






# How previous experiences shape actors' current perspectives in integrated natural resource management

Raphael Gaus<sup>1,2</sup>  | Olivier Ejderyan<sup>3</sup>  | Adrienne Grêt-Regamey<sup>2</sup>  |  
William D. Leach<sup>4</sup>  | Matthias Buchecker<sup>1</sup> 

<sup>1</sup>Economics and Social Sciences Unit, Swiss Federal Institute for Forest, Snow and Landscape Research WSL, Birmensdorf, Switzerland

<sup>2</sup>Planning of Landscape and Urban Systems Chair, ETH Zurich, Zurich, Switzerland

<sup>3</sup>Department of Food System Sciences, Research Institute of Organic Agriculture FiBL, Frick, Switzerland

<sup>4</sup>Sol Price School of Public Policy, University of Southern California, Los Angeles, California, USA

## Correspondence

Raphael Gaus

Email: [raphael.gaus@wsl.ch](mailto:raphael.gaus@wsl.ch)

**Handling Editor:** Tobias Plieninger

## Abstract

1. Previous experiences play a multifaceted role in shaping current perspectives in integrated natural resource management. We used qualitative interviews and a quantitative survey to study the similarities and differences in terms of the links between the diverse actors' previous experiences and their current perspectives on the various issues to be resolved in a real-world integrated watershed management project.
2. We found that the quantity and quality of experiences in past projects including water management, participation and politics are dissimilarly linked to the information, mental models and beliefs of perspectives regarding present issues. More experienced actors generally have broader perspectives than less experienced actors. Less experienced actors are particularly curious about approaches to water management.
3. Actors with more experience in water management are more focused on ecological issues due to positive experience. Actors with more experience in participation are more sceptical about constructive solutions due to negative experience. Actors with more experience in politics emphasise the importance of agriculture and learning processes due to positive or negative experience. Actors with more negative experience in water management, participation and politics can nevertheless be motivated for participatory processes and integrated natural resource management.
4. We conclude that previous experiences are critical factors that should be considered when designing participatory processes in integrated natural resource management. It could be valuable to include mixed compositions of actors with different types of previous experiences and different aspects of current perspectives to benefit from their complementary strengths.

## KEYWORDS

actors, integrated watershed management, participation, perspectives, previous experiences

This is an open access article under the terms of the [Creative Commons Attribution](https://creativecommons.org/licenses/by/4.0/) License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited.

© 2023 The Authors. *People and Nature* published by John Wiley & Sons Ltd on behalf of British Ecological Society.

## 1 | INTRODUCTION

Integrated natural resource management aims to find solutions to issues in social-ecological systems considering different perspectives through inclusion of actors in participatory processes (Bodin et al., 2020; Pahl-Wostl et al., 2011). Since a growing number of policies have promoted integrated natural resource management on different scales, the need for participatory processes has been increasing (Kaika, 2003; UNISDR, 2006). Because the same actors are often included in different projects in a specific region, they become more experienced, which can foster deliberative continuity in decision making but hinder innovation of solutions or increase participation fatigue (Hatzilacou et al., 2007; Nieto-Romero et al., 2016). Optimal compositions of more experienced and less experienced actors in participatory processes are the subject of ongoing debates (De Vente et al., 2016; Masao et al., 2022). There is a controversy about how actors' previous experiences shape their current perspectives in integrated natural resource management.

Theory and evidence about decision making suggest that previous experiences are linked to current perspectives through social learning (Biedenweg & Monroe, 2013). Social learning is stimulated by communication and interaction among actors and results in changes of perspectives (Rodela, 2011). Perspectives are situational ways how actors regard issues shaped by information, mental models and beliefs (Cundill et al., 2012; OED, 1989). That is, actors gather information in experiences and develop mental models of reality. Mental models cognitively process experiences in the minds of actors, iteratively filter information about real-world issues, and reciprocally influence beliefs and vice versa. Actors' beliefs in turn influence mental models and are again affected by experiences. Furthermore, individual roles, behaviour, action and statements concerning issues to be resolved are also affected by experiences (Bosch et al., 2003). Because of these multiple links, actors' current perspectives in decision making are expected to be similar or different depending on their previous experiences (Garmendia & Stagl, 2010).

Recent research related to integrated natural resource management suggests that the quantity and quality of previous experiences influence the information, mental models and beliefs of current perspectives. A study of a collaborative water board found that actors who had attended workshops more often were better informed about views and demands of other actors but not about approaches to water management (Mathevet et al., 2011). A study of community forest management showed that actors with more previous experience in integrated natural resource management had more focused current perspectives on the interests of their own groups (Mulyani & Jepson, 2015). A study of participatory environmental governance indicated that actors were more likely to collectively resolve issues if they had been included in participatory processes of political decision making (Van Laerhoven, 2014). Some studies argued that satisfying or unsatisfying past projects built trust or mistrust that produced willingness or reluctance to participate in future projects of integrated natural resource management (Rudeen et al., 2012;

Tuler et al., 2002; Vinke-de Kruijf et al., 2014). A study of integrated watershed management concluded that disappointments in past projects did not necessarily reduce the desire of actors to engage themselves again since they still believed that their inclusion helped to resolve present issues (Horangic et al., 2016). However, only a few studies have systematically investigated the links between actors' previous experiences and their current perspectives, and none has comprehensively examined the similarities and differences among actors considering a multiplicity of present issues and past projects. It remains unclear in what ways different types of previous experiences affect different aspects of current perspectives in an integrated natural resource management project.

In this paper, we study the diverse actors' previous experiences and their current perspectives on the various issues to be resolved in a real-world integrated natural resource management project. We investigate two research questions: (1) What are the similarities and differences among actors in terms of previous experiences and current perspectives? (2) What are the links between actors' different types of previous experiences and their different aspects of current perspectives? To answer these research questions, we examine previous experiences and current perspectives in a case study in Switzerland.

### 1.1 | Case study context

We selected the integrated watershed management project Hasli2050 as our case study because of its complexity of actors and issues. The project in the Swiss Canton of Bern was funded by the federal and cantonal governments to elaborate a development concept for the water bodies in the watershed of the river Hasliaare. This development concept aimed to formulate future visions, institutional arrangements and technical measures to manage water resources through a multiactor platform for the exchange of perspectives based on extensive participation and meaningful deliberation.

In total, 62 actors participated in a series of 10 workshops between 2015 and 2017. On average, 36 actors attended each workshop. The actors included local municipalities, corporations, companies and associations of residents, landowners, farmers, fishermen, conservationists, hydropower station operators, railway operators and tourism providers. In addition, the actors included federal and cantonal government authorities for natural hazards, hydraulic engineering, hydropower, fishery, agriculture, forestry, ecology, spatial planning and transport networks. They deliberated over water-related issues, potential causes and possible solutions.

