



# The role of legitimacy in the implementation of outputs from collaborative processes: A national dialogue for forest water consideration in Sweden

Irina Mancheva

Department of Political Science, Umeå University, Sweden

## ARTICLE INFO

### Keywords:

Collaborative governance  
Dialogue process  
Procedural  
Source-based and substantive legitimacy  
Output implementation

## ABSTRACT

Governments are increasingly applying collaborative approaches even though little is known about how effectively the outputs are implemented. This empirical study used the ‘Soil and Water’ Working Group of the Dialogue for Nature Consideration in Sweden to investigate which aspects of legitimacy influence the implementation of collaborative outputs. It included document analysis, observation and 38 interviews with participants and representatives of implementing organisations. Despite being recommendations and lacking authoritative rule, the outputs from a collaborative process are implemented to a very high degree in educational and planning material all over Sweden. The forest sector’s general perception of the outputs as having high procedural, source-based and substantive legitimacy has been crucial to their extensive implementation.

## 1. Introduction

Collaborative approaches to natural resource governance and management have been encouraged by legislation such as the European Union Water Framework Directive (WFD) and applied increasingly over the past few decades (Emerson and Nabatchi, 2015; Koontz and Newig, 2014). Through the inclusion of public and private actors across sectors and administrative levels, collaborative processes address complex issues by identifying common problems, sharing information, and reaching consensus on outputs, which include policies, management plans, and on-ground action (Margerum, 2008; Emerson and Nabatchi, 2015; Bell and Scott, 2020). Just like all participatory processes, collaboration may be instrumental – a means to an end, as well as transformative – an end in itself (Buchy and Hoverman, 2000; Newig and Kvarda, 2012; Emerson and Nabatchi, 2015). Despite the significant body of research on collaborative governance processes, assessing their effectiveness has proven difficult (Sabatier et al., 2005, p. 419). With few exceptions (Biddle and Koontz, 2014; Scott, 2015; Biddle, 2017), these assessments have either investigated the process of collaboration (Ansell and Gash, 2008; Emerson and Nabatchi, 2015; Porter and Birdi, 2018) or used the number of outputs as a measure of effectiveness (Koontz and Newig, 2014; Bjärstig, 2017). However, whilst a collaborative process can succeed in reaching some desired policy outcomes, such as transforming cultures and understandings, it could fail in attaining others (Kallis et al., 2009), making the evaluation of its “success” multifaceted. Importantly, the environmental or social change

collaborative processes aim for, can only occur if the outputs they produce are implemented and lead to “intermediate outcomes” – a change in conditions or behaviour needed to achieve a goal (Emerson and Nabatchi, 2015). Collaborative governance literature has largely ignored this aspect of implementation (Koontz and Newig, 2014), despite that exploring it is one way of evaluating the effectiveness of a governance process (Hogl et al., 2012).

Previous forest, water and environmental governance studies suggest that policy implementation depends on enhanced process legitimacy (Reed, 2008; Kvarda and Nordbeck, 2012; Raitio and Harkki, 2014; Johansson, 2016; Melnychuk and Loë, 2020), and that mandatory policy measures with low legitimacy lead to failed WFD policy implementation (Jacobsen et al., 2017). However, the details of this interdependence regarding outputs from collaborative processes remain unexplored (Johansson, 2018). Since these outputs are often with recommendatory power and non-binding (soft regulation), their implementation depends on actors with decision-making power (Koontz and Newig, 2014) as well as their perceptions of the outputs’ legitimacy. The aspect of legitimacy is complicated as actions that seemingly increase process legitimacy may also have adverse effects. For example broad actor inclusion and participation can both lead to enhanced compliance and implementation of the outputs produced (Kvarda and Nordbeck, 2012) but it could also complicate and hamper decision-making (Hogl et al., 2012), create more conflict and disintegrate the collaborative process (Emerson and Nabatchi, 2015) eventually reducing effectiveness (Newig and Kvarda, 2012). Whether increased legitimacy leads to policy effectiveness thus

E-mail address: [irina.mancheva@umu.se](mailto:irina.mancheva@umu.se).

<https://doi.org/10.1016/j.envsci.2021.02.004>

Received 8 April 2020; Received in revised form 22 January 2021; Accepted 10 February 2021

Available online 4 March 2021

1462-9011/© 2021 The Author. Published by Elsevier Ltd. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>).

remains uncertain (Newig and Kvarda, 2012; Challies et al., 2016).

Through focusing on the collaborative process of the Soil and Water Working Group of the Swedish National Dialogue for Nature Consideration in Forestry and on the implementation of the outputs it produced, this study investigates which legitimacy aspects of the collaborative process are important for the implementation of outputs with recommendatory power. For that aim, legitimacy is divided into three components: procedural legitimacy – who participates and how much they influence decisions; source-based legitimacy – whether the decisions are based on legitimate and accepted sources of knowledge; and substantive legitimacy – whether the produced outputs are perceived as appropriate for reaching the end-goals and fair (Karlsson-Vinkhuyzen and Vihma, 2009). Three research questions are posed:

- 1 What are the process participants' and implementing organisations' perceptions of procedural, source-based and substantive legitimacy?
- 2 Are the outputs from a collaborative governance process implemented, and if so, how are they integrated into the implementing organisations' practices?
- 3 Which aspects of legitimacy most affect the implementation of collaborative process outputs?

## 2. The role of legitimacy on the implementation of collaborative process outputs

Legitimacy, or being able to reason for the use of authority (Bodansky, 1999), has been identified both as a precondition for effective water governance (Melnychuk and Loë, 2020) and forest policy implementation (Reed, 2008; Raitio and Harkki, 2014; Johansson, 2016) as well as a potential hinder to effectiveness (Newig and Kvarda, 2012). Legitimacy is a complex term and there are a multitude of definitions in use in research literature (Kronsell and Bäckstrand, 2010; Høgl et al., 2012). In this study, departing mainly from Bodansky (1999) and Karlsson-Vinkhuyzen and Vihma (2009), legitimacy is broken down into three main components: (1) procedural legitimacy, (2) source-based legitimacy, and (3) substantive legitimacy. For a summary of these aspects see Table 1.

**Table 1**

Summary of how different aspects of legitimacy are relevant to the implementation of collaborative process outputs (based on Bodansky, 1999; Karlsson-Vinkhuyzen and Vihma, 2009; Kronsell and Bäckstrand, 2010).

Procedural legitimacy	<p>Including relevant actors in decision-making. When examining the implementation of outputs from collaborative processes aiming at agreeing on specific management practices, relevant are those who implement the decisions and/or have power to obstruct implementation rather than those affected by them.</p> <p>The actors perceive the process as legitimate in the sense that consensus is reached through unconstrained dialogue between equal parties. For implementation this is important because actors who perceive the process as legitimate will communicate this view to members of their network.</p> <p>All actors, both decision-makers and implementers are held accountable.</p>
Source-based legitimacy	<p>Organisations will only implement decisions perceived to be based on legitimate sources of knowledge, which can be achieved by balancing different types of knowledge that are relevant to the discussed issue such as scientific expertise, experience-based or local knowledge.</p> <p>Collaborative processes that are open to new knowledge and prepared to revise their outputs according to it, are more flexible and better geared towards resolving conflicts.</p>
Substantive legitimacy	<p>Implementing actors perceive the outputs of collaboration as fair and trust they can achieve the end-goals.</p> <p>The resources required for collaborating and implementation are made available.</p>

### 2.1. Procedural legitimacy

Procedural legitimacy comprises representation, the deliberative quality of the decision-making process, and accountability of decision-makers (Kronsell and Bäckstrand, 2010). Participation could be the goal of a deliberative process as well as a necessary means to improve effectiveness (Newig and Kvarda, 2012) and deal with the complexities of managing a resource (Buchy and Hoverman, 2000; Johansson, 2016). For collaborative processes geared towards agreeing on specific management practices, or “instrumental processes”, the latter function applies (Buchy and Hoverman, 2000). Diverse participation can yield comprehensive decisions, but also generate more conflict (Emerson and Nabatchi, 2015) and reduce effectiveness (Newig and Kvarda, 2012). The process should be open to all interested actors, but those who participate must be fully committed (Porter and Birdi, 2018), as withdrawals can cause or increase existing tension between actors (Bjärstig et al., 2019). Non-represented actors can influence decision-making through their interpersonal, interorganisational, and political connections to participating actors (Koontz and Newig, 2014). Actors with decision-making power are especially important to be included since they are the “agents of change” who will implement the outputs (Margerum, 2008) or have the power to obstruct action (Sabatier et al., 2005; Koontz and Newig, 2014).

