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Chapter 10
More Input – Better Output: Does Citizen Involvement Improve Environmental Governance?

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1. Introduction

As earlier chapters have argued and demonstrated in some detail, contemporary politics is experiencing a crisis of legitimacy, and this is most prominently the case with regard to European Union policy. A lack of democratic legitimacy, transparency and accountability in the face of complex multi-level governance has long been evident, not only since the failure of the Constitution (Hansen and Williams 1999; Schmitter 2003). But the intricacies of modern society, the complex interlinkages of technological, environmental and societal factors as well as the multiplicity of actors and interests involved have also undermined the legitimacy of policy-making at the levels of nation states and below (Blühdorn and Jun 2007; also see Blühdorn in the first chapter of this volume). The legitimacy crisis affects both input and output aspect of legitimacy (Scharpf 1997): While the continuing implementation deficits of (European) policy reflect the virtual impossibility of effective policy delivery, the apparent public disenchantment with politics expresses the lack of transparency and the remoteness of policy-making from the constituency. A harsh example illustrating this is environmental policy. Over the past decades, the spatial and functional scope of human environmental impacts has intensified considerably, contributing to an increase in complexity for modern environmental governance (Young et al. 2006; Newig et al. 2008). It is thus probably not surprising that policy delivery in this field has remained exceptionally low (CEC 1999; Jordan 2002; Newig et al. 2008).

In an attempt to respond to the challenges brought about by increasing socio-ecological complexities (Funtowicz and Ravetz 1993) as well as growing normative and factual uncertainties (Pellizzoni 2003; Newig et al. 2005), participation is being touted as an effective remedy (Heinelt 2002). International and EU environmental policy in particular have been fervently promoting a shift from central state, top-down regulation to more transparent, local decision-making structures involving private companies, non-governmental organisations, citizens and interest groups. These participatory

forms of governance have been institutionalised in documents such as the Århus Convention, the Commission's White Paper on European Governance (CEC 2001) or various recent European Union directives.

In section two, we examine more closely the rationales attached to participation in current international and European Union policy, drawing on a text analysis of several policy documents. We show that rationales for public participation, having become an 'official' and integral element of EU rhetoric, appear to have changed. As basic democratic deficits of EU *policy formulation* cannot be resolved from within the EU institutions, the latter seek to compensate for this deficit by enhancing legitimacy through the participation of non-state actors in the phase of policy *implementation* (Kaika and Page 2003). More specifically, this legitimacy is sought through an increased effectiveness of policy by advancing cooperation and participation. In other words, *output* legitimacy (policy effectiveness) is to be enhanced by means of improved *input* legitimacy (inclusion, procedural legitimacy) – albeit input at the implementation rather than the policy formulation stage. The crucial question becomes whether this claim actually holds, i.e. to what extent participation not only increases input legitimacy but also improves policy outputs and outcomes (Beierle and Cayford 2002; Koontz and Thomas 2006).

In section three, we expound how, in theory, participation is expected to enhance the legitimacy and effectiveness of governance. We outline a number of causal mechanisms relating to how participatory processes are expected to improve the quality of decisions as well as their implementation. Particular attention is being paid to the context conditions, including the complexity of the governance situation or the number of governance levels involved.

Section four presents results of a meta-analysis of 40 published case studies of environmental decision-making, drawing on the case-survey method (Lucas 1974; Larsson 1993). This approach is highly suitable to integrate findings from a large number of cases lacking a rigorous design. Based on the above conceptual reflections, we developed a detailed coding scheme comprising several dozen context, process and output/outcome variables that were mostly coded on a semi-quantitative, 0 to 4 point scale by the two authors, proving a high inter-coder reliability. The results of our qualitative and quantitative analysis underscore that participatory environmental decision processes in the majority of cases improve legitimacy of decisions based on input and throughput criteria. However, advances in output-oriented legitimacy are only achieved in certain constellations, while in others, participation contributes to a decrease in environmental standards. This chapter closes with a comparative analysis of how the different dimensions of legitimacy are to be achieved through participatory governance in the face of growing complexity.

