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Principles and practical criteria for effective participatory environmental planning and decision-making

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Participation is increasingly used to legitimize and improve environmental decision making. However, in practice participants often find the process empty and frustrating. This has adverse consequences for environmental planning and consenting processes, where participants become disillusioned, and negative feelings develop into active opposition, causing delays, spiraling costs, and conflict. This paper addresses the gap between participatory ideals and unsatisfactory environmental decision-making in practice. We take a fresh look at how participatory ideals can be implemented and propose a new framework based on translating participatory ideals into practice. We identified commitments and values for fair and achievable participatory environmental decision-making from science and technology studies (STS), procedural environmental justice, and deliberative democracy. These were synthesized and organized into a set of principles (inclusivity, process-orientation, empowerment, and reflection) and then translated into "practical" criteria. The result is a new framework that links participatory ideals to practice.

Keywords: participation; decision-making; procedural environmental justice; deliberative democracy; environmental planning

1. Introduction

Participation is increasingly recommended to improve environmental decision making. Meaningful political engagement can improve decision making by providing new knowledge and reveal citizens' values, interests, and aspirations, and thus politically validate decision-making by demonstrating that public opinion has been considered. Consequently, participation is said to improve the acceptance and durability of environmental planning decisions and policy-making (Brooker *et al*. 2019; Reed 2008; Sustainable Development Commission 2007). However, realizing these potential benefits is difficult because, in practice, participatory processes can be complicated, ineffective, and counter-productive, which adversely affects political engagement and the supply of willing participants, and encourages political apathy.

The breadth of literature on normative participation illustrates the difficulty. Arnstein's classic study (1969) warns of *empty and superficial* participatory processes that contribute to consultation fatigue, conflict between stakeholders and protracted decision-making. Participation in environmental planning and decision-making

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processes currently exemplifies these challenges (Armeni 2016) because it is dominated by extractive methods of data collection; focuses on the accuracy of data rather than democratic values; and prioritizes expert knowledge over public views. Consequently, previous studies have found that participants often become disillusioned and that negative feelings develop into active opposition (Aitken, Haggett, and Rudolph 2016; Wolsink 2007). This generates conflict, delays decisions, and increases costs (Cashmore *et al*. 2019; Haggett 2008).

This unsatisfactory situation is especially evident in planning and consenting processes involving controversial projects, such as renewable energy developments, where fixed consultation processes limit the breadth of stakeholder views and do not capture what matters most to many consultees (Roberts and Escobar 2015, 194). The perception that consultation represents a meaningless tick-box exercise is therefore common (newDemocracy Foundation 2018; Dorfman 2008; Pieraccini 2015), which can leave people feeling excluded and ignored (Flannery, Healy, and Luna 2018; Haggett 2008).

The consequences of inadequate and unsatisfactory participation in environmental planning and decision-making are well documented in the context of renewable energy projects (Armeni 2016; Bell *et al.* 2005; Hindmarsh and Matthews 2008; Rydin *et al.* 2015), over the siting of land-based industrial projects (Hunold and Young 1998), agricultural practices (Pretty 1995), contaminated land (Carson 2009), and conservation (Lauber and Knuth 1999). For example, proposals for an offshore wind farm in the Netherlands were consented, but the project was later halted by public opposition because public views of the landscape impacts were not adequately considered during a *highly technocratic, top-down decision*[-making] process (Wolsink 2010, 195). Similarly, the UK Government's 2013 consultation on planning for Marine Conservation Zones was deemed to have ignored stakeholder views (Pieraccini 2015). More recently, marine spatial planning in northeast USA (as part of the Northeast Regional Ocean Planning initiative) was found to be *an exclusive, top-down process, designed to exclude or limit meaningful engagement* (Flannery, Healy, and Luna 2018).

In response to these challenges, scholars have, for many years, sought to define conditions for normative participation (Arnstein 1969; Biegelbauer and Hansen 2011; Rowe and Frewer 2000; Steenbergen *et al*. 2003; Schrögel and Kolleck 2019; Webler 1995). These include attempts to develop criteria that prescribe ideal standards for participation in environmental planning, environmental governance, and natural resource management (Hunold and Young 1998; Pretty 1995; Uittenbroek *et al*. 2019;). However, despite the abundance of this literature, the shortcomings of participation in environmental decision-making, in practice, persist. Part of the problem is that participatory ideals, when put into practice, are often unachievable and/or perpetuate power disparities, which contribute to suspicion and mistrust between those with access to information and those without (Smith 2003, 55). To address the gap between theoretical ideals and achievable implementation, a fresh perspective is needed to ensure active engagement, which entails, if not a full shift of power from authorities to citizens, at least transparency to mitigate the effects of unequal power relations.

This paper is not a comprehensive review of previous attempts to define participatory ideals. Instead, considering the persistence of unsatisfactory participation, in practice, we take a fresh look at some existing participatory ideals and propose a new framework to operationalize them. The novelty in our approach is two-fold. First, we focus on fair processes of participation (procedural justice) not its outcome

(substantive justice). There is extensive literature that focuses on the ideal outcomes of participation, these include social learning – a measure of knowledge acquired, understood, and disseminated during a participatory process (Ernst 2019). Though, as Ernst and others (including Pahl-Wostl *et al*. 2007; Reed *et al*. 2010) note, social learning also considers the processes (and context) that generate outcomes, and social learning may be related to participatory governance through intermediate outcomes such as trust, network building, and conflict resolution. In contrast to accounts that emphasize outcomes, we start from the claim that legitimate decision-making is dependent on procedures rather than outcomes (Ottinger 2013). To identify meaningful and useful participatory ideals for environmental planning and decision-making, we draw on insights from science and technology studies (STS), and political theories of procedural environmental justice and deliberative democracy, that focus on fair processes. We explain our selection of these theories in the next section.

The second distinctive feature of this study is the way we apply participatory ideals. This represents our key contribution. We propose a process of translating ideals into practice – a framework for undertaking participatory environmental decision-making. We explain how this framework emerged in the main body of this paper. In summary, we identified commitments and values that underpin achievable and effective participatory ideals from insights from science and technology studies (STS), and theories of procedural environmental justice and deliberative democracy. Next, we organized the identified commitments and values into four principles – inclusivity, process orientation, empowerment, and reflection – that are based on a participatory decision-making process. The principle of inclusivity groups together ideals associated with who is to be included; an issue that should be considered before decision-making starts. Process orientation and empowerment group together ideals associated with what occurs and how participants are treated during the decision-making process. Reflection groups together ideals associated with what happens after decision-making. We propose that thinking about principles in terms of particular temporal periods in the decision-making process is an analytically helpful way of organizing the diverse principles discussed in the literature. However, that does not mean the principles are only relevant at a specific time in the decision-making process. On the contrary, environmental decision-making is not a neat linear process, and the principles are, and should be, applied throughout. Finally, we translated the four principles into practical criteria for their implementation to develop a new framework for undertaking and assessing participation in environmental planning and decision-making.

2. Theoretical choices – how and why we draw on science and technology studies (STS), procedural environmental justice, and deliberative democracy

In this section, we explain and justify our use of STS, procedural environmental justice, and deliberative democracy to identify commitments and values of participatory environmental decision making.

Our focus on fair process and procedure is underpinned by an understanding of knowledge as being inherently incomplete and dynamic, informed by STS. From the perspective of STS, knowledge gaps are accepted and expected, knowledge develops with experience, and knowledge changes over time (Graham 2016). Accepting that knowledge is incomplete and changes, requires continuous decision-making processes, rather than a single decision outcome and "ongoing opportunities to consent" (Ottinger

2013, 251). Opportunities to contribute cannot be limited, because procedures that rely on limited information provision and limited opportunities to engage reduce the legitimacy of decision making.