The watershed of the river Hasliaare is located in a high mountain region in the Swiss Alps. It covers about 600 km<sup>2</sup> between 566 and 4274 m a.s.l., with about 12,500 inhabitants in nine municipalities. The water resources include groundwater, streams, waterfalls, lakes and glaciers. Agriculture, hydropower and tourism have been the pillars of the economy. The water bodies are characterised by both unspoiled nature and technical infrastructure, which occur

close together. There are several hydropower stations, and many streams and lakes are channelled or dammed. Due to the revised Federal Water Protection Act, which became effective in 2011, the cantonal government is obligated to carry out ecological restoration in and along the water bodies to counteract the ecological deficits. The land resources required for an appropriate ecological restoration are mainly private properties owned by farmers, which raises issues of financial compensation. The region is exposed to a high risk of water-related natural hazards. Most municipalities have experienced severe floods or mudflows. These relationships have caused long-standing conflicts among the diverse actors.

To find constructive solutions to the various issues, several approaches to water management have been implemented. The most recent have been a structure plan for the river Hasliaare in the lower areas, which focused on flood protection, ecology and agriculture; and a climate change adaptation strategy in the upper areas of the watershed, which focused on mudflow protection, hydropower and tourism. Thus, previous experiences are of particular importance since many actors have been included in past projects. However, no past project has included all relevant actors to resolve the most important issues related to the entire region in one participatory process, such as the Hasli2050 project.

## 2 | METHODS

We used an exploratory sequential mixed methods design based on methodological triangulation before the participatory process of the Hasli2050 project (Creswell, 2014). Research ethics were approved by the Swiss National Science Foundation and adhered to by the coauthors. Qualitative document reviews and actor analyses from January to February 2015 helped us to grasp an overview of the case study project and the issues to be resolved. We investigated the characteristics of the watershed, the properties of the natural resources, the planned decision making and the actors who intended to be included. Also, we examined the past projects that had included actors in the region. These insights formed a basis for our further data collection and analysis (Gaus et al., 2021).

Qualitative interviews from March to August 2015 revealed the similarities and differences among actors in terms of the links between different types of previous experiences and different aspects of current perspectives (Bogner & Menz, 2002). We developed a semi-structured interview guide with open-ended questions to stimulate a conversation about the issues to be resolved in the case study project. Appendix A shows these questions, which elicited statements about current perspectives and previous experiences. A single interviewer conducted the interviews with an average duration of 75 min at the interviewees' home, in their office or in a local restaurant. In accordance with the research ethics, verbal consents were given in every interview. We analysed the interview transcripts through systematic coding in meetings of the coauthors to ensure intercoder reliability (Strauss & Corbin, 1998). That is, we disclosed the influential types of previous experiences and the affected

aspects of current perspectives in the case study project. We further clarified how the quantity and quality that characterise these types are linked to the information, mental models and beliefs that shape these aspects, and we showed how current perspectives are similar or different as a consequence of previous experiences. We uncovered in depth more details about these links in characteristically aggregated forms, and we illustrated these similarities and differences of the affected aspects of current perspectives by textually comparing exemplary cases of selected interviewees with more or less, and positive or negative previous experience of the influential types to consider the complexity of actors and issues in the real-world integrated watershed management project. We also chose these exemplary cases to validate the qualitative data collection and analysis, synthesise the results and consolidate our findings against the background of the case study project. In addition, we identified essential statements in all interviews to derive consequential variables for the following quantitative data collection and analysis.

A quantitative survey in September 2015 statistically measured the similarities and differences among actors in terms of the links between the affected aspects of current perspectives and the quantity of the influential types of previous experiences that had been revealed in the qualitative interviews (Lamnek, 1988). Based on our findings of these semi-structured interviews, we elaborated a standardised questionnaire with closed-ended questions and answer options in the form of seven-point Likert items from very untrue to very true, very unimportant to very important or strongly disagree to strongly agree (Likert, 1932). Appendix B shows these items, which rated statements about current perspectives and previous experiences. We also formulated socio-demographic questions about place and duration of residence, profession, affiliation and age. In accordance with the research ethics, written consents were given in every questionnaire. We analysed the filled out questionnaires excluding respondents with missing answers through nonparametric Mann-Whitney *U* tests with a significance level of  $\alpha=0.05$  because the variables were not normally distributed but at least on an ordinal scale. This allowed for a systematic comparison of the central tendencies of each aspect of current perspectives between respondents with more or less previous experience within each type to show the respective implication. In doing so, we dichotomised respondents who rated the variables about the previous experiences with 7 or 6 on the seven-point Likert items as more experienced and the rest of other respondents as less experienced. This dichotomisation was conceptually driven and justified based on our preliminary findings of the interviews. We wanted to statistically compare respondents with unambiguously more experience and respondents with accordingly less experience, no matter of the size of the respective groups. However, we recognised through descriptive statistics that the distribution of 5, 4 and 3 on the seven-point Likert items was not very distinctive concerning a differentiation of previous experiences above or below neutral. Therefore, we decided not to compare 7-5 and 4-1 but 7-6 and 5-1. That is, we intended a skewing toward less experience and accepted small subsamples in the real-world case study project. Nevertheless, we initially explored

different Mann–Whitney *U* tests with different dichotomisations as a sensitivity analysis. The respective results appeared to be statistically robust and conceptually valid. In other words, we quantified certain similarities and differences of current perspectives depending on previous experiences to corroborate whether our qualitative findings in the case study project were statistically significant.

For the interview sample, we selected 22 actors considering all relevant groups. This qualitative sampling was based on mixed purposeful techniques (Patton, 1990). It included actors who intended to directly participate in the workshops of the case study project, actors who were only indirectly involved due to their affiliation with a participating group and actors who intended not to become involved. Interviewees had more or less, and positive or negative previous experience of the influential types of water management, participation and politics. For the survey sample, we contacted all 44 directly participating actors of the initial workshop of the case study project within a month to join the survey and to invite the indirectly involved actors of their groups to do so too. We received 50 questionnaires from 22 direct actors and 28 indirect actors. This procedure was the only quantitative sampling that the case study project head authorised due to privacy concerns. We were not aware of how many indirect actors obtained the survey and we were not able to calculate the overall response rate. The partial response rate from the direct actors was 50%. Table 1 shows the number of respondents across different types of previous experiences and diverse actor groups. Actors of the case study project head and cantonal authorities had professional roles; actors of local municipalities, companies and associations had professional or voluntary roles; and actors of local corporations had voluntary roles. Because one actor can also have more previous experience of more than one type, the respective groups of more experienced respondents can partly overlap. We decided not to analyse discrete groups of respondents with more previous experience of only one type because we wanted

to reflect the actual characteristics of the actors in the real-world case study project. Also, the subsamples would have been too small for statistical tests. Figure 1 shows the number of respondents with more previous experience across types and combinations.