2. Managing the legitimacy crisis through participatory governance

The participation of non-state actors in public decisions – beyond democratic elections and referenda – has of course a long tradition. From the 1960s, when the environmental movement and grass-root actors began to demand a say in political matters, an emancipatory motive had been prevalent in the societal discourse that became most highly developed in Habermas' concept of deliberative democracy (Habermas 1991 [1962]). While this has continued to play a role (Renn et al. 1995; Dryzek 1997), the current emphasis on participation is rather one 'from above' in that state and supranational organisations have discovered participation as a means to secure legitimacy for their policies, and thus also for their polity.

This can be demonstrated by an analysis of recent European policy documents. The Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters of 1998 has been legally implemented in the EU by the Public Participation Directive 2003/35/EC. In this spirit, three further EU directives were passed that explicitly demand public participation in environmental decisions. Of these, we analyse the Water Framework Directive (2000/60/EC; WFD)[1], which combines substantive requirements ('good water status') with procedural obligations, including information and consultation of the public as well as its 'active involvement' in the implementation process (Art. 14 WFD).

Rationales that stress *outcome-oriented legitimacy (effectiveness)* can be found in the Århus Convention as well as in the WFD (see Figure 10.1). Both documents mention the importance of better informed *decisions* through the inclusion of lay (local) knowledge. In particular, the documents accompanying the WFD point to the relevance of information regarding the possible acceptance of decisions by the addressees. Furthermore, *policy implementation* is expected to be improved through participation. According to preamble 14 WFD, 'the success of this Directive relies on close cooperation and coherent action at Community, Member State and local level as well as on information, consultation and involvement of the public, including users'. More specifically, the WFD guidance document on public participation[2] states that 'public participation is not an end in itself but a tool to achieve the environmental objectives of the Water Framework Directive' (EU 2002: 6). All three

1 The other two, purely procedural, ones are the Directive 2001/42/EC on the Strategic Environmental Assessment and the new Environmental Information Directive (2003/4/EC).

2 The CIS – an unprecedented institution for fostering and ensuring the coherent implementation of an EU directive – has produced 14 thematic guidance documents which were agreed by representatives ('water directors') of all 15 Member States (at that time) and the Commission.

documents assume that participation improves the environmental awareness of non-state actors. Very importantly, participation is expected to improve the acceptance of and identification with decisions on the part of the involved actors and, therefore, facilitate implementation. Notably, the WFD guidance document believes that participatory processes will mediate conflicting interests in the forefront of a decision and thereby reduce the potential of future litigation and thus the involved costs. Moreover, improved mutual trust both among the non-state actors and between them and the authorities is expected, which in the long run is likewise supposed to lead to an improved acceptance and implementation of decisions.

Figure 10.1: Rationales for Public Participation in the Århus Convention and the WFD Guidance Document

Rationale for public participation			Århus Convention	WFD (GD)
Output-legitimacy	Improving environmental quality, reach environmental goals		preambles 5, 6, 7, 9	pp. 7, 26
	quality of decision	Making available of lay local knowledge to public decision-makers	preamble 16	pp. 24, 26, 41
		Making available of knowledge regarding attitudes and acceptance on the part of civil society actors to the public decision-makers		p. 24
	quality of implementation	Increasing environmental awareness, education, information on the part of civil society actors	preambles 9, 14	p. 4, 26
		Increasing acceptance of and identification with a decision on the part of civil society actors	preamble 10	pp. 4, 26, 41
		Building trust among civil society actors and between them and public authorities		p. 26, 41
		Alleviating conflicts by mediation of interests		pp. 26, 41
Input-legitimacy	Increasing transparency of decision-making and control of state policy and governmental decision-makers		preambles 10, 11	p. 26
	Pursuit of legitimate self-interests on the part of the non-state actors (with respect to access to courts)		preamble 18	
	Strengthening democracy		preamble 21	

Rationales of *input-oriented legitimacy* are on the whole less important in the analysed documents, although they figure quite prominently in the Århus Convention. The main argument here is the transparency of decision-making, in the sense of a control of state decision-makers. This, however, also touches upon an aspect of increased effectiveness. Perhaps the most important argument of legitimacy, namely the 'strengthening of democracy', is only mentioned in the Århus Convention.