Participation should grant power over decision-making and not be symbolic (Kronsell and Bäckstrand, 2010), as unevenly distributed power and the inability to influence decisions constitutes a key barrier to collaborative processes (Sullivan et al., 2019). The decision-making process should be fair where consensus is reached through unconstrained dialogue between equal individuals (Innes and Booher, 1999; Kronsell and Bäckstrand, 2010). This equal participation could be ensured by governmental actors who mediate the process (Purdy, 2012).

Finally, procedural legitimacy requires that decision-makers are held accountable. Accountability can be both vertical (hierarchical), i.e., to governments, citizens/voters, and horizontal (non-hierarchical), i.e., to peers, members of the organisations, consumers (Kronsell and Bäckstrand, 2010). Participants in collaborative processes are held accountable both horizontally and vertically, since the state exercises a considerable amount of authority even in network governance (Jedd and Bixler, 2015).

### 2.2. Source-based legitimacy

The importance of including high-quality information in decision-making and its impact on legitimacy has been emphasised by studies focusing on participatory forms of governance from both international (Bäckstrand, 2003; Karlsson-Vinkhuyzen and Vihma, 2009) as well as national and subnational levels (Innes and Booher, 1999; Edelenbos et al., 2011). Scientific expertise, bureaucrats' expertise on policy relevance, and actors' experience-based knowledge are all considered legitimate sources of knowledge (Edelenbos et al., 2011). A broad representation of knowledge sources in the consensus-building process produces “(...) information that stakeholders understand and accept” (Innes and Booher, 1999, p. 419), which highlights the importance of knowledge in implementation. However, actors differ in their understanding and use of scientific knowledge (Koontz and Thomas, 2018), prioritise certain types of knowledge according to their values (Edelenbos et al., 2011), and some sources of knowledge are more significant to the problem at hand than others (Bäckstrand, 2003). This necessitates flexibility and balancing between sources of knowledge in the deliberative and decision-making process. New knowledge can become available at a later stage and environmental governance arrangements that are prepared to revise their outputs based on new knowledge and learning are more likely to resolve disputes than less flexible forms of governance (van der Molen, 2018).

### 2.3. Substantive legitimacy

Substantive legitimacy refers to the perceived fairness of the process outputs (Karlsson-Vinkhuyzen and Vihma, 2009) and whether they are expected to lead to desired end-goals (Kronsell and Bäckstrand, 2010). A perception of fairness means that actors agree that the outputs target equitable results (Karlsson-Vinkhuyzen and Vihma, 2009). The provision of resources for both the collaboration process and the implementation of its outputs is of key importance for achieving the desired end-goals (Leach and Sabatier, 2005; Koontz and Newig, 2014).

### 2.4. Effectiveness as output implementation

This study focuses on an instrumental collaborative process, making the implementation of its outputs a suitable measure of governance effectiveness (Hogl et al., 2012; Koontz and Newig, 2014; Emerson and Nabatchi, 2015). Implementation encompasses the actions, or “intermediate outcomes”, that lie between reaching agreement on certain outputs and achieving the aims of these outputs (Emerson and Nabatchi, 2015). It is seen as the transformation of decisions into tangible actions (e.g. production or revision of planning and educational material) that guide practice. The *actual environmental outcomes*, as well as whether the implemented outputs are *used in practice* and lead to environmental change, are outside the scope of this study. Application depends on actors’ willingness (Vedung, 2016), while environmental outcomes are affected by contextual variables which are hard to isolate (Sabatier et al., 2005; Hogl et al., 2012).

## 3. Research design and methods

### 3.1. Case study

The study’s empirical focus is on the Soil and Water Working Group (hereafter Working Group) and the Collaborative Group for Managing the Strategic Objectives (hereafter Collaborative Group) of the Dialogue for Nature Consideration in Swedish Forestry (hereafter the Dialogue Process). The process was initiated at the national level by the Swedish Forest Agency (SFA) in 2011 as a reaction to long-standing tensions between commercial forestry and the SFA regarding environmental consideration in forestry and how that consideration is evaluated by the SFA (Eriksson and Högvall Nordin, 2017). It included four thematic working groups and from 2014 the Collaborative Group. The groups comprised of representatives of state agencies, commercial forestry and NGOs. Outputs consisted of “Strategic Objectives”<sup>1</sup> – published as reports and informational brochures with short texts and visualisations of several forest management practices (see Fig.1). They were legally non-binding recommendations on how forestry measures should be carried out with consideration to the environment. To make an impact, they required implementation by forestry organisations in educational and planning materials.

Forest governance in Sweden was chosen because of the “soft” governance approach of Swedish legislation. The Forestry Act (1993) prescribes a minimal level of environmental consideration (Appelstrand, 2007), although the SFA, which is responsible for both monitoring compliance and providing advisory services, can issue more detailed prescriptions (Löfmarck et al., 2017). In its approach to contentious issues, the SFA has in the last decades increasingly relied on collaborative approaches in the form of dialogues (Johansson, 2016; Lindahl et al., 2017; Löfmarck et al., 2017; Bjärstig et al., 2019). This specific Dialogue Process was chosen because it was instrumental and aimed at producing

#### Strategic Objectives for final felling:

- No felling is carried out in discharge areas located adjacent to surface water.
- Biodiversity key habitats bordering surface waters are left unmanaged, or managed in a manner promoting environmental values.
- All broadleaf trees within 10 meters of surface water are retained in conifer-dominated stands.
- Trees, shrubs and other vegetation which are expected to provide continuous shade over time, contribute with food and deadwood to the water and act as a filter for suspended solids are retained, depending on existing site conditions.
- The forest buffer zone is not cleaned prior to harvesting.
- No rutting in or close to watercourses and lakes. This means that forestry machinery is not used within 10 meters of surface waters.
- No soil disturbance that increases export of suspended solids to lakes and watercourses is caused by moving forestry machinery.
- No soil damage caused by forestry transportation in discharge areas.



Fig. 1. The Strategic Objectives for final felling (Andersson et al., 2013). They include recommendations as bullet-points and an image of how an outflow area (red-coloured) close to a stream may look and how the border zone should be defined. The text is adapted from Ring et al. (2018). Image: Martin Holmer.

outputs regarding concrete management strategies and measures. This is in contrast to other studied dialogue processes that did not generate outcomes in the form of direct actions (Mårald et al., 2015) and allows an investigation of the implementation of outputs from instrumental collaborative processes.

This Working Group was chosen out of the four thematic groups, because it focuses on forestry’s impact on forest water. Forest management has been linked to increased concentrations and loads of mercury to surface waters (Eklöf et al., 2014) and mercury contamination in European Union waters continues to be unresolved (EEA, 2018). This places forestry among the anthropogenic activities that should be addressed if the EU Water Framework Directive (WFD) goal of “good status” of European waters is to be reached. Sweden has so far not fulfilled its political objectives for surface water and forests (Eriksson and Högvall Nordin, 2017) and the consideration of aquatic environments is mostly recommendatory, rendering the implementation of the outputs from forest water governance processes dependent on implementing organisations. This makes the collaborative process and produced outputs of the Working Group suitable to focus on when investigating the effect of legitimacy aspects on the implementation of decisions with recommendatory power reached through collaboration (Koontz and Newig, 2014).

### 3.2. Methods

Several qualitative methods of research were applied in this study with the aim of achieving data triangulation (Yin, 2012). Data were collected through: 1) document analysis consisting of SFA reports on the

<sup>1</sup> The latest Strategic Objectives on ditching and ditch-cleaning, published in 2019 <https://www.skogsstyrelsen.se/globalassets/om-oss/publikationer/2019/rapport-2019-06-nya-malbilder-for-god-miljohansyn-vid-dikesrensning-och-skyddsdikning.pdf> (Accessed 16/01/20)

Strategic Objectives and the related referral responses, forestry organisations' documentation available online; 2) semi-structured interviews with Process Participants (referred to as PPs) and Implementing Organisations (referred to as IOs), and 3) one meeting observation (see Table 2 for a detailed summary). Questionnaires were designed (see Appendix B) by breaking down the applied theoretical concepts into sub-categories and used for coding and analysing all the data (documents, transcribed interviews and notes).