### 3 | RESULTS

#### 3.1 | Influential types of previous experiences and affected aspects of current perspectives

In a first step of initial qualitative analysis, the interviews exploratively revealed that there are several similarities and differences among interviewees, which feature different types of previous experiences and different aspects of current perspectives. Figure 2 shows the influential types and the affected aspects that we disclosed in the case study project.

Diverse interviewees stated that they are fully aware that changes of their own current perspectives and those of other actors are linked to previous experiences through learning processes. One said: ‘I learned, changed my mind, got convinced and agreed although I had seen it differently before’. Another said: ‘You always learn from each and every other opinion in a project if you want to’. And another said: ‘You can always learn a lot from other experiences, especially as a lay person working on solutions in a project with engineers and other experts’. This accentuates that learning processes regarding present issues have mostly been stimulated by different perspectives and different experiences of other actors from other fields in real-world past projects. Diverse interviewees agreed that the influential types of previous experiences in past projects are water management, participation and politics: characterised by quantity and quality.

Interviewees who reported having more positive or more negative experience in water management, participation and politics

TABLE 1 Number of respondents across different types of previous experiences and diverse actor groups in the survey sample.

	Type of previous experience					
	Water management		Participation		Politics	
	More	Less	More	Less	More	Less
Actor group	Number of respondents					
Local water management corporations	6	9	6	10	4	12
Local farming and forestry corporations	2	4	2	3	1	5
Local conservation associations	2	5	2	5	0	7
Local tourism associations	1	3	2	2	0	4
Local hydropower companies	1	3	2	2	0	4
Local municipality authorities	1	3	2	2	1	3
Cantonal hydraulic engineering authorities	2	0	2	0	0	2
Cantonal fishery and ecology authorities	2	0	2	0	0	2
Cantonal hydropower authorities	1	0	1	0	0	1
Cantonal planning and transport authorities	1	1	0	2	0	2
Case study project head	0	1	0	1	0	1

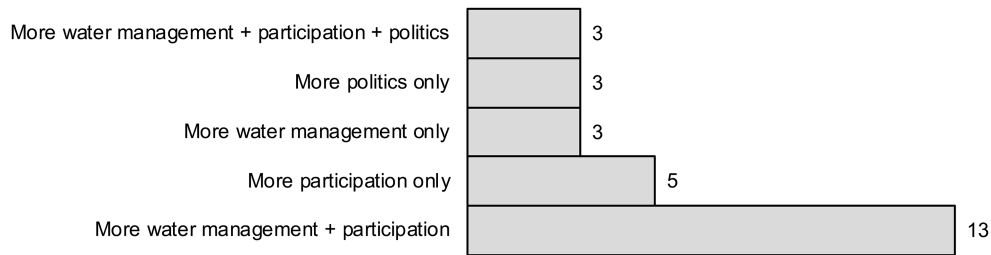


FIGURE 1 Number of respondents with more previous experience across types and combinations in the survey sample.

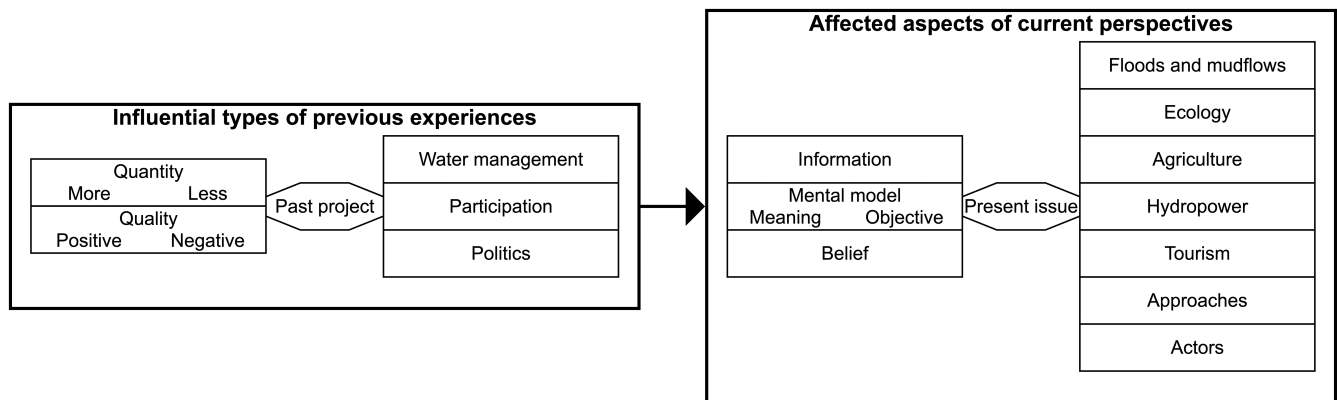


FIGURE 2 Influential types of previous experiences and affected aspects of current perspectives in the qualitative interviews.

spoke more about past transformations of their current perspectives, whereas interviewees with less experience of the influential types spoke more about future supplementations of their current perspectives. More experienced interviewees of different types mainly explained how they had learned about issues to be resolved, such as the consequences of climate change on natural resource management or the need for ecological restoration. Less experienced interviewees of different types mainly explained how they will learn about issues to be resolved, such as technical measures to manage water resources. More or less experienced interviewees of different types mentioned that meanings and objectives are the most important dimensions of their mental models. Interviewees with more or less positive or negative experience in water management, participation and politics agreed that the affected aspects of current perspectives on present issues are flood and mudflow protection, ecological conditions, agricultural production, hydropower generation, touristic marketing, approaches to water management, and views and demands of other actors: shaped by information, meanings, objectives and beliefs.

### 3.2 | Significant implications of more or less previous experience

In a second step of complementary quantitative analysis, the survey corroborated these preliminary results of the interviews and statistically measured how the quantity of the types of previous experiences is linked to the aspects of current perspectives.

Table 2 shows that respondents with more previous experience in water management, participation or politics have significant differences in several items, and thus significantly different current perspectives in terms of information, meanings, objectives and beliefs, compared to less experienced respondents of the same type.

More previous experience in water management is linked to more information about five issues: floods and mudflows, ecology, hydropower, approaches to water management, and views and demands of other actors. Furthermore, the current perspectives of respondents with more previous experience in water management differ from less experienced respondents of this type in two meanings and one objective, which rate ecology of the water bodies as more important. Moreover, those who are more experienced in water management agree more strongly with two beliefs about ecological issues related to fostering connectivity and biodiversity.