As summarised in Figure 10.1, public participation in environmental decisions in the European policy context is expected to increase legitimacy, predominantly on the part of improved policy outputs. Specifically, *output-oriented legitimacy* (policy effectiveness) is to be enhanced by means of improved *input-oriented legitimacy* (inclusion, procedural legitimacy).

3. Conceptual framework: How participation can enhance governance

If we are to understand whether and how public participation enhances the legitimacy of public decisions – predominantly in terms of their effectiveness – we need hypotheses on causal mechanisms against which we can compare empirical findings. This section attempts to integrate existing hypotheses and causal assumptions from the literature on public participation and policy implementation. The guiding hypothesis can be borrowed from an EU-funded research project, namely 'that participation leads to a higher degree of sustainable and innovative outcomes' (Heinelt 2002: 17). Or, as has been formulated in the US-context: 'The value of public participation will ultimately be judged by its ability to enhance implementation and show demonstrable benefits for environmental quality' (Beierle and Cayford 2002: 76) – which is to be put to the test.

By participation we understand 'all forms of influence on the design of collectively binding agreements by persons and organisations that are not routinely in charge of these tasks' (Renn 2005: 227), thus excluding all those forms of civic engagement that do not aim at collective decisions, such as Agenda 21 processes, as well as participation in elections or referenda. Public participation thus ranges from public consultation by competent authorities to cooperative decision-making, including different forms such as public hearings, consensus conferences, regional forums, councils, citizens' juries or stakeholder platforms, to name but a few.

How can these forms of participation contribute to an improved *input-oriented legitimacy* of public decisions? As opposed to classical top-down oriented administrative decision-making (which in parliamentary democracies is typically indirectly legitimised through democratic elections), partici-

patory governance involves a wide variety of societal groups. Input-oriented legitimacy derives from a legitimate representation of these groups. According to Schmitter (2002), different types of 'holders' can be distinguished, indicating different criteria (such as rights, spatial location, knowledge, interest or status) of who should be involved in order to maintain legitimacy. Furthermore, the design and realisation of the – participatory – decision process have an impact on legitimacy. This involves open communication and information flows among participants (Rowe and Frewer 2005), opportunities for free deliberation in face-to-face settings as well as an overall 'fair' process that does not discriminate any party and in which civil society actors are actually granted a degree of influence on decisions (Webler and Tuler 2000). Last but not least, the acceptance of a decision by participants as well as non-participants is an indicator of legitimacy.

Looking at the way in which participation can enhance *output-oriented legitimacy,* we analyse – in line with the dimensions of Figure 10.1 – how the quality of decision outputs as well as their implementation can be improved through participation. Important variables to be taken into account are summarised in Figure 10.2 and will be elaborated below.

It is claimed that participation enhances the quality of decisions. The main mechanism that can be assumed is that, in the course of the participatory process, information is generated or made available that would not have been so otherwise, and that, further, this information is indeed incorporated into the decision. Thus, it seems plausible that environmental decisions can benefit from the factual knowledge of actors about their (local) conditions (Pellizzoni 2003), assuming that those who are closest to a problem develop the best understanding of it. Moreover, there may be information that 'emerges' from the close interaction of actors in a group process. Many authors stress the positive effects of social learning, the plurality of perspectives and thus the more creative decision-making as characteristics of participatory decision-making (e.g. Pahl-Wostl and Hare 2004). Another type of information from which decisions could benefit is information regarding the extent to which planned measures will be accepted by the addressees. In this respect, participation becomes an 'instrument for the anticipation of resistance to planning and implementation' (Linder and Vatter 1996: 181). Finally, participation of civil society actors can serve to break up established networks between public authorities and business or development advocates, allowing the inclusion of more environmental concerns in decision-making. It is thus assumed that participatory decisions involving civil society actors will be more favourable to ecological concerns than command-and-control decisions. However, in societal contexts characterised by a highly committed environmental administration and a less environmentally friendly citizen body, participatory decision-making can also lead to watered-down environmental standards.