The documents were either accessed online or provided by respondents. The SFA reports publishing the Strategic Objectives (Andersson et al., 2013, 2016; Andersson and Forsberg, 2019) and the two reports investigating their implementation (Claesson et al., 2016; Eriksson and Högwall Nordin, 2017) provided background information on the Dialogue Process and the implementation of the outputs by the

**Table 2**  
Summary of collected empirical material according to the research question.

Research design: Case study - the Swedish National Dialogue for Nature Consideration in Forestry, qualitative methods of research		
Research question	Implementation of Strategic Objectives	Legitimacy of Dialogue Process and its outputs (Strategic Objectives)
Interviews	22 semi-structured telephone interviews with implementing organisations (IOs), representing various regions and sectors. All four Swedish FOAs were surveyed, five large forest companies (SCA, Bergvik, Sveaskog, Holmen, Stora Enso), the Swedish Association of Forestry Contractors (Skogsentreprenörerna SE), all three Regional Sawmill Associations, and two-four sawmills from each region as recommended by the associations.	A total of 16 semi-structured interviews: three in person, 13 over the phone (data collected from late 2018 to early 2019) with PPs, some of which represent IOs. Nine interviews with participants from the Soil and Water Working Group: one representative from a Forest Owners' Association (FOA), a sawmill, the Swedish Agency for Marine and Water Management, research, an NGO (The Swedish Anglers Association), two from the SFA (of which one was the Group leader), and two representatives of forest companies. Five interviews with representatives from the Collaborative Group including the Group leader, a representative of the Federation of Swedish Farmers, two forest companies and a representative of the Swedish National Heritage Board. Two interviews with external actors: a representative of the SFA who prepared but did not participate in the Dialogue, and a representative of the NGO sector who did not participate but wrote a referral response to the published objectives.
Other material	Two SFA reports on implementation (Claesson et al., 2016; Eriksson and Högwall Nordin, 2017); observation of an ordinary Collaborative Group meeting (November 9 <sup>th</sup> 2018); plans, statutes, policies of IOs available online.	Published Strategic Objectives and SFA reports on the process (Andersson et al., 2013; Claesson et al., 2016; Andersson et al., 2016; Eriksson and Högwall Nordin, 2017; Andersson and Forsberg, 2019). Referral material Observation of an ordinary Collaborative Group meeting (November 9 <sup>th</sup> 2018).

Total number of interviews: 38; 19 documents; and one meeting observation.

forest sector. The seven analysed referral responses were chosen according to their availability and with an aim of including a diversity of respondents (forestry organisations, NGOs, and state agencies). The remaining seven documents were forestry organisations' planning, educational or policy material.

The author conducted the semi-structured interviews in person or over the telephone with PPs, and with IOs. All current (in the end of 2018) and some former participants in the Working Group were contacted, and all except two agreed to be interviewed. Five representatives of the Collaborative Group (two of which are also members of the Working Group) were interviewed as well as two external actors, bringing the number of PP interviews to 16 (see Table 2). These interviews lasted between 15 and 70 min. Two interviewees did not want to be recorded, the remaining 14 interviews were recorded, transcribed and sent to the interviewees for validation. In-text citations were translated from Swedish to English by the author.

The individuals and groups that the Strategic Objectives were targeted towards – the forest sector – were considered as IOs (state authorities and diverse commercial forestry actors). The 22 semi-structured telephone interviews with IOs representing all forestry categories throughout Sweden (see Table 2) lasted between five and 50 min. They were not recorded and transcribed to achieve a more informal setting. Instead, the author took notes during the calls. The Collaborative Group meeting was observed to gain a deeper understanding of the group dynamics during ordinary meetings and documented by the author through notes.

## 4. Results

### 4.1. Procedural legitimacy

The Working Group, operating at the national level, included representatives from the SFA, the Marine and Water Management Agency, NGOs (several during the initiation phase but at the time of investigation only the Swedish Anglers' Association), and academia. However, as in examples from governance processes in other national contexts (Raitio and Harkki, 2014) the majority of actors represented commercial forestry. This fact was even noted by NGOs and a County Administrative Board in the referral responses (Andersson et al., 2013). Important to note is the limited scope of the Dialogue Process which impacted heavily participation in the group. It was instrumental and aimed to resolve a longstanding conflict within the forest sector – state agencies and commercial forestry – and reach consensus on a way to define and apply nature consideration in forest management. This solution was to be within the boundaries of existing forest policy. Environmental NGOs (ENGOS) were invited to participate, but as in other SFA-led collaborative processes (see Bjärstig et al., 2019) they terminated their participation during the process (except the Swedish Anglers' Association). Since most ENGOS in Sweden criticise the environmental policy objectives and call for revisions of the current forest policy (Johansson, 2016), they may have found participation to be counterproductive:

“The Swedish Society for Nature Conservation really wants a re-evaluation of the entire forest policy, and we... cannot see that this fits within the framework of the work with the Strategic Objectives. [The work] is done within existing forest policy. So there were different views on the framework for the work and different expectations from it.” (PP11)

Despite that some forestry actors were not represented in the Working Group (e.g., smaller companies and forest owners who were not members of associations), most Swedish forest organisations were either represented or well-connected to participating forest actors through their networks. This explains why almost all the interviewees, both PPs and IOs, saw the current representation as satisfactory suggesting a high degree of internal for the forest sector legitimacy. The

**Table 3**  
Summary of results regarding different legitimacy aspects of the process and its outputs.

	PP interviews	IO interviews	Documents
Procedural legitimacy	Commercial forestry overrepresented, municipalities not represented. Nevertheless, the process had broad representation and generally included fair and unconstrained dialogue. Objectives sent for broad referral. Overall high procedural legitimacy.	Not all interviewees had knowledge of how the process was structured and who participated. No stakeholders voiced concerns about certain interests being over-represented. Some had sent referral responses and were content with how the Working Group considered them. Implementers are held accountable by the SFA through on-the-ground evaluations of nature consideration in forest management.	SFA reports and several referral responses underscored commercial forestry's overrepresentation and underrepresentation of ENGOS.
	Participants in the Working Group are held accountable for produced outputs through a referral process.		Some referral responses underlined the importance of evaluating the application of the Strategic Objectives in practice.
	Most PPs considered the outputs to be based on legitimate scientific, experience-based or local knowledge. The perceived source-based legitimacy of buffer and terrain driving objectives was higher than that for ditching, as the latter lacked scientific knowledge.	All IOs considered the objectives to be based on legitimate sources of knowledge.	The importance of using scientific knowledge as a basis was underscored in referral responses to all published objectives. Several referral responses were critical of the extensive use of experience-based knowledge in the Strategic Objectives for ditching.
Substantive legitimacy	The objectives were perceived to have high substantive legitimacy.	Despite the satisfactory level of prescription, some respondents felt that the objectives were too broad and did not reflect local conditions.	The analysed documents did not give indication on the perception of the Strategic Objectives' substantive legitimacy.
	The state provided resources for implementation.		

interest that one interviewee felt was missing was municipalities – mostly as actors interested in outdoor activities, which are affected by forest management (PP11).

Most PPs considered the Working Group dialogue as predominantly unconstrained and fair, with all perspectives taken into consideration in the final material. However, three interviewees also mentioned that commercial forestry representatives had a clear majority, and that the SFA – which served as both the initiator and coordinator - had a prominent role in designing and overseeing the process (PP11; PP3,

PP6). Nevertheless, two non-forest sector participants stressed that the Working Group leader worked hard to level the playing field and gave everyone equal opportunities to participate and influence the process and outputs (PP1; PP2).

The Working Group had to send the Strategic Objectives to public agencies, commercial forestry and ENGOS for referral to ensure internal and external accountability. The group then discussed all the feedback and either integrated the suggested changes into the outputs or published written arguments as to why the suggestions were not integrated. Several referral responses underscored the importance of evaluating the application of the Strategic Objectives in practice. In the future, the SFA will exercise control through on-the-ground evaluations with new methods currently being developed together with forestry actors. So far, pre-measure evaluations have been pursued by the SFA while post-measure evaluations are still ongoing. The deadline for the first report has been extended from 2019 to 2021 (PP16).

#### 4.2. Source-based legitimacy

The interviewees reported that scientific knowledge was highly valued in the collaborative process. All the interviewees, regardless of forestry or ecology background, saw the research representative as an important source of knowledge, expertise and common sense (PP16). The knowledge used to develop the Strategic Objectives for buffer zones and terrain driving encompassed both research findings and experience-based knowledge from commercial forestry participants. As such, all the process participants felt that these Strategic Objectives demonstrated source-based legitimacy (PP3, PP16, PP6; PP13; PP12; PP15). A state representative emphasised that when scientific evidence is lacking, policy decisions are often made according to experience-based knowledge and that this practice could also be considered legitimate. However, they also stressed the importance of being cautious when the experience-based knowledge comes from actors with a stake in the decisions (PP11).