More previous experience in participation is linked to more information about four of the same issues as more previous experience in water management: floods and mudflows, ecology, approaches to water management, and views and demands of other actors. Also, the current perspectives of respondents with more previous experience in participation differ from less experienced respondents of this type in the same meaning about the importance of natural stream beds and the same objective about the importance of ecological restoration. In contrast, three additional beliefs about issues related to approaches to water management, and views and demands of other actors shape their current perspectives differently. Those who are more experienced

TABLE 2 Comparison of different aspects of current perspectives between respondents with more or less previous experience of different types in the quantitative survey.

Aspect of current perspective	Type of previous experience					
	Quantity: very untrue (1) ... neutral (4) ... very true (7)					
	I have been included in water management.			I have been included in participation.		
	More (7-6)	Less (5-1)	More (7-6)	Less (5-1)	More (7-6)	Less (5-1)
Mean/standard deviation for significant difference with $p \leq 0.05$ in Mann-Whitney U test						
Information: very untrue (1) ... neutral (4) ... very true (7)						
I am well informed about flood and mudflow protection in the watershed.	6.2/0.8	5.5/0.9	6.1/0.8	5.4/0.8	6.5/0.5	5.6/0.9
I am well informed about ecological conditions in the watershed.	6.3/0.8	4.6/1.2	6.1/1.0	4.6/1.2		
I am well informed about approaches to water management in the watershed.	5.6/1.4	4.3/1.4	5.3/1.5	4.3/1.4		
I am well informed about views and demands of other actors in the watershed.	5.5/1.3	4.2/1.8	5.5/1.2	4.1/1.8		
I am well informed about hydropower generation in the watershed.	6.1/1.1	5.5/0.9			6.5/0.8	5.6/1.0
I am well informed about touristic marketing in the watershed.					6.5/0.5	5.2/1.3
I am well informed about agricultural production in the watershed.					6.3/0.5	5.1/1.4
Meaning: very unimportant (1) ... neutral (4) ... very important (7)						
Natural stream bed is an important meaning of the water bodies.	6.1/1.6	5.5/1.4	6.2/1.3	5.4/1.4		
Place for ecological compensation is an important meaning of the water bodies.	5.7/1.4	5.1/1.1				
Area for agricultural production is an important meaning of the water bodies.					6.2/0.4	4.7/1.6
Objective: very unimportant (1) ... neutral (4) ... very important (7)						
Ecological restoration is an important objective for the management of the water bodies.	5.4/2.1	4.4/1.6	5.5/1.9	4.4/1.7		
Belief: strongly disagree (1) ... neutral (4) ... strongly agree (7)						
Ecological connectivity and biodiversity in and along water bodies should be fostered.	5.4/1.7	4.4/1.5				
Agricultural production should contribute to fostering ecological connectivity and biodiversity.	4.7/1.9	3.6/1.7				
It is easy to find constructive solutions in the watershed.			3.7/1.6	4.7/1.1		
It is important to assert my personal views and demands.			3.7/1.7	4.5/1.2		
I feel as a part of the present project.			5.2/1.4	4.2/1.2		

Note: Data displayed are means and standard deviations of seven-point Likert items for significant differences with  $p \leq 0.05$  in Mann-Whitney U tests based on sample sizes and sums of ranks, as shown in Appendix B.



in participation identify themselves more strongly with the integrated watershed management project and consider the assertion of their personal views and demands to be less important. At the same time, they are more sceptical about finding constructive solutions in the watershed. As shown in [Figure 1](#), more previous experience in water management and participation is a characteristic combination in the real-world case study project.

More previous experience in politics is linked to more information about one of the same and four different issues: floods and mudflows, hydropower, agriculture and tourism. Hence, these respondents have more distinct information compared to respondents with more previous experience in water management or participation. In addition, the current perspectives of respondents with more previous experience in politics differ from less experienced respondents of this type in only one meaning about agricultural issues related to the water bodies. Those who are more experienced in politics emphasise agricultural production as more important. As shown in [Table 1](#), respondents with more previous experience in politics are all voluntary representants of local water management corporations, local farming and forestry corporations or local municipality authorities.

### 3.3 | Serious consequences of positive or negative previous experience

In a third step of additional qualitative analysis, the interviews further clarified how the quality of the types of previous experiences is linked to the aspects of current perspectives. Essential statements show that interviewees with positive previous experience in water management, participation or politics have seriously different current perspectives in terms of information, meanings, objectives and beliefs, compared to interviewees with negative previous experience of the same type.

Positive previous experience in water management with effective implementations of concrete outcomes turned concerns about ecological meanings and objectives into proecological current perspectives. One said: 'I see it differently now and I learned that appropriate ecological restoration is really important and not very difficult to realise'. Negative previous experience in water management with delayed implementations or not enough concrete outcomes nurtured reservations that water management has become very time-consuming and cost-intensive because of legal regulations for nature and landscape conservation. One said: 'Water management is much more complicated than a few years ago and it is often tiring and annoying because of the too many laws'. Negative previous experience in water management with prioritised ecological issues fuelled frustrations about the weights and balances of meanings and objectives in water management, which boosted beliefs that ecological solutions should have a reasonable cost-benefit ratio. One said: 'I am unhappy and worried since it almost seems to me that ecology will soon be even more important, at the expense of flood and mudflow protection'.

Another said: 'I believe that ecological restoration should only be supported and is only worth the money in cases where there is a substantial ecological benefit and not only because there is a law that enforces it'.

Positive previous experience in participation with enhanced communication and invigorated interaction fostered information that built trust that participatory processes are the key to constructive solutions. One said: 'I know that the chances to effectively implement concrete outcomes are much higher if all actors are included from the very beginning, and all views and demands are exchanged in an open setting'. Negative previous experience in participation with suboptimal communication or constrained interaction caused mistrust related to beliefs about finding constructive solutions in participatory processes. One said: 'It would be naive to believe that we will settle everything with such a project since I know we will get to the limits and see that it will take a very long time to come to any decisions'. Another said: 'I have lost my faith that this approach really helps a long time ago'.

Positive previous experience in politics with efficient decision making strengthened beliefs about the awareness that flexibility and learning processes are crucial for successfully finding any solutions to the various issues. One said: 'Once, we said that we list all advantages and disadvantages, and eventually, I learned and realised that the advantages outweigh the disadvantages'. Another said: 'We will have to look for a path in the middle to find constructive solutions together since we all sit at the same table'. Negative previous experience in politics with failed decision making firmed up the conviction that learning processes and compromises among all relevant actors are needed for concrete outcomes in the watershed. One said: 'It always requires all sides, including government authorities, municipalities, corporations and the public, to take a step toward each other'.