We draw on procedural environmental justice because of its emphasis on fair processes as opposed to fair outcomes (Schmidt 2014) and because of the interdependent relationship between participation and just procedure. The environmental justice movement developed out of a widespread critique of top down, centralized procedures that disempower individuals (Schlosberg 1999, 558), where the absence of procedural justice adversely affects decision-making and contributes to political deadlock (Tomlinson 2015, 9), as is characteristic of contemporary environmental decision-making. As the movement has evolved, the concept of environmental justice expanded in response to demands for respect, recognition, and fairness in participation (Young 1990, 34; Honneth 1992, 190–191; Schlosberg 2007, 26), to comprise three interrelated and interdependent elements: equal distribution of environmental risks; fairness of procedures; and recognition for other participants, issues, and values, irrespective of position and identity. Procedural environmental justice is understood as institutional processes that determine access to information, participation, decision making and justice (Shrader-Frechette 2002, 28), representing a precondition (Walker 2012) of addressing distributive injustice as well as issues of oppression and justice as recognition (Young 1990). This conception again highlights that participation is embedded in the definition of procedural justice (Sovacool *et al*. 2016).

Finally, we draw on deliberative democracy literature. Deliberative democracy is based on procedural ideals, rather than achieving an ideal outcome, where decisions are made with, not for, people, cultivating a sense of ownership, rather than people living with imposed decisions (Smith 2003). As well as being theoretically compatible with participation, deliberative democracy can enhance participation (Elstub 2018), because it provides an understanding of the theory and operationalization of procedural values (Niemeyer and Dryzek 2007; Tomlinson 2015). It is argued that theories of deliberative democracy (rather than theories drawn from other models of democracy, such as aggregative forms of participatory democracy) represent the right way to assess fair and just procedure, dealing particularly well with weaknesses in institutional processes that are designed to facilitate critical scrutiny and cultivate engagement (Smith 2003, 65).

Table 1 summaries the values drawn from STS, procedural environmental justice, and deliberative democracy. These commitments and values have been selected based on their relevance to environmental planning and decision-making processes and achievability and serve as a useful way to illustrate the development of the proposed framework. The commitments and values have been interpreted and grouped into four principles of environmental decision-making – inclusivity, process-orientation, empowerment, and reflection, as shown in Table 1 and explained in the next section.

3. Principles for participatory environmental Decision-Making

This section explains the categorization of the commitments and values drawn from STS, procedural environmental justice, and deliberative democracy (summarised in Table 1) into four principles. As described in Section 1 and detailed in this section, this categorization emerged from thinking about the participatory process in terms of specific temporal periods of the decision-making process: pre, during, and post

Table 1. Commitments and values of STS, procedural environmental justice, and deliberative democracy and their relation to the four principles.

Contributions and insights		
Science and Technology Studies	Procedural Environmental Justice	Deliberative Democracy
PRINCIPLE: Inclusivity		
SUB-PRINCIPLE: Multiple and diverse perspectives and voices are heard / represented		
Lay knowledge is legitimate and essential Obligations for proactive pursuit of contributions	Actively seeks diverse voices Includes non-expert / public voices	Seeking and recognizing diverse voices Reaching out to alternative views, including traditionally excluded groups
SUB-PRINCIPLE: Fair access to information and opportunity to participate		
Access to information	Access to information Equal right, opportunity, and capacity to participate	The right, opportunity, and capacity to participate
SUB-PRINCIPLE: Regard for environmental values		
	Accounts for non-human (ecological) actors Appreciate environment's intrinsic value	Space and flexibility for 'Value Pluralism'
PRINCIPLE: PROCESS-ORIENTATION		
SUB-PRINCIPLE: Deliberation		
The decision is part of an ongoing, iterative process of deliberation and is open to change	Intrinsic value of procedure	Meta-consensus, via mutual understanding Just decision is part of ongoing process of deliberation, reflection, and action
SUB-PRINCIPLE: Transformation and change		
Knowledge is dynamic, allowing space to accept and expect change	Flexible / adaptive via grassroots / bottom-up structure	Transformative process and expectation for change Learning Deliberation transforms self-interest toward ethically defensible and 'common good' positions
PRINCIPLE: EMPOWERMENT		
SUB-PRINCIPLE: Open discussion		
Lay knowledge is sought (not just allowed)		Unconstrained dialogue defended against strategic action
SUB-PRINCIPLE: Trust and respect		
	Fair distribution of power Equal voice and partners at each stage Empowerment through diverse and creative methods of engagement Transparency Recognition and respect	Transparency Coercion /power relations managed, not excluded.

(*Continued*)

Table 1. (*Continued*).

Contributions and insights		
Science and Technology Studies	Procedural Environmental Justice	Deliberative Democracy
PRINCIPLE: REFLECTION		
SUB-PRINCIPLE: Reflective process		
Dynamic knowledge requires ongoing process of engagement and reflection	Equal opportunity for consideration	Reflective process enables change
SUB-PRINCIPLE: Self-awareness		
		Opportunities for participants to recognize the limitations of their own perspectives Engaging and learning from diverse and competing viewpoints

engagement. However, we stress that the application of the principles and the criteria that we derive from them are not limited to specific points in the participatory process and should be applied iteratively throughout. To aid understanding of the categorization, the detail of the four principles is honed by sub-principles that add an extra layer of organization to the proposed framework for implementing participatory ideals. The sub-principles emerged during the process of interpretation and integration, as explained below.

3.1. Inclusivity

The principle of inclusivity groups together values from STS, procedural environmental justice, and deliberative democracy that are associated with who is involved in, has access to, and is heard in environmental decision-making. These values are generally associated with, but not limited to, pre-engagement activities. Inclusivity is divided into three sub-principles: multiple and diverse perspectives and voices are heard; fair access to information and opportunity to participate; and regard for environmental values.

3.1.1. Multiple and diverse perspectives and voices are heard/represented

Recognizing the need to include and hear multiple and diverse perspectives and voices, beyond immediate stakeholders and experts, is a key requirement for improving environmental decision-making in STS, procedural environmental justice, and deliberative democracy literature. STS scholars build on the arguments for the legitimate and essential contribution of non-expert/lay knowledge in democratic decision-making. Fiorino (1990, 227–228) highlights the substantive, normative and instrumental value of lay knowledge. Substantively, Fiorino considers that lay knowledge is as sound, or more so, than the knowledge of experts, due to non-experts' sensitivity to social and political values and their capacity to account for uncertainty. Fiorino associates the normative value with the ethical presupposition that citizens are the best judge of their own interests. Finally, Fiorino identifies the instrumental value of effective lay

participation in risk decisions as making those decisions more legitimate. Rowe and Frewer (2000) agree, emphasizing the public's capacity for participating on technical issues, and considering the limitations of experts' perspectives. Therefore, STS prescribes that lay knowledge is legitimate and essential for participation in environmental decision-making, which is incorporated into this sub-principle.

The commitment to include lay knowledge, which is not dependent on a participant's qualifications (Wynne 2007) contrasts with other attempts to prescribe criteria for participatory environmental decision-making. For example, Steenbergen *et al*. (2003) discourse quality index (DQI) limits contributions according to their quality. Also, Webler's (1995) "competence" criteria assess contributions based on the quality of their discourse to determine their inclusion. It also contrasts with calls for selective stakeholder analysis (Reed 2008) that could lead to biased selection and would exclude some potential contributors.

Accepting STS's understanding of knowledge as dynamic and the value of lay and diverse sources of knowledge, participatory environmental decision-making must conduct a proactive pursuit of contributions (Ottinger 2013). As a precondition of recognition justice, procedural environmental justice also prescribes inclusion of multiple, diverse, and non-expert voices. For effective implementation of the commitments and values of procedural environmental justice, participation would not only allow, but actively seek, diverse voices, by facilitating creative communication methods and opportunities, incorporating novel methods such as narrative and even storytelling to empower disenfranchized groups in debate (Young 2000, 53).

Similarly, deliberative democracy provides a systematic framework and institutional context for the application of scientific and technological knowledge … . within which the barriers between "expert" and "lay" knowledge can be challenged (Smith 2003, 65). This commitment to inclusivity is defined by engagement that reaches out to alternative views, including the views expressed by traditionally excluded groups (Schlosberg, Shulman, and Zavestoski 2006).