It should be noted that three participants and several referral responses (Andersson and Forsberg, 2019) considered the source-based legitimacy of protective ditching and ditch maintenance/cleaning objectives as low. This was because the scientific knowledge underlying the drafted recommendations came from Finland – a context which differs from Sweden in terms of environment and applied measures (PP3; PP15; PP16). Hence, the Working Group relied more on the experience-based knowledge of forestry practitioners in these objectives than in the buffer zone and terrain driving objectives (PP5; PP13;). Furthermore, several state representatives perceived commercial forestry as trying to steer both the dialogue and deliberation, as well as draft the Strategic Objectives to their advantage by exaggerating certain outcomes while downplaying other negative environmental effects. More specifically, a representative felt that discussions on issues with poor scientific-based knowledge could lead to “fact-bargaining”:

“(…) [Y]ou cannot just discuss your way into: “Yes, there is a probability that ditch-cleaning reduces the amount of rutting!”, because there is no evidence that it is so at all! (…) Eventually, when you have discussed this long enough, it becomes a point [in the report publication] where it says as a statement that ditch-cleaning reduces rutting. (…) That is the risk with the Strategic Objectives, I would say. (…) [I]t becomes a bargaining with facts, and facts cannot be negotiated. We can negotiate on how to apply facts in practice, but we cannot negotiate the facts as such.” (PP3)

Other interviewees who did not represent commercial forestry stressed that despite the lack of scientific evidence, the Strategic Objectives still represent a higher level of nature consideration than the current praxis, and therefore, are a positive achievement (PP15; PP11; PP16). However, it should be noted that one forest company claimed the Strategic Objectives helped them realise that their nature consideration

when ditching was ambitious, and could be less restrictive (IO9). The lack of empirical research on protective ditching and ditch maintenance in a Swedish context has spurred several ongoing research projects (PP15; PP16). State representatives also emphasised that the Strategic Objectives are under “constant development”, in that they are always open for revision when new knowledge - scientific or experience-based - becomes available (PP11, PP12).

#### 4.3. Substantive legitimacy

Out of the 38 interviewees, 35 considered the Strategic Objectives a suitable tool to design measures for nature consideration according to local circumstances. Almost all interviewees (37) perceived both the process and its outputs as fair. Several underlined the importance of their recommendatory character and not being mandatory (PP6, PP7, PP13). Most interviewees (32) said they expect positive environmental outcomes, while a few reported already witnessing positive outcomes. The few interviewees who did not expect positive outcomes felt that the Strategic Objectives’ level of nature consideration was not appropriate for reaching the end-goals. They were also critical of replacing the previous (“polytax”) evaluation method with a new method based on the Strategic Objectives since it made evaluating change-in-practice impossible.

Most interviewees felt that commercial forestry had dedicated considerable resources for both participation in the Dialogue Process and the implementation of its outputs. The state had also provided considerable resources, e.g., in 2017 the SFA earmarked 14 million SEK for projects and information campaigns that focused on educating forest organisations about how forest measures affect water. Of the interviewed IOs, one FOA – Norra Skogsägarna – claimed to have used those resources to develop educational packages that were largely based on the Strategic Objectives (IO1).

All commercial forestry interviewees claimed that the Strategic Objectives demonstrate a satisfactory level of environmental consideration. However, five respondents stressed that they are only guidelines and, as such, are subject to interpretation, which depends on local conditions (IO13; IO17; IO18; IO21; IO22). One of the respondents underlined that they did not feel that the decisions considered local variation, which rendered some objectives irrelevant for them (IO13). Others claimed that they would have liked the objectives to be more simplified (IO15; IO6). Nevertheless, all the commercial forestry respondents discussed the Strategic Objectives as “their own” objectives and claimed to apply them extensively in everyday practice. One interviewee suggested that the non-binding character of the Strategic Objectives is a crucial factor for their broad implementation (PP14).

#### 4.4. Are the outputs from a collaborative governance process implemented?

The IO interviewees demonstrated excellent knowledge of the Strategic Objectives and confirmed the conclusions from two SFA reports (Claesson et al., 2016; Eriksson and Högvall Nordin, 2017) that the Strategic Objectives have been extensively implemented in forest sector policies, planning, and educational materials. In 2016, all 36 respondents to a survey sent out to 50 forest actors claimed to have knowledge of the Strategic Objectives and 34 claimed to be following or planning to follow them (Claesson et al., 2016). Moreover, 32 of the respondents claimed that they had plans to revise or already were revising their policies to better integrate the Strategic Objectives (Claesson et al., 2016). These intentions were confirmed by the interviews with IOs.

Just under 50 % of Swedish forests are owned by individual private

forest owners, of whom around a third are members of one of four Swedish FOAs. This corresponds to approximately 25 % of the total area of non-protected forestland (SFA, 2014). The interviews and document analyses showed that all four<sup>2</sup> FOAs (Norra Skogsägarna, Norrskog, Mellanskog, and Södra) have integrated the Strategic Objectives into their policies and planning materials, albeit with varying levels of ambition. Norra Skogsägarna has developed its own educational package based on the Strategic Objectives and held numerous educational workshops and field days since the first objectives were published (IO1, IO2; IO3). Mellanskog started implementing the objectives in 2016, and has since organised yearly field trips with over a thousand participants, mostly field workers and machine operators (IO4). Norrskog has had similar educational initiatives since 2015 (IO6; IO7). Both Norrskog and Mellanskog have edited, and continue to revise, their environmental monitoring systems using the objectives as a starting point. Södra has actively implemented the Strategic Objectives in all its policies and planning tools and has been active in promoting their application in FSC certification (IO5). Individual forest owners often entrust forest contractors to carry out management measures in their forests. The Swedish Association of Forestry Contractors, which represents around 70 % of the professional forestry contractors in Sweden, integrated the buffer zone Strategic Objectives into their educational package in 2019. Contractors must complete these courses if they want a “green card”, which is a prerequisite for certified forest products (IO8). Individual forest owners were thus either affected by the implementation of the Strategic Objectives directly as FOA members or indirectly as non-members who used the services of FOAs, sawmills or contractors that had been affected by the implementation through updated certifications. One forest company specifically offered individual forest owners measures that either included a basic level of nature consideration or prescribed levels defined by the Strategic Objectives (IO9).

Sawmills are of relevance as timber purchasers and because some own and manage forestland and/or sell forestry services to forest owners. Sweden has three regional associations for private sawmills: north, middle and south. The sawmills’ representative in the Dialogue Process changed employment from a sawmill to a regional sawmill association, claiming that this enabled them to integrate the Strategic Objectives in both organisations. They further stated that the objectives have now become an integral part of both organisations’ practices (PP5). This claim was confirmed by the interviewed sawmill- or sawmill associations. All had heard of the Strategic Objectives and claimed to have integrated, or were close to integrating them into their forest management plans. The Sawmill Association from mid-Sweden was aware of the objectives but had not actively communicated them to its member organisations (IO17). The interviews and documents from this region indicated mixed implementation success. While one organisation had integrated the objectives in its planning material and claimed that all employees had undergone field education from the SFA, another had “plans to do so soon”. One interviewee underscored that this region had consistently scored worst in the SFA’s “polytax”<sup>3</sup> evaluations of nature consideration in Swedish forestry. The SFA has therefore prioritised ensuring that the Strategic Objectives are implemented in mid-Sweden by concentrating on further educating organisations from this region (IO19).

The north and south regional Sawmill Associations had actively communicated the Strategic Objectives to their member organisations (IO12; PP5). The former had even coordinated an educational workshop for timber buyers in 2014. Employees from the four interviewed

<sup>2</sup> As of 2020 the FOAs are three since Norra Skogsägarna and Norrskog have merged into Norra Skog.

<sup>3</sup> The SFA has evaluated forest rejuvenation with different methods since the early 1960s. The purpose has been to monitor the application of the Forestry Act’s rules for regrowth. The Polytax method, which the Strategic Objectives will replace, has been used since 1999.

northern sawmills had received education on the Strategic Objectives from the SFA (IO13; IO14; IO15; IO16). One company had integrated the objectives into its digital planning tool, with direct links to the SFA website (IO14). However, respondents from two other northern sawmills emphasised that a *majority* rather than *all* field workers had been educated on the Strategic Objectives. Furthermore, they expressed doubts regarding whether the objectives would significantly influence forest practices despite their incorporation into planning materials (IO13; IO15).

All the interviewed forest companies, both state and private-owned, claimed deep cognisance and extensive implementation of the Strategic Objectives in internal policies and educational materials (IO9; IO10; IO11; PP7; PP13; PP 14). The companies that were represented in the Dialogue Process expressed positive attitudes towards the collaborative approach and its outputs (IO9; IO11). Some highlighted that forest companies had invested heavily in the process, and stressed that this proved their commitment to environmental consideration (IO9).