Figure 10.2: Important variables in analysing the relationship between participation and legitimacy

Context	Process	Results
– Problem structure – Problem complexity (expertise and time required for understanding) – Spatial scale – Number of governance levels – Possible solutions (technical and other) – Actors – Interest, concern – Power/resources – Constellations, e.g. NIMBY, degree of conflict – Social structure – Public attention to the issue – Collective social capital – Social norms	– Process design – Opportunities for civil society actors to participate – Representation of actor groups – Degree of formalisation – Process realisation – Information flows – Fairness – Face-to-face communication – Facilitation or mediation – Actual participation and influence on the part of the civil society actors	– Direct results of the participation process – Information gain – Conflict resolution – Acceptance and identification of participants (and non-participants) with the decision – Strengthening of trust relationships among civil society and governmental actors – Substantive output and outcome – Result of decision (suitability of measures; implementability) – Implementation and compliance by the addressees

Secondly, participation is expected to improve the implementation of decisions. Quite plausibly, the addressees of a decision must know of it in order to comply with requirements. By being involved in decision-making, addressees can take the necessary steps of reorganisation and adaptation to new (regulatory) conditions at an early stage. Furthermore, compliance with a decision is expected to depend positively on the degree of acceptance, or even identification, on the part of the addressees (e.g. Renn et al. 1995; Bulkeley and Mol 2003). Acceptance can be supported by providing the interested actors with early and comprehensive information. This may prevent actors from feeling left out or ignored and create a sense of involvement and belonging. Also, certain educational effects can play a role, e.g. in the sense of an improved environmental awareness. Moreover, intensive involvement of the concerned actors in a decision process that is perceived as fair and based on mutual communication is expected to enhance the acceptance of the decision. This even holds when the result does not correspond to the actors' expectations, as procedural justice research has shown (Lind and Tyler 1988). Furthermore, a decision involving conflicting interests is more likely to be ac-

cepted by the different parties if it is based on either a consensus, or at least a compromise to which most of the parties agree. This in turn most likely requires an intensive participatory process that allows the concerned actors to effectively claim their stakes, but also a spectrum of interests that does not fundamentally rule out any consensual solutions. Finally, in the medium and long term, the building of trust relationships both among the non-state actors involved and between non-state and state actors through participation can lead to an increased regional collective social capital, and can thus influence the context of future decision processes. In particular, the building of trust can improve acceptance of and thus the willingness to comply with measures (Bulkeley and Mol 2003).

Research has suggested that the societal and environmental *context* of decision processes plays a decisive role for what can be considered legitimate decision processes and outcomes. First and foremost, the characteristics of actors and their constellations have to be considered. Particular importance lies with social dilemma situations, which regularly arise in environmental conflicts (Ostrom 1990). Here, legitimacy (both input and output oriented) can only be ensured by internalising all externalities or regional spill-overs, and thus overcoming spatial misfits between the scale of decision-making and that of the environmental problem (Young 2002). Scales of decision-making are also important with respect to multi-level governance aspects. The more governance levels involved (and therefore, the more complex the decision process becomes), the less likely it appears that citizens and environmental groups are effectively involved. Power positions are another important factor (Lee and Abbot 2003). The more powerful the involved actors, the more likely it is that decisions will actually be implemented. High power asymmetries among actors, however, tend to involve biased decisions scoring low on input legitimacy. Finally, the structure of a problem can have a decisive influence on the success of a participatory decision process. The more complex and intricate a governance issue, the more difficult it is for all actors, but especially the non-experts, to comprehend (Diduck and Sinclair 2002). In these cases, deliberative and inclusive decision-making can open up possibilities for win-win situations and more creative – and ultimately more effective – solutions.

To sum up, there are many factors which plausibly suggest that the design of participation processes and the representation of societal actors are likely to have significant effects both on input-oriented as well as output-oriented legitimacy. Decision-making situations characterised by high complexity and uncertainty in particular lend themselves to highly inclusive and deliberative processes.