3.1.2. Fair access to information and opportunity to participate

The sub-principle of fair access to information and opportunity to participate draws directly from the theories of STS, procedural environmental justice, and deliberative democracy. As set out above, STS literature assumes that knowledge changes, therefore the commitment to access to information drawn from STS literature is also incorporated into this sub-principle of fair access to information and opportunity to participate.

Theoretical ideals for participation are embedded in the development of the grassroots environmental justice movement that is rooted in social activism in the US and connected to issues of race, class, and gender (Jenkins 2018). As a grassroots movement the *right to participate as equal partners at every level of decision-making* is one of the environmental justice movement's founding principles (First National People of Color Environmental Leadership Summit 1996). Grassroots movement groups have formalized requirements for access to information, inclusivity, and community engagement to achieve environmental justice. The United States Environmental Protection Agency (USEPA) incorporates *meaningful involvement* into its definition of environmental justice, comprising: opportunity to participate; potential for public contributions to influence decision-making; a voice for community concern in decision making; and

the involvement of those potentially affected (USEPA [United States Environmental Protection Agency] 2020). The underlying principles of procedural justice reinforce the commitment to inclusivity. Specifically, the procedural environmental justice literature emphasizes access to knowledge and availability of information (Di Chiro 1997; Jenkins 2019; Shrader-Frechette 2002; Schlosberg 2007). Procedural environmental justice's commitments to providing the equal right, opportunity, and capacity to participate via access to information is incorporated into this sub-principle.

To ensure that all voices are heard, or are represented, in deliberative democracy the fundamental normative conditions for (environmental) deliberative procedures are: the right, opportunity, and capacity to participate (Smith 2003), which is incorporated directly into the sub-principle of fair access to information and opportunity to participate.

3.1.3. Regard for environmental values

The commitment to accounting for environmental values draws on procedural environmental justice and deliberative democracy. The environmental justice movement is characterized by a shift away from anthropocentric concepts associated with social justice to a wider appreciation of the environment's intrinsic value and a more ecocentric approach (Schlosberg 2013). The intrinsic value of nature (as defined in deliberative democracy) describes the *richness and diversity of the non-human world* that has a *value in and for itself*, which is *independent of any particular value placed on it by humans* (Smith 2003, 9). As well as requiring that the intrinsic value of the environment is appreciated, procedural environmental justice prescribes those non-human actors (non-human things that influence social and ecological systems [Bickerstaff and Agyeman 2009]) are accounted for.

Competing social and environmental values need to be managed during participation in environmental decision-making, while addressing complexity, uncertainty and risk that contribute to conflict between stakeholders and to protracted decision making. Deliberative democratic theory provides the space for "value pluralism" that gives voice and sensitivity to diverse environmental and social values and conditions (Smith 2003), as well as recognizing nature's agency (Dryzek 2007). The sub-principle of regard for environmental values is, therefore, based on procedural environmental justice's commitment to their inclusion and deliberative democracy's commitment to value pluralism to facilitate their inclusion.

3.2. Process-orientation

The principle of process-orientation groups together ideals from STS, procedural environmental justice and deliberative democracy that are associated with the process of decision-making, which is divided into sub-principles of deliberation, and transformation and change. Underpinned by the STS understanding of knowledge as dynamic (Ottinger 2013), deliberation describes an ongoing, iterative process that is open to change: transformation allows, expects, and encourages change. The composition of each of these sub-principles is described below, building on STS's understanding of knowledge as dynamic and drawing on procedural environmental justice and deliberative democracy.

3.2.1. Deliberation

Procedural environmental justice is defined by its intrinsic value, as well as its instrumental value (Schlosberg 1999). Walker (2012, 47) explains the intrinsic as well as the instrumental value of fair procedure: "procedural injustice does not serve only as an explanation or cause of injustice … .it is also a subject or element of justice … in its own right." Therefore (procedural) injustice will occur if the processes were unfair, even if they resulted in the desired outcome (the fair distribution of environmental risks and benefits) (Schlosberg 1999). The intrinsic value of procedure espoused by procedural environmental justice is incorporated into the deliberation sub-principle. Recognizing the intrinsic value of participation (as the democratic right to participate) from the perspective of the participant contrasts with previous attempts to define criteria for participatory environmental decision-making that build on Habermas' theory of communicative action. These previous attempts measure the quality of the discourse to enhance the instrumental value of the data extracted from participants (Webler 1995; Palerm 1999; Steenbergen *et al*. 2003).

Along with inclusivity, unconstrained dialogue, and sensitivity to environmental values, just decision-making is a fundamental commitment of deliberative democracy (Smith 2003). Deliberative democracy seeks workable agreement and mutual understanding that accepts competing values and different viewpoints (value pluralism) (Smith 2003). Deliberative process allows for broad agreement in the presence of alternative legitimate voices, so that the outcome itself is open to change (Niemeyer and Dryzek 2007, 500). This contrasts with complete consensus that limits critical dialogue and the voice of minorities and relies on a stable notion of knowledge.

Accepting that complete consensus is unfeasible for effective implementation (Bailey and Grossardt 2010), it is important that decisions are still taken; deliberation is distinct from dialogue in that decisions are made through a process of exchanging and understanding well-informed and justified individual positions (Raphael and Karpowitz 2013). However, the outcome becomes part of an ongoing process of deliberation and not an endpoint (Smith 2003, 73), reflecting the understanding of knowledge as dynamic, informed by STS and the commitments of procedural justice. Deliberative democracy's commitments to seeking meta consensus via mutual understanding and just decision-making, via an ongoing process of deliberation, reflection, and action, are incorporated into the sub-principle of deliberation.

3.2.2. Transformation and change

In deliberative democracy, engagement processes encourage transformation of self-interested positions and individual preferences and values into more ethically defensible positions that are oriented toward the "common good" (Smith 2003, 63; Niemeyer and Dryzek 2007). As explained above, an ongoing process of deliberation facilitates learning and change. Deliberative democracy's commitments to transformative process toward the common good via learning are incorporated into the sub-principle of transformation and change.

Accepting the dynamic nature of knowledge and the contested theoretical ideals of participation in environmental decision-making in the literature, the values and commitments of STS, deliberative democracy and procedural environmental justice are also subject to change. Normative and effective models of participation in environmental decision-making must therefore be flexible, to adapt to case- and time-specific

circumstances, in contrast to current (rigid) attempts to institutionalize models of participation (as described in Section 1.1). Procedural environmental justice provides a flexible and adaptive structure to implement transformative but fair process. As a bottom-up, grassroots movement, environmental justice can be conceptualized as a decentralized structure that is strong enough to confront issues while being flexible and diverse to respond to changes (Schlosberg 1999, 558). The environmental justice movement commits to retaining the flexibility of the grassroots movement that recognizes diverse views as it expands and is adopted by institutions (Young 1990; Gould 1996). This commitment to flexible and adaptive structure is incorporated into this sub-principle to enable transformation and change to occur.

3.3. Empowerment

The principle of empowerment groups together ideals from STS, procedural environmental justice and deliberative democracy that are associated with treatment of participants during decision-making. The principle of empowerment is divided into sub-principles of open discussion, and trust and respect. We describe the composition of each of these sub-principles below.

3.3.1. Open discussion

The commitment to include lay knowledge (from STS – see Section 3.1.1) is directly integrated into the sub-principle of open discussion. The treatment of participants (including those with lay knowledge) in the deliberative process draws on deliberative democracy. One of the fundamental normative conditions for (environmental) deliberative procedures is unconstrained dialogue that defends deliberation against strategic action (from powerful actors) (Smith 2003, 56). This commitment is defined by conditions that allow for engagement and reflection with different perspectives and transparency to enable participants to learn from competing viewpoints, transform their prior beliefs and cultivate mutual understanding (Smith 2003; Niemeyer and Dryzek 2007). This contrasts with strategic engagement that maximizes self-interest, for example, by deliberately retaining information to gain advantage over other participants. The commitment to unconstrained dialogue that defends deliberation against strategic action is incorporated into this sub-principle of open discussion.