Among public agencies, the Strategic Objectives had been applied in the SFA's and County Administrations' various policy documents and educational packages. The SFA has attempted to ensure internal implementation and application of the Strategic Objectives through online education, regional workshops and field calibrations (PP3; PP9; PP11; PP16; Claesson et al., 2016; Eriksson and Högwall Nordin, 2017). An interviewed SFA representative stressed that all future materials would reflect the objectives (PP16).

## 5. Concluding discussion

The results from the qualitative interviews show that the extensive implementation can be explained by commercial forestry's overall perception that the collaborative process and its outputs had high procedural, source-based and substantive legitimacy. The perception of legitimacy by non-commercial forestry actors is more nuanced.

Procedural legitimacy was criticised by actors who underlined the underrepresentation of non-commercial forestry interests in the process and thus questioned the outputs' legitimacy. As in other collaborative processes (Bjärstig et al., 2019), ENGOs dropped out but the NGO representative (the Swedish Anglers' Association) who remained engaged throughout the whole process, perceived procedural legitimacy as high. This was partially due to the SFA's efforts to balance interests despite commercial forestry's overrepresentation and confirms the important role that government actors play in collaborative processes (Purdy, 2012). These results indicate that the actions of ENGOs' may be a strategic approach to SFA-organised collaborative processes (Bjärstig et al., 2019) rather than a consequence of low procedural legitimacy. Moreover, here it is important to bear in mind the instrumental aim, or end-goal of the collaborative process – to reach consensus between commercial forestry and the SFA on specific outputs, regarding environmental consideration in forestry *within* the frame of existing forest policy. In other words, this was not a transformative collaborative process, aiming at wider consensus and a potential revision of forest policy, that potentially could have better accommodated ENGOs expectations. In this instrumental collaborative process, actors from both those sides, especially commercial forestry, were satisfied with the process's procedural legitimacy. Since the SFA and commercial forestry are also the main implementing organisations, this points to the important role procedural legitimacy plays for the implementation of outputs. The Working Group is accountable both vertically – to the state, and horizontally – to non-state interest holders (Jedd and Bixler, 2015) by providing detailed answers to referral responses and through the currently developed evaluation methodology (please see Table 3 for a summary of the results).

Although process participants disagreed about which type of knowledge is most legitimate, they agreed that the Strategic Objectives on buffer zones and terrain driving represented a good balance between scientific, experience-based and bureaucratic knowledge. The objectives

regarding ditching and ditch-cleaning were not as straightforward. As observed in previous studies (Edelenbos et al., 2011), they were characterised by tension between researchers, bureaucrats and commercial forestry representatives. Several non-commercial forestry participants felt that the lack of scientific knowledge on the issue enabled commercial forestry actors to prioritise experience-based knowledge that served their own interests. This could be accurate, as one IO saw the agreed level of consideration as lower than previously applied. However, it is possible that a balance between different types of knowledge was achieved, and that experience-based knowledge was the most relevant information for this issue (Bäckstrand, 2003). The collaborative process helped identify a need for further scientific knowledge on protection ditching and ditch-cleaning and has already spurred several empirical research projects. The SFA has stated that the Strategic Objectives are open for revision as new knowledge emerges. This revision process may help all of the actors agree on future objectives (van der Molen, 2018), as well as reduce the knowledge bias that certain actors highlighted.

As for substantive legitimacy, although certain IOs felt that some objectives required further specification, no respondent perceived the Strategic Objectives as prescribing an unattainable level of environmental consideration. The resources provided by the state, as shown in other contexts (Leach and Sabatier, 2005; Koontz and Newig, 2014), enabled the IOs to internalise the Strategic Objectives in their own tools and materials. Moreover, their recommendatory character was stressed as a factor behind their wide implementation, underlining the importance of policy acceptance in implementation (Jacobsen et al., 2017). The substantive legitimacy of the outputs of the collaborative process is further evidenced by their extensive implementation by forestry organisations.

The outputs from the Dialogue Process have been so widely implemented by commercial forestry that even actors who were not represented in the process had knowledge of them and integrated them in their planning, educational and policy materials. This indicates strong networking and interorganisational connections between internal and external to the Dialogue Process actors (Margerum, 2008; Koontz and Newig, 2014) and is further confirmed by the shared opinion among forestry organisations that the objectives are “their own”.

The results of this study show the implications of a collaborative process's procedural, source-based and substantive legitimacy on the implementation of outputs with recommendatory power. Collaborative processes that are considered as legitimate by implementing actors can be effective for reaching end-goals i.e. consensus over a conflict issue. Furthermore, their outputs will also be effectively implemented and therefore result in intermediate outcomes in the form of revised planning and educational materials. However, many questions remain. To start with, it is still unclear whether the implemented outputs will have positive environmental outcomes for forest water. Such evaluations will be difficult to achieve because they depend on forest actors' use of educational tools and materials (Vedung, 2016) as well as many contextual and external factors (Hogl et al., 2012; Koontz and Newig, 2014). Secondly, previous research indicates that collaborative processes with more ambitious goals and diverse stakeholder representation (e.g., ENGOs and municipalities) face far more obstacles when reaching agreement (Raitio and Harkki, 2014; Johansson, 2016; Bjärstig et al., 2019). The end-goals of this collaborative process were limited within the framework of the current forest policy which lowered the stakes for commercial forestry. It is impossible to tell whether forestry organisations would have widely implemented and perceived the outputs as “their own” if the end-goals were broader and consensus had been reached with the inclusion of other interested parties, such as ENGOs. Comparing legitimacy aspects between different types of processes – instrumental, transformative, with complex or limited end-goals – could reveal even more details on how collaborative processes can be improved and help develop theory further.

**Author statement**

This manuscript has a single author who has been responsible for all aspects of the study.

**Declaration of Competing Interest**

The authors declare that they have no known competing financial

interests or personal relationships that could have appeared to influence the work reported in this paper.

**Acknowledgements**

This research is funded by the Swedish Research Council Formas (2013-1650). I would like to thank the anonymous referees for their invaluable comments.

**Appendix A. Summary of the interviewees and analysed documents****Interviews with implementing organisations (IO)**

IO1	Norra Skogsägarna, Forest Inspector
IO2	Norra Skogsägarna, Production Leader
IO3	Norra Skogsägarna, Field Leader
IO4	Mellanskog, Environmental Coordinator
IO5	Södra, Forest Inspector
IO6	Norrskog, Business Developer, Production
IO7	Norrskog, Forest Advisor
IO8	Swedish Association of Forestry Contractors, Certification Manager
IO9	Forestry Company: Sveaskog, Forestry Manager
IO10	Forestry Company: SCA, Forest Manager
IO11	Forestry Company: Holmen, Forest Planning Developer
IO12	Northern Regional Sawmill Association: SÅG AB, Administrative coordinator
IO13	Sawmill from northern region: Högland Såg och Hyvleri AB, Commodity Manager
IO14	Sawmill from northern region: Martinssons AB, Commodity Manager
IO15	Sawmill from northern region: Stenvalls Trä AB, Commodity Manager
IO16	Sawmill from northern region: Rödins Trä AB, Commodity Manager
IO17	Mid Regional Sawmill Association: Sägverket Mellansverige, Director
IO18	Sawmill from mid region: Weda Skog, Business and Development Manager
IO19	Sawmill from mid region: Sveden Trä, Commodity Manager
IO20	Sawmill from southern region: Bergs Timber Production AB, Commodity Manager
IO21	Sawmill from southern region: Eksjö industri AB, Commodity Manager
IO22	Sawmill from southern region: Derome skog AB, Commodity Manager

**Interviews with Process Participants (PP)**

PP1	Swedish Agency for Marine and Water Management Representative in the Soil and Water Working Group
PP2	NGO Representative in the Soil and Water Working Group
PP3	SFA Representative in the Soil and Water Working Group
PP4	Swedish National Heritage Board Representative in the Collaborative Group
PP5	Sawmill Representative in the Soil and Water Working Group
PP6	Forest Owners' Association (FOA) Representative in the Soil and Water Working Group and Collaborative Group
PP7	Commercial Forestry Representative in Soil and Water Working Group and the Collaborative Group
PP8	Commercial Forestry Representative in the Soil and Water Working Group
PP9	SFA Representative who prepared the Dialogue Process (but did not participate in it)
PP10	Representative of the NGO sector who wrote a referral response to the documents published by the Dialogue Process without taking part in the collaborative process.
PP11	SFA representative and Collaborative Group Leader
PP12	The Federation of Swedish Farmers Representative in Collaborative Group
PP13	Former Commercial Forestry Representative in Soil and Water Working Group and the Collaborative Group
PP14	Commercial Forestry Representative in the Collaborative Group
PP15	Research Representative in the Soil and Water Working Group
PP16	Leader of the Soil and Water Working Group