### 3.4 | Similar and different current perspectives linked to previous experiences

In a fourth step of final qualitative analysis, the interviews uncovered in depth more details about the links between the influential types of previous experiences and the affected aspects of current perspectives in characteristically aggregated forms, as disclosed in the case study project. [Table 3](#) shows the similarities and differences among selected interviewees, who were all voluntary representants of local water management corporations or local farming and forestry corporations and served as exemplary cases to illustrate the complexity of actors and issues in the real-world integrated watershed management project.

Interviewees with more previous experience in water management, participation and politics, either positive or negative, have broader current perspectives than interviewees with less previous experience of these types. These broader perspectives include bigger perimeters, wider networks of actors and more issues to be resolved. One said: 'It is not just about one local water management corporation that has a problem, it is about the entire region that has a

**TABLE 3** Similarities and differences of current perspectives and previous experiences in characteristically aggregated forms in the qualitative interviews of four exemplary cases of interviewees.

	<b>Interviewee A: More positive previous experience in water management, participation, and politics</b>	<b>Interviewee B: More negative previous experience in water management, participation, and politics</b>	<b>Interviewee C: Less previous experience of these types</b>	<b>Interviewee D: Less previous experience of these types</b>
Scale of current perspective	General perspective on all Alpine areas, balance between nature and humans	Regional perspective on whole watershed, control of nature by humans	Local perspective on home municipality, issues concern other municipalities	Particular perspective on own actor group, issues concern other actor groups
Issues to be resolved	Upcoming consequences of climate change on flood protection, bed load transport, hydropower, and ecology	Instant coping with wild water bodies, unspoiled nature, decreasing jobs in periphery under climate change	No exigencies, flood protection along near streams, ensure discharge	Nothing at the moment, maintenance of close stream beds, monitoring of mudflows
Challenges for finding solutions	Interdependence of human intervention and natural recovery	Scarce land resources, limited freedom for development	Uncontrollable soil sealing due to increasing construction	Unavoidable mudflows due to extreme weather
Limitations of implementations	No perfect solution, unchangeable laws, institutions, and people, flexibility crucial	Unresolvable conflicts between agriculture and ecology, compromises needed	No easy solution, competences of other municipalities	Unpredictable nature, too many laws, competences of other actor groups
Usefulness of integrated natural resource management	Maybe first step to collaboratively deliberate over perspectives, openly question unquestionable questions	Doubtful but only chance to straightly bring in perspectives, efficiently coordinate policies, collectively define strategies	Will see, would not have been initiated if not useful, but good to exchange perspectives among municipalities	No value added, no need for action, but good that all perspectives at one table
Expectations for case study project	Learning of actors, search for concrete outcomes, but cannot resolve most issues	All come aboard, get closer, but lost some confidence in concrete outcomes	Nothing really new, mutual understanding, reciprocal concessions	No actual novelties, take different views and demands seriously
Motivation to participate	All relevant actors have to participate, all views and demands need to be respected, question of solidarity	Never give up, always try again, support all kind of initiatives for learning despite disappointments	Duty of function in actor group, good thing to learn from others about water management, help others to learn	Representant of position of actor group, open to learn about issues, afraid of missing anything

**Note:** Interviewees A, B and C are voluntary representants of local water management corporations and interviewee D is a voluntary representant of local farming and forestry corporations.



problem, it is about the whole entirety'. Interviewees with more positive or more negative previous experience in water management, participation and politics name regional or general issues related to natural resources, as for example the influence of climate change on the risk of natural hazards, or the relationships between water bodies, ecology, agriculture and hydropower in the whole watershed. Interviewees with less previous experience of these types name local or particular issues related to water management in their perceived scope, as for instance the maintenance of the stream beds, or flood and mudflow protection in their own municipality. Interviewees with more previous experience in water management, participation and politics, no matter if positive or negative, see stronger needs for action in participatory processes than interviewees with less previous experience of these types.

Interviewees with more positive previous experience in water management, participation and politics are more open to integrated natural resource management and to deliberate over ecology, compared to interviewees with less previous experience of these types. One said: 'I know that things have changed and that ecological issues and solutions are very important in such integrated approaches today, which is quite reasonable in my view'. Interviewees with less previous experience of these types do not see many issues that require urgent solutions through integrated natural resource management. One said: 'I do not actually see any issues right now in the watershed and I just do not know at all what novelties this project will provide but we will see since maybe I do not see anything anywhere anyhow'. Interviewees with more positive previous experience in water management, participation and politics imagine more new insights that will emerge in the integrated watershed management project, but interviewees with less previous experience of these types do not oppose the case study project and even express that they are open to learn about approaches to water management and issues to be resolved out of curiosity.

Interviewees with more negative previous experience in water management, participation and politics have explicitly low expectations toward the integrated watershed management project, whereas interviewees with less previous experience of these types have no explicit expectations at all. Interviewees with more negative previous experience in water management, participation and politics remember disappointments in past projects that did not induce real-world implementations. One said: 'Without concrete outcomes, this project will not be a good thing and not everybody has understood that it would be a pity to spend money for it'. Interviewees with more negative previous experience in water management, participation and politics can nevertheless be motivated to participate in the case study project, despite low expectations. They believe that the only chance to resolve any issues in the watershed is the exchange of current perspectives among all relevant actors based on extensive participation and meaningful deliberation. One said: 'I do not think that this project works but I am still hopeful and of course I will try it again and join it'. Interviewees with less previous experience of these types believe that their own participation is necessary because it belongs to their task and because other relevant actors also engage themselves in the exchange

of current perspectives. One said: 'If we all join this project, we can maybe achieve a few goals one day in the future'. This demonstrates how interviewees' motivation differs due to previous experiences in past projects. Interviewees with more negative previous experience in water management, participation and politics hope that the integrated watershed management project will eventually resolve some issues, whereas interviewees with less previous experience of these types are curious whether it will possibly resolve any issues.

Interviewees with more positive or more negative previous experience in water management, participation and politics, as well as interviewees with less previous experience of these types do not expect a clear usefulness of the case study project. They rarely ascribe any specific meanings and objectives to the integrated watershed management project. They mostly describe some vague benefits that extensive participation will facilitate meaningful deliberation among actors. Regardless of their previous experiences, interviewees are uncertain whether the integration of additional issues and actors is novel or beneficial. Interviewees with more or less positive or negative previous experience in water management, participation and politics agree that integrated natural resource management will take a lot of time and only bring a first step to resolve the most important issues in the watershed.

## 4 | DISCUSSION

We answer two research questions in a real-world integrated watershed management project: (1) What are the similarities and differences among actors in terms of previous experiences and current perspectives? (2) What are the links between actors' different types of previous experiences and their different aspects of current perspectives? Qualitative interviews and a quantitative survey show that previous experiences play a multifaceted role in shaping current perspectives in integrated natural resource management.