3.3.2. Trust and respect

There is broad agreement in the procedural environmental justice literature that the underlying principles of procedural justice are inclusivity, fair distribution of power, and transparency. The literature emphasizes an equal voice, an equal right to participation, an equal opportunity for consideration, and an ability to participate as equal partners in environmental decision-making, at each stage of the process (Gould 1996, 181; Honneth 1992, 190–191; Shrader-Frechette 2002, 28–29). However, these commitments can present problems for effective implementation: for example, how to ensure equal power between participants who are unequally affected and resourced. This challenge raises concerns about the way power is exercised, which is compounded by the need to account for non-human (ecological) actors. Procedural environmental justice's commitments to fair distribution of

power, equal voice at each stage, recognition of other participants, and transparency have been incorporated into the sub-principle of trust and respect.

While differences in views should not be suppressed in favor of consensus (Escobar 2019), it is vital to avoid endless deliberation without action. As discussed above under the sub-principle of deliberation, decisions are made through a process of exchanging and understanding well-informed and justified individual positions (Raphael and Karpowitz 2013). To achieve this, Mansbridge (1996) reminds us that coercion can be managed to motivate collective deliberation to action. Therefore, a commitment to fair conditions to manage power, rather than setting unobtainable and undesirable conditions to exclude it, is incorporated in the sub-principle of trust and respect.

3.4. Reflection

The principle of reflection groups together ideals from STS, procedural environmental justice and deliberative democracy that are associated with how participants can and should engage with their own previous contributions. These ideals are generally associated with, but not limited to, post-engagement activities. Building on the principle of process-orientation and commitment to an ongoing process of decision-making, the principle of reflection is divided into sub-principles of reflective process and self-awareness. We describe the composition of each of these sub-principles below.

3.4.1. Reflective process

Accepting STS's understanding of knowledge as dynamic, participation in environmental decision-making cannot be limited to passive opportunities for engagement. Participatory environmental decision-making must therefore consist of ongoing iterative processes of engagement and reflection (Ottinger 2013). This commitment is supported by deliberative democracy's commitment to change via reflection, where participants reexamine their own and other people's views as part of deliberation (Roberts and Escobar 2015). To ensure fairness in the deliberative process, we draw on procedural environmental justice's commitment to enabling participants to have equal opportunity to contribute, which continues throughout the process of engagement and reflection. Reflective process, therefore, incorporates an ongoing process of reflection to facilitate change (informed by STS and deliberative democracy), which provides participants with equal opportunities to contribute throughout.

3.4.2. Self-awareness

In deliberative democracy, reflective and transformative process is dependent on participants recognizing the limitations of their own perspectives while encouraging mutual understanding of different views, via an engagement process that cultivates reflection. Commitments to providing opportunities for participants to recognize the limitations of their own perspectives, and engage and learn from alternative perspectives, are incorporated into the sub-principle of self-awareness.

In this section, we have taken a fresh look at participatory ideals using insights drawn from STS, procedural environmental justice, and deliberative democracy.

To aid their implementation, we have explained how these ideals have been categorized into four principles and sub-principles. In the next section, we discuss how these principles and sub-principles should be translated to facilitate effective implementation.

4. Translation of theory into practice: Interpretation of the four principles

In this section, the four principles of inclusivity, process orientation, empowerment and reflection, and their sub-principles are translated into practical criteria.

4.1. Inclusivity

The commitment to inclusivity in participatory environmental decision-making involves ensuring that: multiple and diverse perspectives and voices are heard/represented; there is fair access to information and opportunity to participate; and there is regard for environmental values. The theoretical ideals associated with adhering to the commitment to inclusivity are identified in Table 2, but in practice, it is difficult to strike a balance between ensuring voices are included and that they are heard. Inadequate inclusion excludes relevant voices, while "over-inclusion" drowns out individual voices, including those from disadvantaged and minority communities.

Implementing the principle of inclusivity needs to accept the practical implications of unlimited inclusion. For example, drawing on STS literature, Biegelbauer and Hansen's (2011) participatory criteria prescribe that all legitimate interests have a voice. However, trying to include everyone affected is impractical (Gould 1996). Implementing this ideal would be hampered by a lack of clarification on what counts as all legitimate voices and may result in procedural deadlock (Tomlinson 2015), where the process gets bogged down in accounting for all legitimate voices. The practical criteria in Table 2 go some way to striking a balance, shifting away from prescribing that all those affected are included toward diversity and proactive practices that seek, as opposed to passively allow, participation, as prescribed by STS. The practical criteria focus on the tools of engagement, their design and how they can be used to demonstrate effort to meet the criteria.

4.1.1. Multiple and diverse perspectives and voices are heard/represented

To implement the sub-principle of ensuring that "multiple and diverse perspectives and voices are heard/represented", the practical criteria in Table 2 prescribe that the design of engagement processes enables diverse interactions and should include processes that proactively engage and seek diverse and alternative voices, minority groups and non-experts. The intention is to demonstrate the inclusion of lay knowledge, diverse voices, and non-expert/public voices in the design and implementation of environmental decision-making. While acknowledging that the ideal of including all lay knowledge, non-experts and minorities is unachievable, the practical criteria emphasises that voices beyond those immediately affected and experts are sought.

The practical criteria for ensuring that "multiple and diverse perspectives and voices are heard/represented" prescribe that demonstrable effort should be made to reach out to minority communities that often "lack effective organizations to represent them". To reach out to alternative views, including traditionally excluded groups, the

Table 2. Inclusivity: theoretical ideals and practical criteria.

Theoretical Ideals	Practical Criteria
PRINCIPLE: Inclusivity	
SUB-PRINCIPLE: Multiple and diverse perspectives and voices are heard / represented	
Lay knowledge is legitimate and essential	Demonstrate proactive engagement, targeting diverse range of voices and minority groups.
Actively seeking and recognizing diverse voices	Demonstrate effort to seek alternative voices beyond those immediately affected and experts.
Includes non-expert / public voices	Experts and non-experts are included.
Reaching out to alternative views, including traditionally excluded groups	Diverse engagement and communication tools used (e.g. visual representations). Efforts made to acknowledge and address consultation fatigue to engage stakeholders and enhance participation.
SUB-PRINCIPLE: Fair access to information and opportunity to participate	
Equal right, opportunity, and capacity to participate	Participation is open; individuals or groups can initiate participation without invitation. Consultation is open for sustained and regular periods and is publicized in advance to optimize awareness of the opportunities to participate.
Access to information	Demonstrate what additional information and resources for access is provided to disadvantaged and under-represented groups.
SUB-PRINCIPLE: Regard for environmental values	
Give voice to non-human (ecological) actors	Identify potential environmental impacts (e.g. use existing EIA framework).
Appreciation of the environment's intrinsic value	Demonstrate that environmental values are represented, e.g. use groups representing conservation interests such as the RSPB.
Space and flexibility for value pluralism	Provide opportunities for diverse viewpoints to hear and reflect on alternative perspectives.

practical criteria require that diverse engagement and communication tools be used (e.g. visual representations) and that efforts be made to acknowledge and address consultation fatigue. This resonates with Young's plea for the inclusion of alternative forms of communication, such as storytelling, in response to discussion-based deliberation that is *culturally biased* (1996, 120). Drawing on developments in deliberative practice (see Involve 2005), the role of creative methods is recognized to account for and respect diverse backgrounds, cultures, and educational achievements, as well as to address consultation fatigue associated with the typical and ordinary.

4.1.2. Fair access to information and opportunity to participate

The sub-principle of ensuring "fair access to information and opportunity to participate" demands an equal right, opportunity, and capacity to participate; and that access to information should be provided.