All this, however, is not to say that participation is universally expected to deliver in the ways mentioned, for numerous are its critics. Scholars have pointed out multiple dangers and trade-offs which Dahl (1994) has termed a

'democratic dilemma' between effectiveness and participation. Recently, more and more authors have been asking whether participatory modes of implementation actually improve substantive policy outcomes. Or, more specifically, to what extent and under what circumstances they do so. Even if one does not embrace the notion of participation as the 'new tyranny' (Cooke and Kothari 2001), 'there is something of a dilemma if participation turns out, empirically, not to improve outcomes' (Lee and Abbot 2003: 87f).

4. Evidence from empirical cases of public environmental decision-making

In this section we present the results of a meta-analysis of 40 case studies on – more or less participatory – environmental decision-making. The aim is to put the approaches previously discussed to an initial empirical test. Based on a broad, but surely not exhaustive, literature review, we have built up a database of some 200 case studies on environmental decision-making in late-modern democracies carried out within the last three decades. The most important selection criterion has been the completeness of provided information. Even though these do not constitute a population in a statistical sense and are presumably not representative of all actually carried out environmental decision-making processes in late-modern democracies, they do represent a broad variety of policy issues, political scales, decision contexts and forms of participation. Figure 10.3 gives an overview of the analysed case studies.

Approximately 80 per cent of the cases stem from North America, reflecting the popularity of public participation approaches, mediation and negotiated rule-making in the United States and Canada. The remaining cases are from Europe, mostly Germany. Although we are primarily interested in the European context, we found the inclusion of North American cases highly instructive for three major reasons: First, the rationales attached to participation as well as the processes employed have developed quite similarly on both sides of the Atlantic. Second, the literature on participation itself is highly interlinked among European and American scholars. And third, a statistical analysis has shown virtually no significant correlations between the continent of the case study and other variables, which means that both structural and process characteristics are highly comparable across the Atlantic.

In the following, we will discuss in what respect (and to what extent) participation enhances legitimacy. The relevant dimensions we analyse comprise (1) input in terms of process characteristics, (2) output in terms of environmental standards of decisions, (3) implementability of decisions, and (4) the importance of the context of decision-making for these latter three dimensions.

Figure 10.3: Analysed case studies for environmental decision-making

Policy field	Place	Issue	Source
Land use planning	Belmont, Massachusetts, USA	Sale of area of environmental value heats up public concern	Layzer 2002
	Chiwaukee Prairee, Wisconsin, USA	Development of a land use plan between ecological and economic interests	Haygood 1995
Forest manage-ment	San Juan National Forest, Colorado, USA	Logging in a national forest violates environmental and economic interests	Tableman 1990
Air policy	Brayton Point, Massachusetts, USA	Air quality affected by conversion of oil-based power plant to coal-based	Burgess and Smith 1983
	Colstrip, Montana, USA	Air quality affected by extension of existing power plant	Sullivan 1983
Natural resources manage-ment	Everglades National Park, Florida, USA	Increased water use in residential areas endangers protected natural resources in a national park	Abrams et al. 1995
	Cold Lake, Alberta, Canada	Authorisation of oil drilling in a protected area	Elder 1981
	Spreewald, Germany	Riparian Land Project	Baranek and Günther 2005
	Portage Island, Washington, USA	Dispute over the public recreational use of a protected area	Talbot 1984
	Saguache County, Colorado, USA	Uranium mining in a protected area	Kartez and Bowman 1993
	Sand Lake Quiet Area, Michigan, USA	Oil drilling in a protected area	Nelson 1990
	Münchehagen, Germany	Clean up of a hazardous waste site	Striegnitz 1997
	Yukon territory, Canada	Management of wolf population between animal protection and ecosystem perspective	Todd 2002
	Wilfield Locks, West Virginia, USA	Clean up of a hazardous site	Langton 1996
	Albermarle-Pamlico, North Carolina, USA	Development of a large estuary management plan	Koontz et al. 2004
Transportation policy	Berlin and Brandenburg, Germany	Airport extension with additional runway	Barbian et al. 1998
	Frankfurt, Germany	Airport extension with additional runway	Geis 2005
	Seattle, Washington, USA	Highway extension and development of a public transport concept	Talbot 1984
Waste policy	Aargau, Switzerland	Siting of a hazardous waste facility	Renn et al. 1998
	Jackson, Wyoming, USA	Siting of a sewage treatment plant	Hill 1983