### 4.1 | Similarities and differences among actors in terms of previous experiences and current perspectives

Our qualitative and quantitative findings indicate that different types of previous experiences are dissimilarly linked to different aspects of current perspectives. In our case study, the influential types of previous experiences in past projects are water management, participation and politics: characterised by quantity and quality. The affected aspects of current perspectives on present issues are flood and mudflow protection, ecological conditions, agricultural production, hydropower generation, touristic marketing, approaches to water management, and views and demands of other actors: shaped by information, meanings, objectives and beliefs, with meanings and objectives as the most important dimensions of mental models. Furthermore, we find that actors are aware of these links between previous experiences and current perspectives in the

real-world integrated watershed management project. Also, we find that, compared to less experienced actors, more experienced actors have broader current perspectives: they consider bigger perimeters, wider networks of actors, more issues to be resolved and stronger needs for action. These findings coincide with other studies, which argued that experiences in past projects are linked to perspectives on present issues in different ways (Biedenweg & Monroe, 2013; Pahl-Wostl et al., 2011; Van Laerhoven, 2014).

Our quantitative findings suggest that more previous experience in water management, participation or politics is statistically linked to significantly more information concerning the integrated watershed management project and the issues to be resolved. The information of actors with more previous experience in politics appears to be more distinct compared to the information of actors with more previous experience in water management or participation. In the case study project, more previous experience in water management is characteristically linked to more previous experience in participation, and more previous experience in politics is characteristically linked to voluntary representants of local water management corporations, local farming and forestry corporations, or local municipality authorities. The current perspectives of actors who are more experienced in politics are shaped by more information about flood and mudflow protection, agricultural production, hydropower generation and touristic marketing. These issues are highly politicised in the watershed because of severe floods and mudflows, and since agriculture, hydropower and tourism have been the pillars of the economy. Actors who are more experienced in water management or participation are not more informed about tourism and agriculture. They are more informed about ecological conditions, approaches to water management, and views and demands of other actors. This agrees with a study of social learning in deliberative environmental planning, which suggested that participatory processes enable actors to gather comprehensive information about these issues (Garmendia & Stagl, 2010). Also, it partly agrees with another study, which suggested that the quantity of actors' previous experiences in workshops of a collaborative water board influenced their current perspectives regarding better information only about views and demands of other actors but not about approaches to water management (Mathevet et al., 2011).

Furthermore, our quantitative findings suggest that more previous experience in water management, participation or politics is statistically linked to significantly different meanings, objectives and beliefs of more experienced actors in the case study project. The current perspectives of actors who are more experienced in politics seem to be less affected than the current perspectives of actors who are more experienced in water management or participation. The current perspectives of actors with more previous experience in politics are shaped by only one different meaning compared to the actors with less previous experience in politics. They particularly emphasise the meaning of agriculture as more important. Actors with more previous experience in water management have current perspectives that are shaped by several different meanings, objectives and beliefs. They consider ecological meanings and objectives

to be more important and agree more strongly with proecological beliefs. This could be a result of more frequent inclusions or stronger engagements of actors who are professionally or voluntarily concerned with ecological issues (Davis et al., 2019). Such changes of meanings and objectives, and thus mental models, as well as beliefs could also be a result of social learning through participation in integrated natural resource management (Buchecker et al., 2021; Leach et al., 2014). Besides one proecological meaning and objective each, actors with more previous experience in participation have several different beliefs about approaches to water management and views and demands of other actors. They are more sceptical about finding constructive solutions although they identify themselves more strongly with the integrated watershed management project. Other studies suggested that a certain degree of scepticism is a fundamental result of changes of beliefs through social learning and political decision making (Höppner et al., 2007; Poortinga & Pidgeon, 2003). Actors with more previous experience in participation consider the assertion of their personal views and demands, instead of the views and demands of their respective groups, to be less important than actors with less previous experience in participation, no matter if they are professionally or voluntarily affiliated with their groups. This partly agrees with another study, which suggested that actors in a community forest management project had more focused current perspectives on the interests of their own groups because of more previous experience in integrated natural resource management (Mulyani & Jepson, 2015).

## 4.2 | Links between different types of previous experiences and different aspects of current perspectives

Our qualitative findings allow for deeper insights into the links between previous experiences and current perspectives. Positive or negative previous experience in water management, participation or politics has different consequences on actors' current perspectives. Positive previous experience in water management results in proecological information, meanings, objectives and beliefs. Negative previous experience in water management results in frustrations and reservations about nature and landscape conservation. Positive or negative previous experience in politics results in current perspectives that emphasise that learning processes and flexibility or compromises are important in decision making. Positive previous experience in participation results in trust about finding constructive solutions in participatory processes, whereas negative previous experience in participation results in mistrust. Other studies suggested that the quality of actors' previous experiences affected their current perspectives in terms of trust or mistrust that produced willingness or reluctance regarding participatory processes and integrated natural resource management (Rudeen et al., 2012; Tuler et al., 2002; Vinke-de Kruijf et al., 2014).

However, our qualitative findings point out that actors with more negative previous experience in water management, participation

and politics can nevertheless be motivated to become included in participatory processes and integrated natural resource management again, despite their low expectations. After disappointments in past projects some actors do not believe in real-world implementations through participation and integration anymore but they still wish and hope that their engagement in future projects can somehow be useful to resolve some issues. This fully agrees with another study, which suggested that disappointing previous experiences could even encourage the desire of actors to participate in an integrated watershed management project (Horangic et al., 2016). Participation fatigue due to previous experiences of overstrained actors does not necessarily occur without alternatives in integrated natural resource management. It appears to hold true for other case study projects, where it also seems to be a matter of how the participatory processes and workshops are designed (De Vente et al., 2016; Hatzilacou et al., 2007).

Our qualitative and quantitative findings in the case study project indicate that previous experiences develop actors' current perspectives in integrated natural resource management through social learning. The observed similarities and differences among actors in terms of the identified links between different types of previous experiences and different aspects of current perspectives suggest learning processes on the level of individuals and groups. We find that different types of previous experiences in past projects adapted actors' information, modified the meanings and objectives of their mental models and altered their beliefs that shape different aspects of current perspectives on present issues. We assume that previous experiences not only stimulated single-loop but also double-loop and triple-loop learning. The concept of single-loop learning refers to adaptations in the information about issues within unmodified mental models, whereas double-loop learning also contains modifications of the mental models themselves and triple-loop learning even comprises alterations of the influencing beliefs (Biggs et al., 2011). We find that actors who share a similar quantity and quality of previous experiences have developed shared information, meanings and objectives of mental models, and beliefs shaping their current perspectives. These findings support other studies that argued that previous experiences assumedly shape social learning of actors in participatory processes (Schusler et al., 2003).