**Analysed reports, referral materials, plans, statutes and policies**

	Andersson, E., Andersson, M., Birkne, Y., Claesson, S., Forsberg, O., & Lundh, G. (2013). Målbilder för god miljöhänsyn. Swedish Forest Agency, Rapport, 5–2013. Retrieved from: <a href="https://cdn.abicart.com/shop/9098/art52/20785652-da5df6-1856c.pdf">https://cdn.abicart.com/shop/9098/art52/20785652-da5df6-1856c.pdf</a> (Last accessed 16th January 2020)
	Andersson, E., Andersson, M., Blomquist, S., Forsberg, O., Lundh, G. (2016) Nya och reviderade målbilder för god miljöhänsyn: Skogssektorns gemensamma målbilder för god miljöhänsyn vid skogsbruksåtgärder, Swedish Forest Agency, Retrieved from: <a href="https://shop.skogsstyrelsen.se/sv/publikationer/rapporter/rapport-2016-12-nya-och-reviderade-malbilder-for-god-miljohansyn.html">https://shop.skogsstyrelsen.se/sv/publikationer/rapporter/rapport-2016-12-nya-och-reviderade-malbilder-for-god-miljohansyn.html</a> (Last accessed 16th January 2020)
Reports	Andersson, E., Forsberg, O. (eds.) (2019) Nya målbilder för god miljöhänsyn vid dikesrensning och skyddsdikning. Swedish Forest Agency, Report 2019–6. Retrieved from: <a href="https://www.skogsstyrelsen.se/globalassets/om-oss/publikationer/2019/rapport-2019-06-nya-malbilder-for-god-miljohansyn-vid-dikesrensning-och-skyddsdikning.pdf">https://www.skogsstyrelsen.se/globalassets/om-oss/publikationer/2019/rapport-2019-06-nya-malbilder-for-god-miljohansyn-vid-dikesrensning-och-skyddsdikning.pdf</a> (Last accessed 16th January 2020)
	Claesson, S., Eriksson, A., Forsberg, O., Fridh, M., Lundh, G., Rydja, U., . . . Wester, J. (2016). Implementering av målbilder för god miljöhänsyn, Communication 9 (9). Retrieved from: <a href="https://cdn.abicart.com/shop/9098/art55/88585155-6e0ff7-Implementering_av_malbilder_webb.pdf">https://cdn.abicart.com/shop/9098/art55/88585155-6e0ff7-Implementering_av_malbilder_webb.pdf</a> (Last accessed 16th January 2020)
	Eriksson, A., & Högvall Nordin, M. (2017). Implementering av målbilder för god miljöhänsyn 2017, Report 9. Retrieved from: <a href="https://www.skogsstyrelsen.se/globalassets/om-oss/publikationer/2017/implementering-av-malbilder-for-god-miljohansyn-2017.pdf">https://www.skogsstyrelsen.se/globalassets/om-oss/publikationer/2017/implementering-av-malbilder-for-god-miljohansyn-2017.pdf</a> (Last accessed 16th January 2020)
Referrals	Bergvik Skog (Commercial forestry) Referral response to work with Strategic Objectives in 2015 (2016). Retrieved from: <a href="https://www.bergvikskog.se/wp-content/uploads/2016/11/Bergvik_yttrande_malbilder_20160215.pdf">https://www.bergvikskog.se/wp-content/uploads/2016/11/Bergvik_yttrande_malbilder_20160215.pdf</a> (Last accessed 16th January 2020)

(continued on next page)

(continued)

Internal materials, policies and educational materials	<p>Hushållningssällskapet (The Rural Economy and Agricultural Societies) Referral response to the Strategic Objectives (2016) Retrieved from: <a href="http://hushallningssallskapet.se/wp-content/uploads/2016/01/malbilder-for-god-miljohansyn-vid-skogsbruksatgarder.pdf">http://hushallningssallskapet.se/wp-content/uploads/2016/01/malbilder-for-god-miljohansyn-vid-skogsbruksatgarder.pdf</a> (Last accessed 16th January 2020)</p> <p>Kungl. Skogs- och lantbruksakademien (The Royal Swedish Academy of Agriculture and Forestry) Referral response to the first published Strategic Objectives (2013). Retrieved from: <a href="https://www.ksla.se/wp-content/uploads/2017/05/KSLAs-yttrande-over-Forslag-nya-malbilder-2017-05-15-webb.pdf">https://www.ksla.se/wp-content/uploads/2017/05/KSLAs-yttrande-over-Forslag-nya-malbilder-2017-05-15-webb.pdf</a> (Last accessed 16th January 2020)</p> <p>Naturskyddsforeningen (Swedish Society for Nature Conservation) Referral response to the report with published Strategic Objectives (2016). Retrieved from: <a href="https://www.naturskyddsforeningen.se/sites/default/files/dokument-media/Remissvar_Malbilder_for_god_miljohansyn_0.pdf">https://www.naturskyddsforeningen.se/sites/default/files/dokument-media/Remissvar_Malbilder_for_god_miljohansyn_0.pdf</a> (Last accessed 16th January 2020)</p> <p>Sveaskog (Commercial forestry) Referral response to the first published Strategic Objectives (2013). Retrieved from: <a href="https://www.sveaskog.se/globalassets/press-och-nyheter/remissvar/remissyttrande-av-malbilder-for-god-miljohansyn.pdf">https://www.sveaskog.se/globalassets/press-och-nyheter/remissvar/remissyttrande-av-malbilder-for-god-miljohansyn.pdf</a> (Last accessed 16th January 2020)</p> <p>Svenska jägareförbundet (Swedish Hunters' Association) Referral response to the first published Strategic Objectives (2013). Retrieved from: <a href="https://jagareforbundet.se/globalassets/global/vilt/dokument/remissvar-malbilder-for-god-miljohansyn-2.pdf">https://jagareforbundet.se/globalassets/global/vilt/dokument/remissvar-malbilder-for-god-miljohansyn-2.pdf</a> (Last accessed 16th January 2020)</p> <p>Sveriges Jordägareförbund (Swedish Association of Land Owners) Referral response to the report with published Strategic Objectives (2016). Retrieved from: <a href="http://jordagarna.se/wp-content/uploads/2017/05/remissyttrande-reviderade-m%C3%A5lbilder.jord%C3%A4gare%C3%B6rbundet.pdf">http://jordagarna.se/wp-content/uploads/2017/05/remissyttrande-reviderade-m%C3%A5lbilder.jord%C3%A4gare%C3%B6rbundet.pdf</a> (Last accessed 16th January 2020)</p> <p>Mission statement of the Collaborative group for managing the Strategic Objectives (Swedish: Uppdragsbeskrivning -samverkansgrupp för förvaltning av målbilder för god miljöhänsyn) (2014). Retrieved from: <a href="https://www.skogsstyrelsen.se/globalassets/om-oss/radgivande-grupper/samverkansgrupp-malbilder/pm-uppdagsbeskrivning-samverkansgrupp-for-forvaltning-av-malbilder.pdf">https://www.skogsstyrelsen.se/globalassets/om-oss/radgivande-grupper/samverkansgrupp-malbilder/pm-uppdagsbeskrivning-samverkansgrupp-for-forvaltning-av-malbilder.pdf</a> (Last accessed 16th January 2020)</p> <p>Working plan for managing the Strategic Objectives 2018 (Swedish: Arbetsplan för förvaltning av målbilder 2018), Retrieved from: <a href="https://www.skogsstyrelsen.com/globalassets/om-oss/radgivande-grupper/nationella-sektorsradet/20.171.206/punkt-2b-forslag-arbetsplan-malbildsforvaltning-2018.pdf">https://www.skogsstyrelsen.com/globalassets/om-oss/radgivande-grupper/nationella-sektorsradet/20.171.206/punkt-2b-forslag-arbetsplan-malbildsforvaltning-2018.pdf</a> (Last accessed 16th January 2020)</p> <p>Rätt Norra-Metod (Internal education Norra skogsägarna), brochure published by Norra skogsägarna, information available at: <a href="http://www.norra.se/om-norra/kvalite-och-miljo/ratt-norrametod">http://www.norra.se/om-norra/kvalite-och-miljo/ratt-norrametod</a> (Last accessed 15th September 2019)</p> <p>Miljöarbete på Holmen (Internal document on Environmental consideration at Holmen, Commercial forestry) (2018) Retrieved from: <a href="https://www.holmen.com/globalassets/holmen/sustainability/environment/miljoarbetet-vid-holmens-eheter/miljoarbetet-vid-holmens-kog-2018.pdf">https://www.holmen.com/globalassets/holmen/sustainability/environment/miljoarbetet-vid-holmens-eheter/miljoarbetet-vid-holmens-kog-2018.pdf</a> (Last accessed 16th January 2020)</p> <p>Din skog är värd ett hållbart skogsbruk (Information on Martinsons' website) (2019), retrieved from: <a href="https://www.martinsons.se/din-skog/hallbart-skogsbruk/">https://www.martinsons.se/din-skog/hallbart-skogsbruk/</a> (Last accessed 18th December 2019)</p> <p>Environmental Policy Stora Enso (Internal environmental policy, Swedish: Vår miljöpolicy, Commercial forestry) (2018), Retrieved from: <a href="https://storaensoskog.se/vart-ansvar/miljopolicy/">https://storaensoskog.se/vart-ansvar/miljopolicy/</a> (Last accessed 22nd October 2018)</p> <p>Meeting protocol of the Collaborative group for managing the Strategic Objectives (2018), Observed during meeting observation (November 9th 2018)</p>
--	--