Policy field	Place	Issue	Source
	Lübeck, Germany	Development of a municipal waste management plan	Wiedemann et al. 1995
	Maine, USA	Siting of a nuclear waste facility	Clary and Hornney 1995
	Neuss, Germany	Development of a regional waste management plan	Fietkau and Weidner 1998
Water policy	Animas River, Colorado, USA	Development of a water management plan	Koontz et al. 2004
Water policy	Ashtabula, Ohio, USA	Development of a water management plan	Letterhos 1992
	Bay of Quinte, Ontario, Canada	Development of a water management plan	Stride et al. 1992
	Collingwood, Ontario, Canada	Development of a water management plan	Krantzberg 2003
	Denver, Colorado, USA	Construction of a dam to adapt to increased water use	Burgess 1983
	Grand Canyon National Park, Colorado, USA	Development of a river management plan	Orton 2005
	Hudson River, New York, USA	Extension of power plant endangers fish populations and water quality of river	Talbot 1984
	Kingsport, Tennessee, USA	Effluent regulation for a chemical factory	Jaegerman 1983
	Milwaukee, Wisconsin, USA	Development of a water management plan	Kaemmerer et al. 1992
	Richmond County, California, USA	Installation of flood protection measures	Mazmanian 1979
	Sandspit Harbour, British Columbia, Canada	Construction of harbour endangers several marine species	Sigurdson 1998
	Snoqualmie River, Washington, USA	Installation of flood protection measures	Cormick 1976
	Sugarbush	Withdrawal of water for ski slopes to the concern of environmentalists	Fitzhugh and Dozier 1996
	Swan Lake, Maine, USA	Construction of new power plant impacts on water resources	Talbot 1984
	Umatilla, Oregon, USA	Water management between fishing, agricultural and environmental interests	Neuman 1996
	Upper Narragansett Bay, Rhode Island, USA	Deliberation on combined sewer overflows	Burroughs 1999
	Wisconsin, USA	Drafting a new state groundwater legislation	Edgar 1990
	Spey River, Scotland, UK	Development of a river basin management plan	Blackstock and Richards 2007

(1) Does participation improve the *input-oriented legitimacy* of environmental decisions? In a way, the question is wrongly posed. That is, most indicators of the degree of participation are either identical with those of input-

oriented legitimacy (e.g. fairness, representation) or they relate to process characteristics (such as intensity of information flows, process facilitation or face-to-face-communication) which cannot be temporally separated from the other criteria. In the 40 cases analysed, these indicators range from very low to very high values. That many of these variables are correlated thus does not indicate causality but rather conceptual relatedness. However, we also measured acceptance of participants and non-participants (the latter only, as far as the data allowed us to). Here, we find a high correlation with fairness ($r = .5$ with $p < .01$)[3], but not with representation or communication-related variables. On the contrary, variables that measure the formalisation of a participation process (controlled participant selection, facilitation of information elicitation, structured information aggregation according to Rowe and Frewer 2005) correlate negatively with participant acceptance.

(2) In most of the 40 cases, new and useful information was generated. The variable 'information gain' received an average score of 2.2 points[4] (with a standard deviation of 1.0), but is only positively correlated with process variables that relate to the degree of formalisation, yet negatively correlated with the degree of citizen involvement. Indeed, in many of the cases in which much useful information was generated, issues were very technical, leaving little room for citizens to contribute. In the *Lübeck* and *Neuss* waste management cases, for instance, much useful information was generated, but mainly through the involvement of experts. On the other hand, environmental groups and engaged citizens succeeded in the *Albemarle-Pamlico* estuarine process to work closely with experts and generate an immensely improved scientific basis for an estuarine conservation and management plan. All things considered, although there is a considerable gain of useful information in the cases analysed, our findings suggests that – contrary to theory – private citizens have (at least on average) little specific knowledge to offer compared to governmental agencies.