### 4.3 | Limitations and further research

This study of a real-world integrated watershed management project has two main limitations. (1) The case study took place in a rural region with intensive relationships among actors and a high degree of sectoral and spatial interrelatedness. Many actors know each other well, and some actors are affiliated with diverse groups beside the case study project. This might lead to a stronger sense of community and responsibility compared to more urban regions. The self-assessments of current perspectives, previous experiences and learning processes might be less positive in a case study with less tradition of solidarity and less potential for collaboration. However,

we collected and analysed our data based on methodological triangulation of mixed qualitative and quantitative methods to consider the context of the case study project. (2) The sample of the quantitative survey was rather small and it did not allow for subsamples of respondents with more previous experience of only one type, and some subsamples of more experienced respondents did not include a large diversity of actor groups. For example, respondents with more previous experience in politics did not include voluntary representatives of local conservation associations or professional representatives of cantonal government authorities. This can bias the resulting aspects of current perspectives toward highly politicised issues, such as agriculture. Furthermore, individual respondents' previous experiences can consist of more than one type, and their current perspectives can be linked to additional characteristics, such as profession. However, these characteristics are expected to be linked again to previous experiences, which complicates interpretations of underlying causalities. Nevertheless, our sample reflected the actual characteristics in the real-world case study project. In fact, the statistically significant results are especially noteworthy considering the rather small sample. Future studies should investigate different cases with various backgrounds and diverse natural resources based on extended samples. This would facilitate complementary specifications about how the context of an integrated natural resource management project shapes the links between previous experiences and current perspectives. In particular, it would allow for deeper insights into participatory processes that feature issues related to other natural resources than water management.

## 5 | CONCLUSIONS

We draw two main conclusions: (1) The quantity and quality of previous experiences in water management, participation and politics are dissimilarly linked to actors' current perspectives including their information, meanings and objectives of mental models, and beliefs about integrated natural resource management. (2) More experienced actors generally have broader perspectives than less experienced actors. Less experienced actors are particularly curious about approaches to water management. Actors with more experience in water management are more focused on ecological issues due to positive experience. Actors with more experience in participation are more sceptical about constructive solutions due to negative experience. Actors with more experience in politics emphasise the importance of agriculture and learning processes due to positive or negative experience. Actors with more negative experience in water management, participation and politics can nevertheless be motivated for participatory processes and integrated natural resource management.

This implies that previous experiences of actors are critical factors in decision making that should be considered when designing participatory processes in integrated natural resource management. It could be valuable to include actors with less previous experience

to initiate innovation of solutions. However, less experienced actors should not completely rearrange existing hierarchies in social-ecological systems because repeated inclusions of more experienced actors could establish communities of practice that rather entail deliberative continuity than participation fatigue. Mixed compositions of actors with different types of previous experiences and different aspects of current perspectives have the potential to benefit from their complementary strengths, enlarge pools of eligible actors and promote diffusions of learning processes.

## AUTHOR CONTRIBUTIONS

**Raphael Gaus:** conceptualisation, methodology, investigation, formal analysis, visualisation, writing—original draft, writing—review & editing. **Olivier Ejderyan:** validation, writing—review & editing. **Adrienne Grêt-Regamey:** supervision, writing—review & editing. **William D. Leach:** supervision, writing—review & editing. **Matthias Buchecker:** project administration, funding acquisition, supervision, writing—review & editing.

## ACKNOWLEDGEMENTS

The authors would like to thank the participants of the Hasli2050 project for the broad support.

## FUNDING INFORMATION

This work was supported by the Swiss National Science Foundation under Grant 100018\_150312/1.

## CONFLICT OF INTEREST STATEMENT

The authors have no conflict of interest to declare.

## DATA AVAILABILITY STATEMENT

The data used in this study are included in this paper in anonymised and aggregated forms, in accordance with the research ethics.

## ORCID

Raphael Gaus  <https://orcid.org/0000-0002-5695-428X>  
 Olivier Ejderyan  <https://orcid.org/0000-0002-2382-2758>  
 Adrienne Grêt-Regamey  <https://orcid.org/0000-0001-8156-9503>  
 William D. Leach  <https://orcid.org/0000-0001-7565-6600>  
 Matthias Buchecker  <https://orcid.org/0000-0002-0970-7382>