To implement the theoretical ideals associated with the sub-principle of fair access to information and opportunity to participate, the practical criteria emphasize openness to promote equal opportunities for participation while recognizing the inherent difference between contributors. To implement the equal right, opportunity, and capacity to participate, the practical criteria prescribe that decision-making processes be open so that individuals or groups can initiate participation without invitation. A mechanism for self-selection works in conjunction with the proactive engagement described above, to optimize the opportunities to participation.

The practical criteria operationalize the ideal of "access to information" by prescribing that consultation periods be open for sustained and regular periods and be publicized in advance to optimize opportunities for participation. This draws on Hunold and Young's (1998) proposal that consultation over time, as opposed to sporadic consultations, is required to maximize social knowledge. Recognizing that insufficient time and knowledge reduces the capability of citizens to engage in meaningful debate with experts and authorities, thereby reducing public participation and legitimate critique, the practical criteria also require provision of additional information and resources to compensate disadvantaged and under-represented groups. This reflects Hunold and Young's (1998) concern for equal resources and access to information to address gross power disparities between experts and citizens. It also reflects Fraser's "objective condition" required for participation that prescribes "distribution of material resources … to ensure participants' independence and voice" via systems that facilitate "means and opportunities" for participation (Fraser 2001, 29). The practical criteria emphasize providing the opportunities for participation, rather than coercion, to recognize the right *not* to participate.

4.1.3. Regard for environmental values

The sub-principle of having "regard for environmental values" necessitates the provision of a voice for non-human (ecological) actors; appreciating the environment's intrinsic value; and the space and flexibility for value pluralism.

The practical criteria for implementing this sub-principle aim to enable decision-makers to demonstrate that environmental values are recognized and accounted for. It is acknowledged that there may be case-specific opportunities for recognition of environmental values which may be more appropriate and should therefore be considered. To operationalize the ideals of giving a voice to non-human actors and appreciation of the environment's intrinsic values, the practical criteria require that decision-making processes should demonstrate that environmental impacts and values are considered and represented. This draws on Palerm's (1999, 234) principles which lay down that those actors without a voice are "given an opportunity to participate, either directly or through actors representing their interests", for example, by those who enunciate environmental values. The specific requirement to consider environmental values addresses weaknesses in Habermas-inspired criteria that are often criticized for underplaying intrinsic environmental values (Smith 2003, 69) and dismissing nature as passive and inert (Dryzek 2007).

It is acknowledged that existing regulatory frameworks, such as Environmental Impact Assessment (EIA), already include groups representing conservation interests such as the Royal Society for the Protection of Birds (RSPB). To enhance this existing approach and provide the space and flexibility for value pluralism, the practical criteria

emphasize that, as well as including diverse viewpoints, mechanisms for participants to hear and reflect on alternative perspectives are provided. This resonates with Fraser's (2001) conditions for participation that recognize the diversity of voices and interests, which need to be served by diverse systems. Crucially, the focus shifts from equality toward an approach that accepts inherent diversity and inevitable conflict between values, characteristic of value pluralism.

4.2. Process orientation

As discussed in the introduction, participatory ideals often focus on what the outcome (the decision) is, rather than how it was achieved. For example, Hunold and Young (1998) proposed that environmental decisions should be fair, respecting the participants' contributions. We propose that to address the shortcomings of environmental decision-making in practice, a change in mindset is required that focuses on achieving a sense of fairness in process. The practical criteria, set out in Table 3 and described below, translate ideals for fair process into mechanisms that encourage fair process, rather than unachievable standards associated with the outcome.

Table 3. Process-orientation: theoretical ideals and practical criteria.

Theoretical Ideals	Practical Criteria
PRINCIPLE: Process orientation	
SUB-PRINCIPLE: Deliberation	
The decision is part of an ongoing process of deliberation and is open to change.	Consultation and engagement processes facilitate regular decisions and action points that represent milestones, as opposed to an endpoint. Provide consistent mechanisms for engagement beyond decision and action points.
Intrinsic value of procedure Just decision is part of ongoing process of deliberation, reflection, and action	Provide opportunities for participants to deliberate and reflect on their own and alternative contributions.
Deliberation Meta-consensus, via mutual understanding	Decisions represent broad agreements (rather than complete consensus), which participants are encouraged to query and debate.
SUB-PRINCIPLE: Transformation and change	
Knowledge is dynamic, allowing space to accept and expect change	A range of engagement activities are provided to provide space for participants to consider alternative perspectives and reflect on prior beliefs.
Flexible / adaptive via grassroots / bottom-up structure	Opportunities and mechanisms for feedback and reflection are provided and promoted.
Transformative process and expectation for change Learning Self-interest is transformed toward ethically defensible and 'common good' positions	Provide systems to communicate information and knowledge as it changes, before, during and after decision and action points.

4.2.1. Deliberation

The sub-principle of deliberation demands that decisions be part of an ongoing process of deliberation that opens the decisions up to change. Ideally, the intrinsic value of procedure should be recognized so that just decision-making is part of the ongoing process of deliberation, reflection, and action. To aid this procedure, the practical criteria require that decision-making processes be designed to facilitate regular decisions and action points that represent milestones, as opposed to an endpoint. Provision should be made for consistent mechanisms for deliberation and reflection beyond the decision and action points. These practical criteria reflect Biegelbauer and Hansen's (2011) commitment to open-ended decision-making processes and obligation for debate and interrogation.

The sub-principle of deliberation also prescribes that, ideally, participants should reach mutual understanding. This ideal is interpreted in the context of value pluralism and expectation for change, where the practical criteria encourage query and debate so that broad agreements can be found via an iterative process. The idea is that an ongoing iterative design enables opportunities for reflection and change to defuse the level of expectation and sense of finality associated with a single endpoint.

4.2.2. Transformation and change

The sub-principle of "transformation and change" indicates that environmental decision making should recognize that knowledge is dynamic, allowing space to accept and expect change. To implement a process that recognizes that knowledge is dynamic, the practical criteria suggest that a range of engagement activities should be provided to give participants the space to consider alternative perspectives and reflect on prior beliefs.

Ideally, environmental decision making should be flexible and adaptive via a grass-roots/bottom-up structure. To implement this aspect of the sub-principle of transformation and change, the practical criteria suggest that activities are provided that enable participants and decision makers to reflect and provide feedback. Emphasizing a flexible and adaptive process addresses potential shortcomings of conventional top-down decision-making.

The sub-principle of transformation and change sees environmental decision-making as a transformative process that expects knowledge to change. To implement this transformative process, the practical criteria recommend that expectation for change is established from the start via systems that facilitate knowledge and information to be built up and communicated between stakeholders. Adhering to the criteria for transformation and change, which applies to both participants and decision makers, should be achieved via co-production of knowledge, as opposed to knowledge extraction that is typical of contemporary consultation practices.

Ideally, participatory environmental decision-making facilitates learning to encourage transformation of self-interest positions toward ethically defensible and "common good" positions. To implement this, the practical criteria suggest that systems be provided to communicate information and knowledge as it changes, before, during and after decision and action points. The aim is to encourage participants to increase their awareness and appreciation of alternative perspectives so that through learning, they move away from self-interest positions.

Table 4. Empowerment: theoretical ideals and practical criteria.

Theoretical Ideals	Practical Criteria
PRINCIPLE: Empowerment	
SUB-PRINCIPLE: Open discussion	
Lay knowledge is sought (not just allowed)	Provide mechanisms that enable and promote participation from project conception.
Unconstrained dialogue is defended against strategic action	Provide mechanisms that enable and encourage non-expert and expert participants to frame issues / problems and contribute ideas early in process. Enable unlimited contributions.
SUB-PRINCIPLE: Trust and Respect	
Coercion /power relations managed, not excluded.	State at commencement and reiterate throughout that all contributions are valued and will be included.
Fair distribution of power	Time and resources provided to allow participants to get to know each other, preferably before providing contributions.
Equal voice and partners at each stage.	Communicate the purpose of the project and set out realistic goals to manage the expectations of the participants. State and reiterate that the process relies on mutual respect and trust between participants and with the facilitator. Provide a mechanism for issues associated with respect and trust to be heard.
Empowerment through diverse and creative methods of engagement.	Diverse and creative methods of engagement used to encourage participants to contribute.
Transparency	The preferred outcome of the facilitator is set out transparently and does not limit inclusion of contributions. Demonstrate the mechanisms for participants to understand the impact and place of their contribution.