## Appendix B. Questionnaire used for data analysis. In the semi-structured interviews, the questions varied, according to the actors' background, the organisation they represent and their answers to earlier posed questions

PPs – questions posed to process participants

IOs – questions posed to implementing organisations

MO – questions guiding the meeting observation

AM – questions used to probe all materials (documents, transcriptions, notes).

a. (PPs; IOs) Background questions in interviews:

1. (PPs; IOs) Can you tell me a little bit about yourself, your background, and the organisation you represent?
2. (PPs; IOs) Had you been working with water-related issues before the Dialogue Process started?
3. (IOs) Is your organisation represented in the Dialogue Process?
4. (AM) What is the aim of the Collaborative Group?
5. (PPs) Does the Collaborative Group function as it was initially planned to?

b. What are the process participants' and implementing organisations' perceptions of procedural, source-based and substantive legitimacy?

6. Procedural legitimacy

6.1 (AM) How did the Dialogue Process begin?

6.2 (AM) Who initiated the process and which organisations are represented?

6.3 (AM) How did the represented organisations join the process, who invited them?

6.4 (AM) Which interests are represented in the process and which actors participated?

6.5 (IOs) Do you know anything about the Dialogue Process – how it was organised, who participated and how it was conducted?

6.6 (PPs; IOs) Were there interests that were not represented/some actors that you feel should have been part of the process but were not?

6.7 (PPs; IOs) What were the reasons for that?

6.8 (AM) Did participants receive compensation for taking part in the process?

6.9 (AM) How often did the Working Group meet?

6.10 (AM) How were the meetings organised?

6.11 (AM) How did the discussions take place?

6.12 (AM) Was there a moderator? Who?

6.13 (AM) How are decisions made? (Consensus, majority...)

6.14 (PPs) Do you perceive that you could influence the discussions and the decisions made?

6.15 (PPs) Do you perceive that all participants are/were working towards the same aim?

6.16 (PPs) Do you perceive that some actors had more influence over the design of the process, the discussion and the decisions made?

6.17 (PPs) Do you perceive that some actors had less influence on the design of the process, the discussion and the decisions made?

- 6.18 (PPs) Were there comments/positions of participants that were not taken into consideration in the final material?
- 6.19 (PPs) Have you experienced any conflicts during the process and discussions?
- 6.20 (PPs) If yes, how were those conflicts resolved?
- 6.21 (PPs) Do you know if and how the Strategic Objectives have been disseminated?
- 6.22 (AM) Are the Strategic Objectives and their implementation being evaluated?
- 6.23 (AM) Are there channels for outside actors to influence the outputs (Strategic Objectives) before the final decision is made?
- 6.24 (PPs; IOs) Does your organisation have an evaluation system for assessment of the Strategic Objectives and their implementation?
- 6.25 (MO) Is the dialogue/discussion unconstrained? Are all participants active? Is there any participant who dominates the discussion?
- 6.26 (AM) Do the Collaborative Group and Working Group offer possibilities for external actors to influence their work and outputs and how?
7. Source-based legitimacy
- 7.1 (AM) What knowledge are the outputs (Strategic Objectives) based on?
- 7.2 (PPs) Was there enough knowledge available for you to base your decisions on?
- 7.3 (PPs) How did the Working Group proceed if there was a lack of knowledge in a specific issue? What knowledge were the decisions based on then?
- 7.4 (PPs) Do you perceive that the decisions were based on a satisfactory level of knowledge about the issues-at-hand?
- 7.5 (IOs) Do you perceive that there is enough knowledge available on the effects from the practices that the Strategic Objectives give recommendations for?
8. Substantive legitimacy
- 8.1 (IOs) Do you perceive the Strategic Objectives as prescribing a reasonable level of environmental consideration?
- 8.2 (PPs; IOs) Do you believe that the aims can be achieved by following the recommendations prescribed by the Strategic Objectives?
- 8.3 (PPs; IOs) Has your organisation or any external institution made available resources for implementing the Strategic Objectives?
- c. Are the outputs from a collaborative governance process implemented, and if so, how are they integrated into the implementing organisations' practices?
9. Implementation
- 9.1 (AM) Are the Strategic Objectives mentioned or referred to in internal planning material and policies?
- 9.2 (IOs) Have you heard of the Strategic Objectives?
- 9.3 (IOs) Do you use them or refer to the Strategic Objectives when carrying out your everyday work?
- 9.4 (PPs; IOs) Has your organisation implemented the Strategic Objectives in its planning and policy documents?
- 9.5 (PPs; IOs) Have you or your colleagues undergone any education/training regarding the Strategic Objectives?
- 9.6 (IOs) What is your opinion about the Strategic Objectives?

