and all have an equal opportunity to contribute;
- Match the length and frequency of engagement to the goals of the process, recognizing that changes in deeply held values (that may be at the root of a conflict) are likely to take longer than changes in preferences;
- Match the representation of stakeholder interests and decision-making power to the spatial scale of the issues being considered" (Reed *et al.*, 2018, p. s15).

These findings are relevant and helpful for LLTNPA as they strengthen the argument for a participatory design process that is uniquely designed by and for the stakeholders identified to ensure a fair and complete deliberative engagement.

RQ4: Which participatory methods or best practices are reported to address current implicit biases of consulting processes and what does that entail?

It was challenging to find papers that explicitly addressed this research question. This may be a reflection more on the keywords used in searching for sources rather than a lack

of research in this area. Some papers seemed to touch on this topic and are therefore explored in this section.

Addressing Issues with Traditional Participatory Processes

Sterling et al. (2017) assessed the role of stakeholder engagement in biodiversity conservation using quantitative and qualitative reviews of existing academic and grey literature. From a quantitative review, the authors found that synthesizing stakeholder knowledge and values into decision-making, stakeholder input throughout projects, transparent decision-making, and establishing trust between stakeholders and planners were associated with attitudinal change (Sterling *et al.*, 2017). Their qualitative analysis revealed the importance of identifying key stakeholders and engaging such stakeholders as early as possible, for an adequate period of time, and considering cost of engagement for such stakeholders (Sterling *et al.*, 2017). While some research points to the value of stakeholder analysis, this practice may also lead to "characterizing and classifying stakeholders can result in cognitive and institutional blind spots that lead to recurrent inclusion (and possible professionalization) of 'usual suspects' and under-representation of marginalized or less visible groups" (Sterling *et al.*, 2017, p. 166).

They suggest that the participatory process is ever evolving and that different types of stakeholder engagement will be beneficial at different points in the process. Trust, respect, and reciprocity are necessary for successful engagement and co-creation in decision making and are determined by communication, outreach, transparency, and co-learning (Sterling *et al.*, 2017). Deliberative processes that are self-organised (local led) may benefit from external sources of support, but it is crucial that these efforts retain autonomy and control of the process (Sterling *et al.*, 2017).

Gaps in the Research

A breadth of participatory processes were uncovered in this rapid evidence assessment, however there are inevitably some processes that may have not been mentioned or not explored in further detail. The research suggests that there are multiple "best practices" in participatory methods and that these will change based on the socio-political context of the issue, location of the issue, relationships amongst stakeholders, and ultimately the time and budge set aside for the process.

In reviewing this deliverable, if there are any methods that are of particular interest these can be explored further ahead of Deliverable 2. For example, there was not a section specifically on citizen juries or assemblies, but these can be reviewed in greater detail if desired.

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