4.3. Empowerment

The commitment to empowerment in participatory environmental decision-making depends on open discussion and cultivating trust and respect. Openness, trust, and respect between participants does not spontaneously materialize, but it can be encouraged. As set out in Table 4, to implement the principle of empowerment the practical criteria focus on providing the space for a variety of engagement tools to be used with the aim of encouraging openness, trust, and respect.

4.3.1. Open discussion

Ideally, participatory environmental decision-making should ensure that lay knowledge is sought, not just allowed. To implement this aspect of the sub-principle of open discussion, the practical criteria suggests that the inclusion of lay knowledge can be achieved in practice by ensuring that mechanisms are provided that enable and promote participation from project conception.

The sub-principle of open discussion lays down that participatory environmental decision-making comprises unconstrained dialogue that is defended against strategic action. To implement this, the practical criteria suggest that mechanisms should be put in place that enable unlimited contributions from both non-experts and experts, which encourage them to frame issues and to contribute ideas early in the process. These practical criteria draw on Biegelbauer and Hansen's (2011) participation criteria that require that issues are framed by participants, and Steenbergen *et al.*'s (2003) DQI that requires that participants have the freedom to speak without interruption.

4.3.2. Trust and respect

The sub-principle of trust and respect requires that power relations should be managed not excluded and there should be a fair distribution of power during decision-making processes. To implement this, the practical criteria suggest that a statement be made that all contributions should be valued and will be included, at commencement of the process and reiterated throughout. Moreover, time and resources should be made available for participants to get to know each other and consider the issues and conflicts before expressing their opinions and then reflecting on them (Röckmann *et al.* 2012).

Ideally, participants should have an equal voice in decision-making processes and be partners at each stage. To implement this, the practical criteria suggest that the purpose of the project and realistic goals be communicated to the participants to manage their expectations. The practical criteria also suggest that a statement be given and reiterated explaining that decision-making relies on mutual respect and trust between participants and with the facilitator, and that mechanisms are provided that enable issues associated with respect and trust to be heard.

Ideally, participatory environmental decision-making should provide diverse and creative methods of engagement. The practical criteria suggest that diverse and creative methods of engagement should be designed and used with the intention of encouraging participants to contribute. This aims to improve on other participatory ideals that neglect the opportunity for diversity and creativity in engagement methods to empower minority, disadvantaged, and disenfranchized groups (e.g. Palerm 1999).

The sub-principle for trust and respect prescribes that decision-making processes should be transparent. To implement transparency, the practical criteria suggest that the preferred outcome of the facilitator be set out to the participants at the outset, and that the inclusion of contributions is unlimited. The practical criteria also suggest that environmental decision-making be designed to demonstrate ways for participants to understand the impact and place of their contributions.

Effective implementation of the sub-principle of trust and respect relies on mechanisms and systems to be established and maintained to facilitate reliable and trustworthy communication. The engagement process should, therefore, be characterized by early and sustained cycles of engagement, with regular action points to demonstrate progress and learning.

4.4. Reflection

Reflection is a key requirement for accepting the dynamic nature of knowledge so that decision makers and contributors can consider knowledge as it changes and is built up

Table 5. Reflection: theoretical ideals and practical criteria.

Theoretical Ideals	Practical Criteria
PRINCIPLE: Reflection	
SUB-PRINCIPLE: Reflective process	
Dynamic knowledge requires ongoing process of engagement and reflection	Design engagement process to include decision and action milestones that are discussed before during and after implementation to facilitate reflection and learning.
Reflective process enables change	Provide systems for participants to reflect on their previous contributions to facilitate ongoing process of dialogue, consideration of views, negotiation, and compromise.
Equal opportunity for consideration of contributions	Provide systems to enable participants to offer contributions outside formal engagement activities and make suggestions for alternative / additional activities.
SUB-PRINCIPLE: Self-awareness	
Opportunities for participants to recognize the limitations of their own perspectives	Provide systems that enable contributions to be shared between participants.
Engaging and learning from diverse and competing viewpoints	Establish and agree places and systems to communicate results and findings to enable and encourage feedback.

from alternative views, experience, and new data. The practical criteria for implementing the sub-principles of reflective process and self-awareness are set out in Table 5 and described below.

4.4.1. Reflective process

The sub-principle of reflective process is based on an understanding of knowledge as dynamic and states that environmental decision-making comprises of an ongoing process of engagement and reflection. To implement this, the practical criteria suggest that engagement processes should be designed to include decision and action milestones that are discussed before during and after implementation to facilitate reflection and learning.

Ideally, reflective process should facilitate change. To implement this, the practical criteria suggest that systems be provided for participants to reflect on their previous contributions to ensure an ongoing process of dialogue, consideration of views, negotiation, and compromise. There should also be equal opportunities for consideration of participants' contributions. The practical criteria suggest that systems be provided that enable participants to offer contributions outside formal engagement activities and make suggestions for alternative/additional activities.

4.4.2. Self-awareness

To implement the principle of self-awareness, participants should be given opportunities to share and consider their own and alternative views, so that they recognize the limitations of their own perspectives and engage and learn from diverse and competing

viewpoints. To implement opportunities for participants to recognize the limitations of their own perspectives, the practical criteria suggest that systems be provided that enable contributions to be shared between participants. Finally, to ensure that participants engage and learn from diverse and competing viewpoints, the practical criteria suggest that places and systems to communicate results and findings be established and agreed, to enable and encourage feedback.

In this section, we have translated the four principles of participatory environmental decision-making into practical criteria. A new framework (practical criteria arranged according to the four principles) has been presented to facilitate the implementation of theoretical ideals. This framework could be used to measure and guide environmental planning decision-making in practice.

5. Conclusion

This paper addresses the paradox of participation: ideally and theoretically, the intrinsic democratic right to participate improves decision-making; however, in practice it is complicated, often ineffective and can be counter-productive. A new framework for implementing participatory ideals is proposed. The framework comprises the synthesis and organization of existing participatory ideals into principles and sub-principles, which were then translated into practical criteria.

Other normative models in theory paint the ideal world scenario, ineffectively implemented by tick-box models of unrealistic/inappropriate criteria. In contrast, the proposed practical criteria are orientated toward implementation that works within the constraints and purpose of the context of participatory environmental planning and decision-making. The intention is that the practical criteria encourage the provision of flexible systems that allow for, and adapt to, contributions and revisions within and outside formal engagement activities. Multiple points of engagement are required to enable participants to review and update their previously-held views as knowledge changes. The practical criteria do not, however, dictate how participants interact and how views are shared. It is recognized that it is sometimes practically impossible or counter-productive for participants to meet face-to-face, and that views could be shared in other ways. The emphasis is on the provision of transparent communication of accrued knowledge and actions to enable participants to reflect on their own and each other's contributions.

The translation of ideals into practical criteria represents an original contribution that links appropriate theoretical ideals to practice via guidelines for implementation. For practitioners, the key point is that the way standards are implemented has a more significant effect on the quality of participation than what the standards are (newDemocracy Foundation 2018; Niemeyer 2013). For theorists, the addition of the translation stage means that fulfilling the criteria becomes process-orientated, where compliance is defined by design, intention, and implementation of the process, as opposed to focusing on obtaining a theoretical ideal standard or end-point such as a planning decision.

The practical criteria proposed are designed to be flexible to be broadly applicable to a wide range of participatory decisions. Where fair and just participation is sought and the commitments to inclusivity, process orientation, empowerment and reflection are appropriate, the underlying detail could be tailored for case-specific applications.

We have proposed a novel normative account of practical criteria to guide – and to evaluate – environmental decision-making processes. The normative content of our proposal might be contested through normative debate but it is, we think, even more important for the practical usefulness of the criteria that we propose to be tested through empirical research that uses the practical criteria to design, implement and evaluate actual environmental decision-making processes. The key point from the paper is that research should be focused on translating theoretical ideals into practical criteria that can be implemented (rather than debating theoretical ideals).