## References

- Andersson, E., Forsberg, O., 2019. Nya målbilder för god miljöhänsyn vid dikesrensning och skyddsdikeyning. Retrieved from. <https://www.skogsstyrelsen.se/globalassets/om-oss/publikationer/2019/rapport-2019-06-nya-malbilder-for-god-miljohansyn-vi-d-dikesrensning-och-skyddsdikeyning.pdf>.
- Andersson, E., Andersson, M., Birkne, Y., Claesson, S., Forsberg, O., Lundh, G., 2013. Målbilder för god miljöhänsyn. Swedish Forest Agency, Rapport, 5-2013. Retrieved from. <http://shop.skogsstyrelsen.se/sv/publikationer/rapporter/malbilder-for-god-miljohansyn-en-delleverans-fran-dialog-om-milj.html>.
- Andersson, E., Andersson, M., Blomquist, S., Forsberg, O., Lundh, G., 2016. Nya och reviderade målbilder för god miljöhänsyn: Skogssektorns gemensamma målbilder för god miljöhänsyn vid skogsbruksåtgärder. Retrieved from. Swedish Forest Agency. <https://shop.skogsstyrelsen.se/sv/publikationer/rapporter/rapport-2016-12-nya-och-reviderade-malbilder-for-god-miljohansyn.html>.
- Ansell, C., Gash, A., 2008. Collaborative governance in theory and practice. *J. Public Adm. Res. Theory* 18 (4), 543–571.
- Appelstrand, M., 2007. Miljömålet i Skogsbruket-Styrning Och Frivillighet, Vol. 26. Lund University.
- Bäckstrand, K., 2003. Civic science for sustainability: reframing the role of experts, policy-makers and citizens in environmental governance. *Glob. Environ. Polit.* 3 (4), 24–41.
- Bell, E., Scott, T.A., 2020. Common institutional design, divergent results: a comparative case study of collaborative governance platforms for regional water planning. *Environ. Sci. Policy* 111, 63–73. <https://doi.org/10.1016/j.envsci.2020.04.015>.
- Biddle, J.C., 2017. Improving the effectiveness of collaborative governance regimes: lessons from watershed partnerships. *J. Water Resour. Plan. Manag.* 143 (9), 04017048.
- Biddle, J.C., Koontz, T.M., 2014. Goal specificity: a proxy measure for improvements in environmental outcomes in collaborative governance. *J. Environ. Manage.* 145, 268–276. <https://doi.org/10.1016/j.jenvman.2014.06.029>.
- Björstig, T., 2017. Does collaboration lead to sustainability? A study of public-private partnerships in the Swedish mountains. *Sustainability* 9 (10), 1685. <https://doi.org/10.3390/su9101685>.
- Björstig, T., Sandström, C., Sjögren, J., Sonesson, J., Nordin, A., 2019. A struggling collaborative process—revisiting the woodland key habitat concept in Swedish forests. *Scand. J. For. Res.* 1–10.
- Bodansky, D., 1999. The legitimacy of international governance: a coming challenge for international environmental law? *Am. J. Int. Law* 93 (3), 596–624.
- Buchy, M., Hoverman, S., 2000. Understanding public participation in forest planning: a review. *For. Policy Econ.* 1 (1), 15–25. Retrieved from. <https://EconPapers.repec.org/RePEc:eee:forpol:v:1:y:2000:i:1:p:15-25>.
- Challies, E., Newig, J., Thaler, T., Kochskämper, E., Levin-Keitel, M., 2016. Participatory and collaborative governance for sustainable flood risk management: an emerging research agenda. *Environ. Sci. Policy* 55, 275–280. <https://doi.org/10.1016/j.envsci.2015.09.012>.
- Claesson, S., Eriksson, A., Forsberg, O., Fridh, M., Lundh, G., Rydja, U., et al., 2016. Implementering av målbilder för god miljöhänsyn. Communication 9 (9). Retrieved from. <http://shop.skogsstyrelsen.se/sv/publikationer/meddelanden/implentering-av-malbilder-for-god-miljohansyn.html> (Accessed 23 July 2020).
- Edelenbos, J., Van Buuren, A., van Schie, N., 2011. Co-producing knowledge: joint knowledge production between experts, bureaucrats and stakeholders in Dutch water management projects. *Environ. Sci. Policy* 14 (6), 675–684.
- EEA, 2018. Chemicals in European Waters: Knowledge Developments. Retrieved from Luxembourg: <https://www.eea.europa.eu/publications/chemicals-in-european-waters>.
- Eklöf, K., Schelker, J., Sorensen, R., Meili, M., Laudon, H., von Bromssen, C., Bishop, K., 2014. Impact of forestry on total and Methyl-Mercury in surface waters: distinguishing effects of logging and site preparation. *Environ. Sci. Technol.* 48 (9), 4690–4698. <https://doi.org/10.1021/es404879p>.
- Emerson, K., Nabatchi, T., 2015. Collaborative Governance Regimes. Georgetown University Press, Washington DC.
- Eriksson, A., Högvall Nordin, M., 2017. Implementering Av Målbilder För God Miljöhänsyn 2017, Report 9. Retrieved from. <https://www.skogsstyrelsen.se/globalassets/om-oss/publikationer/2017/implentering-av-malbilder-for-god-miljohansyn-2017.pdf>.
- Hogl, K., Kvarda, E., Nordbeck, R., Pregernig, M., 2012. Environmental Governance: The Challenge of Legitimacy and Effectiveness. Edward Elgar.
- Innes, J.E., Booher, D.E., 1999. Consensus building and complex adaptive systems: a framework for evaluating collaborative planning. *J. Am. Plan. Assoc.* 65 (4), 412–423.
- Jacobsen, B.H., Anker, H.T., Baaner, L., 2017. Implementing the water framework directive in Denmark – lessons on agricultural measures from a legal and regulatory perspective. *Land Use Policy* 67, 98–106. <https://doi.org/10.1016/j.landusepol.2017.05.021>.
- Jedd, T., Bixler, R.P., 2015. Accountability in Networked Governance: learning from a case of landscape-scale forest conservation. *Environ. Policy Gov.* 25 (3), 172–187.
- Johansson, J., 2016. Participation and deliberation in Swedish forest governance: the process of initiating a National Forest Program. *For. Policy Econ.* 70, 137–146.
- Johansson, J., 2018. Collaborative governance for sustainable forestry in the emerging bio-based economy in Europe. *Curr. Opin. Environ. Sustain.* 32, 9–16.
- Kallis, G., Kiparsky, M., Norgaard, R., 2009. Collaborative governance and adaptive management: lessons from California's calfed water program. *Environ. Sci. Policy* 12 (6), 631–643.

- Karlsson-Vinkhuyzen, S.I., Vihma, A., 2009. Comparing the legitimacy and effectiveness of global hard and soft law: an analytical framework. *Regul. Gov.* 3 (4), 400–420. <https://doi.org/10.1111/j.1748-5991.2009.01062.x>.
- Koontz, T.M., Newig, J., 2014. From planning to implementation: top-down and bottom-up approaches for collaborative watershed management. *Policy Stud. J.* 42 (3), 416–442. <https://doi.org/10.1111/psj.12067>.
- Koontz, T.M., Thomas, C.W., 2018. Use of science in collaborative environmental management: evidence from local watershed partnerships in the Puget Sound. *Environ. Sci. Policy* 88, 17–23.
- Kronsell, A., Bäckstrand, K., 2010. Rationalities and forms of governance: a framework for analysing the legitimacy of new modes of governance. *Environmental Politics and Deliberative Democracy: Examining the Promise of New Modes of Governance*, pp. 28–46.
- Kvarda, E., Nordbeck, R., 2012. Legitimacy and policy effectiveness of national strategies for sustainability in Austria. *Environmental Governance*. Edward Elgar Publishing.
- Leach, W.D., Sabatier, P.A., 2005. Are trust and social capital the keys to success? Watershed partnerships in California and Washington. *Swimming Upstream: Collaborative Approaches to Watershed Management*, pp. 233–258.
- Lindahl, K.B., Sténs, A., Sandström, C., Johansson, J., Lidskog, R., Ranius, T., Roberge, J.-M., 2017. The Swedish forestry model: More of everything? *For. Policy Econ.* 77, 44–55.
- Löfmarck, E., Ugglå, Y., Lidskog, R., 2017. Freedom with what? Interpretations of “responsibility” in Swedish forestry practice. *For. Policy Econ.* 75, 34–40.
- Mårald, E., Sandström, C., Rist, L., Rosvall, O., Samuelsson, L., Idenfors, A., 2015. Exploring the use of a dialogue process to tackle a complex and controversial issue in forest management. *Scand. J. For. Res.* 30 (8), 749–756.
- Margerum, R.D., 2008. A typology of collaboration efforts in environmental management. *Environ. Manage.* 41 (4), 487–500. <https://doi.org/10.1007/s00267-008-9067-9>.
- Melnychuk, N., Loë, R., 2020. Legitimacy assessment throughout the life of collaborative water governance. *Environ. Policy Gov.* 30 (1), 14–28. <https://doi.org/10.1002/eet.1872>.
- Newig, J., Kvarda, E., 2012. Participation in environmental governance: legitimate and effective? *Environmental Governance*. Edward Elgar Publishing.
- Porter, J.J., Birdi, K., 2018. 22 reasons why collaborations fail: lessons from water innovation research. *Environ. Sci. Policy* 89, 100–108. <https://doi.org/10.1016/j.envsci.2018.07.004>.
- Purdy, J.M., 2012. A framework for assessing power in collaborative governance processes. *Public Adm. Rev.* 72 (3), 409–417.
- Raitio, K., Harkki, S., 2014. The disappearing chain of responsibility: legitimacy challenges in the political governance of Finnish Forest and Park Service. *Land Use Policy* 39, 281–291.
- Reed, M.S., 2008. Stakeholder participation for environmental management: a literature review. *Biol. Conserv.* 141 (10), 2417–2431.
- Ring, E., Andersson, E., Armolaitis, K., Eklöf, K., Finér, L., Gil, W., et al., 2018. Good Practices for Forest Buffers to Improve Surface Water Quality in the Baltic Sea Region.
- Sabatier, P.A., Focht, W., Lubell, M., Trachtenberg, Z., Vedlitz, A., Matlock, M., 2005. *Swimming Upstream: Collaborative Approaches to Watershed Management*. MIT Press.
- Scott, T., 2015. Does collaboration make any difference? Linking collaborative governance to environmental outcomes. *J. Policy Anal. Manag.* 34 (3), 537–566. <https://doi.org/10.1002/pam.21836>.
- SFA, 2014. *Skogsstatistisk Årsbok 2014*. Swedish Forest Agency Jönköping (Sweden).
- Sullivan, A., White, D.D., Hanemann, M., 2019. Designing collaborative governance: insights from the drought contingency planning process for the lower Colorado River basin. *Environ. Sci. Policy* 91, 39–49.
- van der Molen, F., 2018. How knowledge enables governance: the coproduction of environmental governance capacity. *Environ. Sci. Policy* 87, 18–25.
- Vedung, E., 2016. *Implementering I Politik Och Förvaltning*. Studentlitteratur, Lund.
- Yin, R.K., 2012. *Applications of Case Study Research*, 3rd ed. Sage, Thousand Oaks, CA.