In terms of finding new and creative solutions ('collective learning'), participation does seem to make a difference. The variable obtains an average score of 2.1 (with a standard deviation of 1.0) and is positively correlated with many process-related variables such as the degree of stakeholder interaction and the intensity of communication and information flows, and also aspects of process fairness and legitimate representation of stakeholders. This suggests that an effective information flow presupposes deliberation, reflection and the development of creative solutions. Variables related to input-oriented legitimacy (e.g. representation, fairness), consistent with theory, appear to influence the willingness of stakeholders to actually cooperate and

3 Correlation coefficients according to Spearman. Full correlation tables can be obtained from the authors.

4 Unless otherwise noted, we used a 0 to 4 point semi-quantitative scale.

thus learn collectively. A positive example is the *Aargau* case, in which four citizens' fora, composed of citizen representatives of nine Swiss communities proposed as potential waste sites, successfully (and consensually) developed an ecologically rational ranking of waste sites. Conversely, the insufficient involvement of citizens and open-space proponents in the *Belmont* hospital case contributed to the fact that, although an enormous amount of information was generated, hardly any innovative solutions could be developed.

Comparison of the results regarding 'collective learning' with those of 'information gain', leads us to conclude that collective learning, to a much larger extent than information gain, appears to depend on the way the process is conducted. Information and technical data, it seems, can be generated without having to rely on participation; creative new solutions and the use of win-win potentials, on the other hand, appear to presuppose high degrees of participation.

Ultimately, we are interested to see whether participation not only improves the knowledge base of the decisions but actually leads to more ecological decisions. Measured on a scale from -4 to 4, the ecological standard of decisions averages at .4 (standard deviation: 1.9). In some cases, environmental programmes were enacted, while in others, large development projects, harmful to the environment, were decided upon. The highest correlation by far is with the variable 'mean actor environmental preferences' (.86, $p < .001$). Clearly, the interests of participants determine the output more than any other factor. The *Colstrip* mediation might serve as an example here. This case reports how a tribe of Indians opposed the upgrading of a power plant close to their homelands and achieved additional measures of air pollution control as a precondition for the upgrading. Conversely, in the *Spreewald* riparian land project, local actors from agriculture, forestry, fishery and tourism opposed strict measures, fearing expropriation and loss of incomes. One of the few notable exceptions is the *Yukon* wolf management case in which the well-designed participation process led to ecological outputs far superior than the original preferences of the participants.

Contrary to theory, the learning-related variables 'information gain' and 'collective learning' are not significantly correlated with either of the environmental output variables. This suggests that both are really two different matters. Improved ecological standards do not require an improved knowledge base; conversely, learning effects need not lead to ecologically better decisions.

(3) As regards the implementation of decisions, we can first note that intermediary variables such as conflict resolution, acceptance and trust-building are highly positively correlated with variables related to input-legitimacy (representation, fairness, communication). Remarkably and unexpectedly, methods of facilitated and structured information elicitation, although they contribute to an education of stakeholders, seem to impede acceptance and

trust-building. The *Snoqualmie* river mediation may serve to illustrate a case of a highly participatory process with a well-accepted decision. The mediated process served both to resolve a year-old conflict and to produce a solution that was accepted by stakeholders and government. In contrast, the decision made in the *Albemarle-Pamlico* process, highly participatory as well – although not mediated – was accepted to a lesser degree, largely due to the voluntary non-participation of one particular actor group.

While the examined cases generally provided thorough material on decision outputs, much less information was given on their implementation. This is mainly due to the fact that the case descriptions typically end with a successfully completed decision, partly because case studies were published before implementation could even have taken place. For those eleven cases in which we could code environmental outcomes, this variable shows few significant correlations with process variables. Only face-to-face communication appears to improve environmental outcomes. Trust building, contrary to theory, is negatively correlated with environmental outcomes. The *Holston* river case presents a clear example of an improved implementation through a negotiated settlement. If we follow the reasoning of the author, an environmentally less stringent agreement was negotiated, but has a much better chance of implementation as compared to a hypothetical top-down case because of the substantially reduced risk of long court trials with an uncertain conclusion and delayed implementation. Similarly, without the participatory agreement in the *Spreewald* case, federal funds for the large nature conservation project would not even have been granted; given the local opposition to the project, the participatory agreement constituted virtually a prerequisite for implementation.