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References

Aitken, M., C. Haggett, and D. Rudolph. 2016. "Practices and Rationales of Community Engagement with Wind Farms: Awareness Raising, Consultation, Empowerment." *Planning Theory & Practice* 17 (4): 557–576. doi:10.1080/14649357.2016.1218919.

Armeni, C. 2016. "Participation in Environmental Decision-Making: Reflecting on Planning and Community Benefits for Major Wind Farms." *Journal of Environmental Law* 28 (3): 415–441. doi:10.1093/jel/eqw021.

Arnstein, S. R. 1969. "A Ladder of Citizen Participation." *Journal of the American Institute of Planners* 35 (4): 216–224. doi:10.1080/01944366908977225.

Bailey, K., and T. Grossardt. 2010. "Toward Structured Public Involvement: Justice, Geography and Collaborative Geospatial/Geovisual Decision Support Systems." *Annals of the Association of American Geographers* 100 (1): 57–86. doi:10.1080/00045600903364259.

Bell, D., T. Gray, and C. Haggett. 2005. "The 'Social Gap' in Wind Farm Siting Decisions: Explanations and Policy Responses." *Environmental Politics* 14 (4): 460–477.

Bickerstaff, K., and J. Agyeman. 2009. "Assembling Justice Spaces: The Scalar Politics of Environmental Justice in North-East England." *Antipode* 41 (4): 781–806. doi:10.1111/j.1467-8330.2009.00697.x.

Biegelbauer, P., and J. Hansen. 2011. "Democratic Theory and Citizen Participation: Democracy Models in the Evaluation of Public Participation in Science and Technology." *Science and Public Policy* 38 (8): 589–597. doi:10.3152/030234211X13092649606404.

Brooker, E. E., C. R. Hopkins, E. Devenport, L. Greenhill, and C. Duncan. 2019. "Civil Society Participation in the Scottish Marine Planning Process and the Role of Environmental Non-Governmental Organisations." *Journal of Environmental Planning and Management* 62 (12): 2101–2123. doi:10.1080/09640568.2018.1532876.

Carson, L. 2009. "Deliberative Public Participation and Hexachlorobenzene Stockpiles." *Journal of Environmental Management* 90 (4): 1636–1643. doi:10.1016/j.jenvman.2008.05.019.

Cashmore, M., D. Rudolph, S. V. Larsen, and H. Nielsen. 2019. "International Experiences with Opposition to Wind Energy Siting Decisions: Lessons for Environmental and Social Appraisal." *Journal of Environmental Planning and Management* 62 (7): 1109–1132. doi:10.1080/09640568.2018.1473150.

Di Chiro, G. 1997. "Local Actions, Global Visions: Remaking Environmental." *Frontiers: A Journal of Women Studies* 18 (2): 203–231. doi:10.2307/3346975.

Dorfman, P., ed. 2008. "Nuclear Consultation: Public Trust in Government." *Nuclear Consultation Working Group*. http://image.guardian.co.uk/sys-files/Guardian/documents/2008/01/04/NUCLEAR_REPORT_COMPLETE.pdf.

Dryzek, J. S. 2007. "Political and Ecological Communication." *Environmental Politics* 4 (4): 13–30. doi:10.1080/09644019508414226.
Elstub, S. 2018. "Deliberative and Participatory Democracy." In *The Oxford Handbook of Deliberative Democracy*, edited by A. Bächtiger, J. S. Dryzek, J. Mansbridge, and M. Warren, 186–202. Oxford: Oxford University Press.
Ernst, A. 2019. "Review of Factors Influencing Social Learning within Participatory Environmental Governance." *Ecology and Society* 24 (1): 3. doi:10.5751/ES-10599-240103.
Escobar, O. 2019. "Facilitators: The Micropolitics of Public Participation and Deliberation." In *Handbook of Democratic Innovation and Governance*, edited by S. Elstub and O. Escobar, 178–195. Cheltenham: Edward Elgar Publishing Limited.
Fiorino, J. 1990. "Citizen Participation and Environmental Risk: A Survey of Institutional Mechanisms." *Science, Technology, & Human Values* 15 (2): 226–243. https://www.jstor.org/stable/689860. doi:10.1177/016224399001500204.
First National People of Color Environmental Leadership Summit. 1996. "Principles of Environmental Justice." http://www.ejnet.org/ej/principles.html.
Flannery, W., N. Healy, and M. Luna. 2018. "Exclusion and Non-Participation in Marine Spatial Planning." *Marine Policy* 88: 32–40. doi:10.1016/j.marpol.2017.11.001.
Fraser, N. 2001. "Recognition without Ethics?" *Theory, Culture & Society* 18 (2–3): 21–42. doi:10.4135/9781446216897.n2.
Gould, C. C. 1996. "Diversity and Democracy: Representing Differences." In *Democracy and Difference: Contesting the Boundaries of the Political*, edited by S. Benhabib, 171–186. Princeton, NJ: Princeton University Press.
Graham, H. 2016. "The 'Co' in Co-Production: Museums, Community Participation and Science and Technology Studies." *Science Museum Group Journal* 5 (5): 1–21. doi:10.15180/160502.
Haggett, C. 2008. "Over the Sea and Far Away? A Consideration of the Planning, Politics and Public Perception of Offshore Wind Farms." *Journal of Environmental Policy & Planning* 10 (3): 289–306. doi:10.1080/15239080802242787.
Hindmarsh, R. and C. Matthews. 2008. "Deliberative Speak at the Turbine Face: Community Engagement, Wind Farms, and Renewable Energy Transitions, in Australia." *Journal of Environmental Policy & Planning* 10 (3): 217–232.
Honneth, A. 1992. "Integrity and Disrespect: Principles of a Conception of Morality Based on the Theory of Recognition." *Political Theory* 20 (2): 187–201. http://www.jstor.org/stable/192001. doi:10.1177/0090591792020002001.
Hunold, C., and I. M. Young. 1998. "Justice, Democracy, and Hazardous Siting." *Political Studies* 46 (1): 82–95. doi:10.1111/1467-9248.00131.
Involve. 2005. *People & Participation: How to Put People at the Heart of Decision-Making*. London: Involve. https://joinup.ec.europa.eu/sites/default/files/document/2014-12/media1928.pdf.
Jenkins, K. 2018. "Setting Energy Justice apart from the Crowd: Lessons from Environmental and Climate Justice." *Energy Research & Social Science* 39 (November 2017): 117–121. doi:10.1016/j.erss.2017.11.015.
Jenkins, Kirsten E H. 2019. "Energy Justice, Energy Democracy, and Sustainability: Normative Approaches to the Consumer Ownership of Renewables." In *Energy Transition: Financing Consumer Co-Ownership in Renewables*, edited by J. Lowitzsch, 79–97. Cham: Springer International Publishing.
Lauber, T B., and B. A. Knuth. 1999. "Measuring Fairness in Citizen Participation: A Case Study of Moose Management." *Society & Natural Resources* 12 (1): 19–37. doi:10.1080/089419299279867.
Mansbridge, J. 1996. "Using Power/Fighting Power: The Polity." In *Democracy and Difference: Contesting the Boundaries of the Political*, edited by S. Benhabib, 46–66. Princeton, NJ: Princeton University Press.
newDemocracy Foundation. 2018. *Enabling National Initiatives to Take Democracy beyond Elections*. Australia: NewDemocracy Foundation. https://www.newdemocracy.com.au/wp-content/uploads/2018/10/New-Democracy-Handbook-FINAL-LAYOUT-reduced.pdf.
Niemeyer, S. 2013. "Democracy and Climate Change: What Can Deliberative Democracy Contribute?" *Australian Journal of Politics & History* 59 (3): 429–448. doi:10.1111/ajph.12025.