## REFERENCES

- Biedenweg, K. A., & Monroe, M. (2013). Cognitive methods and a case study for assessing shared perspectives as a result of social learning. *Society & Natural Resources*, 26(8), 931–944. <https://doi.org/10.1080/08941920.2012.725455>
- Biggs, D., Abel, N., Knight, A. T., Leitch, A., Langston, A., & Ban, N. C. (2011). The implementation crisis in conservation planning: Could 'mental models' help? *Conservation Letters*, 4(3), 169–183. <https://doi.org/10.1111/j.1755-263X.2011.00170.x>
- Bodin, Ö., Baird, J., Schultz, L., Plummer, R., & Armitage, D. (2020). The impacts of trust, cost and risk on collaboration in environmental governance. *People and Nature*, 2(3), 734–749. <https://doi.org/10.1002/pan3.10097>
- Bogner, A., & Menz, W. (2002). Das theoriegenerierende Experteninterview: Erkenntnisinteresse, Wissensformen, Interaktion. In A. Bogner, B. Littig, & W. Menz (Eds.), *Das Experteninterview: Theorie, Methode, Anwendung* (pp. 33–70). Leske + Budrich.
- Bosch, O. J. H., Ross, A. H., & Beeton, R. J. S. (2003). Integrating science and management through collaborative learning and better information management. *Systems Research and Behavioral Science*, 20(2), 107–118. <https://doi.org/10.1002/sres.536>
- Buchecker, M., Fankhauser, M., & Gaus, R. (2021). Finding shared solutions in landscape or natural resource management through social learning: A quasi-experimental evaluation in an Alpine region. *Landscape Ecology*. <https://doi.org/10.1007/s10980-021-01274-y>
- Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage Publications.
- Cundill, G., Cumming, G. S., Biggs, D., & Fabricius, C. (2012). Soft systems thinking and social learning for adaptive management. *Conservation Biology*, 26(1), 13–20. <https://doi.org/10.1111/j.1523-1739.2011.01755.x>
- Davis, A., Taylor, C. E., & Martin, J. M. (2019). Are pro-ecological values enough? Determining the drivers and extent of participation in citizen science programs. *Human Dimensions of Wildlife*, 24(6), 501–514. <https://doi.org/10.1080/10871209.2019.1641857>
- De Vente, J., Reed, M. S., Stringer, L. C., Valente, S., & Newig, J. (2016). How does the context and design of participatory decision making processes affect their outcomes? Evidence from sustainable land management in global drylands. *Ecology and Society*, 21(2), 24. <https://doi.org/10.5751/ES-08053-210224>
- Garmendia, E., & Stagl, S. (2010). Public participation for sustainability and social learning: Concepts and lessons from three case studies in Europe. *Ecological Economics*, 69(8), 1712–1722. <https://doi.org/10.1016/j.ecolecon.2010.03.027>
- Gaus, R., Grêt-Regamey, A., & Buchecker, M. (2021). Eliciting actors' perspectives in integrated watershed management: Exploring a practical tool based on a mental model approach. *Journal of Environmental Planning and Management*, 64(8), 1352–1374. <https://doi.org/10.1080/09640568.2020.1823343>
- Hatzilacou, D., Kallis, G., Mexa, A., Coccosis, H., & Svoronou, E. (2007). Scenario workshops: A useful method for participatory water resources planning? *Water Resources Research*, 43(6), 1. <https://doi.org/10.1029/2006WR004878>
- Höppner, C., Frick, J., & Buchecker, M. (2007). Assessing psycho-social effects of participatory landscape planning. *Landscape and Urban Planning*, 83(2–3), 196–207. <https://doi.org/10.1016/j.landurbplan.2007.04.005>
- Horangic, A., Berry, K. A., & Wall, T. (2016). Influences on stakeholder participation in water negotiations: A case study from the Klamath Basin. *Society & Natural Resources*, 29(12), 1421–1435. <https://doi.org/10.1080/08941920.2016.1144837>
- Kaika, M. (2003). The Water Framework Directive: A new directive for a changing social, political and economic European framework. *European Planning Studies*, 11(3), 299–316. <https://doi.org/10.1080/09654310303640>
- Lamnek, S. (1988). *Qualitative Sozialforschung: Band 1: Methodologie*. Psychologie Verlags Union.
- Leach, W. D., Weible, C. M., Vince, S. R., Siddiki, S. N., & Calanni, J. C. (2014). Fostering learning through collaboration: Knowledge acquisition and belief change in marine aquaculture partnerships. *Journal of Public Administration Research and Theory*, 24(3), 591–622. <https://doi.org/10.1093/jopart/mut011>
- Likert, R. (1932). A technique for the measurement of attitudes. *Archives of Psychology*, 22(140), 5–55.
- Masao, C. A., Prescott, G. W., Sneathlidge, M. A., Urbach, D., Torre-Marín Rando, A., Molina-Venegas, R., Mollé, N. P., Hemp, C., Hemp, A., & Fischer, M. (2022). Stakeholder perspectives on nature, people and sustainability at Mount Kilimanjaro. *People and Nature*, 4(3), 711–729. <https://doi.org/10.1002/pan3.10310>

- Mathevet, R., Etienne, M., Lynam, T., & Calvet, C. (2011). Water management in the Camargue Biosphere Reserve: Insights from comparative mental models analysis. *Ecology and Society*, 16(1), 43. <https://doi.org/10.5751/ES-04007-160143>
- Mulyani, M., & Jepson, P. (2015). Social learning through a REDD+ 'village agreement': Insights from the KFCP in Indonesia. *Asia Pacific Viewpoint*, 56(1), 79–95. <https://doi.org/10.1111/apv.12083>
- Nieto-Romero, M., Milcu, A., Leventon, J., Mikulcak, F., & Fischer, J. (2016). The role of scenarios in fostering collective action for sustainable development: Lessons from Central Romania. *Land Use Policy*, 50, 156–168. <https://doi.org/10.1016/j.landusepol.2015.09.013>
- OED. (1989). In J. A. Simpson & E. S. C. Weiner (Eds.), *The Oxford English Dictionary* (Vol. XI, 2nd ed.). Clarendon Press.
- Pahl-Wostl, C., Jeffrey, P., Isendahl, N., & Brugnach, M. (2011). Maturing the new water management paradigm: Progressing from aspiration to practice. *Water Resources Management*, 25(3), 837–856. <https://doi.org/10.1007/s11269-010-9729-2>
- Patton, M. Q. (1990). *Qualitative evaluation and research methods*. Sage Publications.
- Poortinga, W., & Pidgeon, N. F. (2003). Exploring the dimensionality of trust in risk regulation. *Risk Analysis*, 23(5), 961–972. <https://doi.org/10.1111/1539-6924.00373>
- Rodela, R. (2011). Social learning and natural resource management: The emergence of three research perspectives. *Ecology and Society*, 16(4), 30. <https://doi.org/10.5751/ES-04554-160430>
- Rudeen, A. K., Fernandez-Gimenez, M. E., Thompson, J. L., & Meiman, P. (2012). Perceptions of success and the question of consensus in natural resource collaboration: Lessons from an inactive collaborative group. *Society & Natural Resources*, 25(10), 1012–1027. <https://doi.org/10.1080/08941920.2011.653518>
- Schusler, T. M., Decker, D. J., & Pfeffer, M. J. (2003). Social learning for collaborative natural resource management. *Society & Natural Resources*, 16(4), 309–326. <https://doi.org/10.1080/08941920390178874>
- Strauss, A., & Corbin, J. (1998). *Basics of qualitative research: Techniques and procedures for developing grounded theory* (2nd ed.). Sage Publications.
- Tuler, S., Webler, T., Shockey, I., & Stern, P. C. (2002). Factors influencing the participation of local governmental officials in the National Estuary Program. *Coastal Management*, 30(1), 101–120. <https://doi.org/10.1080/08920750252692643>
- UNISDR. (2006). *Hyogo Framework for Action 2005–2015: Building the resilience of nations and communities to disasters*. United Nations International Strategy for Disaster Reduction UNISDR.
- Van Laerhoven, F. (2014). When is participatory local environmental governance likely to emerge? A study of collective action in participatory municipal environmental councils in Brazil. *Environmental Policy and Governance*, 24(2), 77–93. <https://doi.org/10.1002/eet.1646>
- Vinke-de Kruijf, J., Bressers, H., & Augustijn, D. C. M. (2014). How social learning influences further collaboration: Experiences from an international collaborative water project. *Ecology and Society*, 19(2), 61. <https://doi.org/10.5751/ES-06540-190261>

## SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

**Appendix A.** Open-ended questions in qualitative interviews.

**Appendix B.** Seven-point Likert items in quantitative survey and data in statistical tests.

**How to cite this article:** Gaus, R., Ejderyan, O., Grêt-Regamey, A., Leach, W. D., & Buchecker, M. (2023). How previous experiences shape actors' current perspectives in integrated natural resource management. *People and Nature*, 00, 1–13. <https://doi.org/10.1002/pan3.10541>