(4) Finally, the context of the decision process played an important role in the analysed cases in a twofold way. First, context variables such as the degree of conflict, agenda-setting by governmental (as opposed to civil society) actors or the degree of problem complexity show more significant correlations with environmental outputs and outcomes than do process variables. This clearly puts into perspective the claim of participation research that it is mainly the process that matters. Moreover, context characteristics appear to influence processes. One of the most 'influential' factors appears to be the degree of problem complexity. It is positively correlated with a structured participation process designed to maximise information inputs and aggregation, but negatively correlated with variables characterising input-oriented legitimacy (fairness, communication, face-to-face-communication). Second, context variables also influence the way process affects output and outcome. Acting as 'third variables', they affect the correlations between other variables. For instance, in cases with high problem complexity, outputs positively correlate with factors such as win-win, formalisation, but negatively with information flows, process facilitation and the degree of conflict. In cases with low prob-

lem complexity, on the other hand, we find positive correlations of outputs with fairness and face-to-face communication.

5. Conclusions

Current European policy-making faces a twofold challenge of legitimacy: On the input side of the policy process, European policies lack democratic legitimacy, transparency and accountability. On the output side, implementation deficits prevail, quite prominently so in the field of environmental policy. Against this background, EU policies seek to reconfigure democracy in that they promote, following recent international developments, the participation of civil society in the *implementation* of European policies. This is expected to enhance both input-oriented legitimacy – albeit at a later stage in the policy cycle – as well as output-oriented legitimacy, particularly in the face of increasingly complex socio-ecological interactions. Our meta-analysis of 40 cases of environmental decision-making from North America and Europe processes reveals a mixed picture with regard to these expectations.

First, carefully designed participatory decision processes, ensuring the representation of all affected societal actors and maintaining a fair process, clearly improve acceptance of participants (and non-participants). This can be taken as a measure of enhanced legitimacy. Second, while participation – contrary to theory – does not significantly account for the generation of information, it does seem to foster social learning and thus more creative solutions, the latter being another indicator of improved legitimacy. However, both an improved information base, as well as more creative solutions, on average do not contribute to more 'ecological' outputs, let alone outcomes. Third, we found participation to clearly foster the resolution of conflicts and the building of trust among participants – which is perhaps also a measure of legitimacy. Yet this again does not contribute – at least not substantially – to improved environmental outputs or outcomes. Fourth, the fact that participation does increase environmental standards of outputs and outcomes, if only to a small degree, can largely be attributed to the preferences of the involved actors which are on average slightly in favour of stronger environmental standards, actor preferences being the single most important factor influencing environmental outputs and outcomes. Finally, the context of (environmental) decision-making appears to be crucial for both the process, its outputs/outcomes *and* for the way process affects outputs and outcomes. A notable example is problem complexity. In cases where it is high, environmental outputs/outcomes depend on structured decision processes, allowing the maximisation of information input and aggregation, while aspects of (input-oriented) legitimacy such as fairness and representation do not play a role. Conversely, cases with low problem complexity

appear to provide an environment in which input-oriented legitimacy fosters substantive outputs/outcomes.

To conclude, civil society participation in environmental decisions brings about all kinds of merits, several of which very likely enhance legitimacy in one way or another. Yet whether substantive policy outputs can be improved through participation – this being the main expectation of current European policies – is highly contingent upon the respective context. Whether participation not only increases legitimacy and effectiveness, but is also an *efficient* means, has been left aside and remains to be studied. Given its strong instrumental focus on participation, European policy-making will be well-advised to carefully consider the conditions under which it promotes – or even mandates – participation, if this is to substantially bring about more than merely symbolic legitimacy.

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