Niemeyer, S., and J. S. Dryzek. 2007. "The Ends of Deliberation: Meta-Consensus and Inter-Subjective Rationality as Ideal Outcomes." *Swiss Political Science Review* 13 (4): 497–526. doi:10.1002/j.1662-6370.2007.tb00087.x.

Ottinger, G. 2013. "Changing Knowledge, Local Knowledge, and Knowledge Gaps: STS Insights into Procedural Justice." *Science Technology & Human Values* 38 (2): 250–270. doi:10.1177/0162243912469669.

Pahl-Wostl, C., M. Craps, A. Dewulf, E. Mostert, D. Tabara, and T. Taillieu. 2007. "Social Learning and Water Resources Management." *Ecology and Society* 12 (2): 5. doi:10.5751/ES-02037-120205.

Palerm, J. R. 1999. "Public Participation in Environmental Decision Making: Examining the Aarhus Convention." *Journal of Environmental Assessment Policy and Management* 01 (02): 229–244. doi:10.1142/S146433329900017X.

Pieraccini, M. 2015. "Rethinking Participation in Environmental Decision-Making: Epistemologies of Marine Conservation in South-East England." *Journal of Environmental Law* 27 (1): 45–67. doi:10.1093/jel/equ035.

Pretty, J. N. 1995. "Participatory Learning for Sustainable Agriculture." *World Development* 23 (8): 1247–1263. doi:10.1016/0305-750X(95)00046-F.

Raphael, C., and C. F. Karpowitz. 2013. "Good Publicity: The Legitimacy of Public Communication of Deliberation." *Political Communication* 30 (1): 17–41. doi:10.1080/10584609.2012.737412.

Reed, M. 2008. "Stakeholder Participation for Environmental Management: A Literature Review." *Biological Conservation* 141 (10): 2417–2431. doi:10.1016/j.biocon.2008.07.014.

Reed, M. S., A. C. Evely, G. Cundill, I. Fazey, J. Glass, A. Laing, J. Newig., *et al.* 2010. "What is Social Learning?" *Ecology and Society* 15 (4): 1. doi:10.5751/ES-03564-1504r01.

Roberts, J., and O. Escobar. 2015. "Involving Communities in Deliberation: A Study of 3 Citizens' Juries on Onshore Wind Farms in Scotland, Edinburgh." *ClimateXChange*. http://www.climatexchange.org.uk/files/5614/3213/1663/Citizens_Juries_-_Full_Report.pdf.

Röckmann, C., C. Ulrich, M. Dreyer, E. Bell, E. Borodzicz, P. Haapasaari, K. H. Hauge., *et al*. 2012. "The Added Value of Participatory Modelling in Fisheries Management: What Has Been Learnt?" *Marine Policy* 36 (5): 1072–1085. doi:10.1016/j.marpol.2012.02.027.

Rowe, G., and L. J. Frewer. 2000. "Public Participation Methods: A Framework for Evaluation." *Science, Technology, & Human Values* 25 (1): 3–29. https://www.jstor.org/stable/690198. doi:10.1177/016224390002500101.

Rydin, Y., M. Lee, and S. J. Lock. 2015. "Public Engagement in Decision-Making on Major Wind Energy Projects." *Journal of Environmental Law* 27 (1): 139–150.

Schlosberg, D. 1999. "Networks and Mobile Arrangements: Organisational Innovation in the US Environmental Justice Movement." *Environmental Politics* 8 (1): 122–148. doi:10.1080/09644019908414441.

Schlosberg, D. 1999. *Environmental Justice and the New Pluralism: The Challenge of Difference for Environmentalism*. Oxford: Oxford University Press.

Schlosberg, D. 2013. "Theorising Environmental Justice: The Expanding Sphere of a Discourse." *Environmental Politics* 22 (1): 37–55. doi:10.1080/09644016.2013.755387.

Schlosberg, D. S. W. Shulman, and S. Zavestoski. 2006. "Virtual Environmental Citizenship: Wed-Based Public Participation in Rulemaking in the United States." In *Environmental Citizenship* edited by D. Bell and A. Dobson, 207–236. Cambridge, MA: MIT Press.

Schlosberg, David. 2007. *Defining Environmental Justice: Theories, Movements, and Nature*. Oxford: Oxford University Press.

Schmidt, J. J. 2014. "Water Management and the Procedural Turn: Norms and Transitions in Alberta." *Water Resources Management* 28 (4): 1127–1141. doi:10.1007/s11269-014-0544-z.

Schrögel, P., and A. Kolleck. 2019. "The Many Faces of Participation in Science: Literature Review and Proposal for a Three-Dimensional Framework." *Science & Technology Studies* 32 (2): 77–99. doi: 10.23987/sts.59519.

Shrader-Frechette, K. S. 2002. *Environmental Justice: Creating Equality, Reclaiming Democracy*. Oxford: Oxford University Press.

Smith, G. 2003. *Deliberate Democracy and the Environment*. London: Routledge.

Sovacool, B. K., R. J. Heffron, D. McCauley, and A. Goldthau. 2016. "Energy Decisions Reframed as Justice and Ethical Concerns." *Nature Energy* 1 (5): 16024. doi:10.1038/nenergy.2016.24.

Steenbergen, Marco R., André Bächtiger, Markus Spörndli, and Jürg Steiner. 2003. "Measuring Political Deliberation: A Discourse Quality Index." *Comparative European Politics* 1 (1): 21–48. doi:10.1057/palgrave.cep.6110002.

Sustainable Development Commission. 2007. "Turning the Tide: Tidal Power in the UK." Sustainable Development Commission. Accessed: 9 August 2019 http://www.sd-commission.org.uk/data/files/publications/Tidal_Power_in_the_UK_Oct07.pdf.

Tomlinson, L. 2015. *Procedural Justice in the United Nations Framework Convention on Climate Change: Negotiating Fairness*. Switzerland: Springer International Publishing.

Uittenbroek, C. J., H. L. P. Mees, D. L T. Hegger, and P. P. J. Driessen. 2019. "The Design of Public Participation: Who Participates, When and How? Insights in Climate Adaptation Planning from The Netherlands." *Journal of Environmental Planning and Management* 62 (14): 2529–2547. doi:10.1080/09640568.2019.1569503.

USEPA (United States Environmental Protection Agency). 2020. "Environmental Justice." Accessed 5 September 2020. https://www.epa.gov/environmentaljustice/learn-about-environmental-justice#meaning.

Walker, G. 2012. *Environmental Justice: Concepts, Evidence and Politics*. Abingdon, Oxon: Routledge.

Webler, T. 1995. "Right" Discourse in Citizen Participation: An Evaluation Yardstick." In *Fairness and Competence in Citizen Participation*, edited by O. Renn, T. Webler, and P. Wiedemann, 35–86. The Netherlands: Kluwer Academic Publishers.

Wolsink, M. 2007. "Planning of Renewables Schemes: Deliberative and Fair Decision-Making on Landscape Issues instead of Reproachful Accusations of Non-Cooperation." *Energy Policy* 35 (5): 2692–2704. doi:10.1016/j.enpol.2006.12.002.

Wolsink, M. 2010. "Near-Shore Wind Power-Protected Seascapes, Environmentalists' Attitudes, and the Technocratic Planning Perspective." *Land Use Policy* 27 (2): 195–203. doi:10.1016/j.landusepol.2009.04.004.

Wynne, Brian. 2007. "Public Participation in Science and Technology: Performing and Obscuring a Political–Conceptual Category Mistake." *East Asian Science, Technology and Society* 1 (1): 99–110. doi:10.1007/s12280-007-9004-7.

Young, I. M. 1990. *Justice and the Politics of Difference*. Princeton, NJ: Princeton University Press.

Young, I. M. 1996. "Communication and the Other: Beyond Deliberative Democracy." In *Democracy and Difference: Contesting the Boundaries of the Political*, edited by S. Benhabib, 120–133. Princeton, NJ: Princeton University Press.

Young, I. M. 2000. *Inclusion and Democracy*. Oxford: Oxford University Press.