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Coding Manual: Characteristics of collaborative governance

Adaptive Collaborative Management (Schoon & Carr Kelman) Lab

Version 9, Updated April 24th, 2020

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ACM (Schoon & Carr Kelman) Lab

Coding Manual

Characteristics of collaborative governance

Version 9
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Introduction

This coding manual was created to assess collaborative natural resource management projects. It builds upon previous work done in our lab at Arizona State University (Carr Kelman et al. 2018; Carr Kelman, Brady & Schoon 2019) and on the workshop held at the Programme on Ecosystem Change and Society Conference in Oaxaca in November 2017. It builds on the basic structure of ‘Context-Mechanisms-Outcomes’ (CMO) used in realist evaluation methodology (Pawson & Tilley 1997; Salter & Kothari, 2014). Based on this C-M-O configuration, realist evaluation proposes tools to develop an understanding of “What works, for whom, in what circumstances... and why?”, which appears useful in explaining the successes and failures of collaborative management and governance.

Based on this C-M-O configuration, we suggest three types of variables captured in the framework: 1. contextual variables, 2. mechanism / process variables), and 3. outcome variables. Contextual variables describe the social-ecological (pre-) conditions in which the collaboration plays out. Success factors (or mechanism variables) explain the success (or lack of success) of a collaboration; they might be considered the ingredients or elements required for a collaboration to work. We have two types of mechanism variables related to rules and to process. The first 11 mechanism variables are essentially about the rules of the collaborative effort, drawn directly from Ostrom 1990 as adapted by Cox et al (2010).

Outcome variables indicate whether the collaboration is or was able to meet its objectives (indicators of success, or the objectives of the collaboration). Outcomes may be social, environmental, or related to the process of the collaboration itself. In addition to the stated objectives, there may be unintended outcomes from the effort – whether positive or negative or both. The goal here is to explore how contextual variables mediate between the success factors/mechanism variables and the outcome variables. This relationship (mechanism variables to outcomes) is well-researched in the literature. However, the role of context in this relationship lacks much research. We note that the boundary between contextual and mechanism variables is blurry, but we see importance in exploring this relationship. Additionally, we have added a meta-variable category for a few broad-based variables that are generally at a higher level than the actual collaboration which may matter, particularly as we compare cases around the globe. These meta-variables at the end will be coded separately based on country-level databases.

What is a collaboration?

Wondolleck and Yaffee (2000) define an interorganizational collaborative relationship as one which stakeholders voluntarily pool their resources to solve a set of problems which they cannot solve individually. They observe that most definitions emphasize interdependence, involve face-to-face interaction and seek specific goals. They also specify that they believe these relationships must cross boundaries defined by organizational affiliations, interests, perceptions, geography or jurisdiction. They also specify that this should include a diverse set of arrangements and partnerships. As they do, we adopt these definitions and limit the cases to those dealing with natural resources of some sort.

We purposefully adopt a very wide view of collaborative efforts for the purposes of this manual. We include a contextual variable that asks how formal the collaboration is, and asks that the coder provide an explanation in a text box provided in the online form. The process of coding will elucidate how collaborative an effort really is. We recommend limiting cases to those explicitly described as collaborative (Projects that include some elements which are ‘participatory’ or involve ‘consultation’ are usually not truly collaborative).

We have also developed a Qualtrics Survey version of this document, which can be accessed [here](https://asu.co1.qualtrics.com/jfe/form/SV_2gxzqkwarlUkyKV). (https://asu.co1.qualtrics.com/jfe/form/SV_2gxzqkwarlUkyKV)

It takes about one hour to enter a case study into the survey, and we have also developed a 3-page guide, embedded above, with frequent questions and answers regarding what makes a good case and how the information will be used.

Step One:

BASIC_INFO : Basic Information	All textboxes
1. Your name	
2. Your email address	
3. Today’s date	
4. Full title of the collaboration you are coding	
5. Country and subnational region (if applicable) in which the collaboration takes place (primarily) * If international, write N/A and explain	
6. Acronym preferred for this case study	
7. Indicate whether you are coding the case from your own primary data or from secondary sources	
8. Please list the date that the collaboration began and if it is over or projected to end, the date that it closed or will end	
9. Please paste here the mission or purpose of the collaborative effort.	
10. If there is a website or publication that you wish to provide a reference URL for, please do so here.	

Variable list (Codebook)

Contextual variables (internal or regarding collaboration)

Contextual variables, as described in the introduction, are variables hypothesized to moderate how mechanism variables affect outcome variables. The variables selected here have been described in case studies of collaborations (see references in the variable list) as well as ‘settings’ variables in Plummer et al (2017). Cockburn et al (forthcoming) details the differences between context and mechanism variables, noting that “contextual variables are independent variables which describe the social-ecological (pre-) conditions in which the collaboration plays out.”

Mnemonic 1	COL_STATUS
Short description	Status of the collaboration
Detailed description	What is the current status of the collaboration?
When to code	Ongoing - newly established collaboration (less than 5 years). Code = 0 Ongoing - long-term collaboration (more than 5 years). Code = 1 Completed. Code = 2 Inoperative. Code = 3 Missing in case (MIC) = 98 N/A = 99
Typical examples	Malpai Borderlands formed 1991 and operating since then. Code = 1 White Mountains Stewardship Project in operation from 2004 to 2014. Now closed. Code = 2 Huachuca Firescapes collaboration collapsed at the time the EIA was to be implemented due to funding losses. Code = 3
Atypical examples	EXAMPLE NEEDED

Mnemonic 2	HIST_COLONIAL
Short description	History of colonialism and independence
Detailed description	This aims to capture whether a country has undergone a colonial period as many issues related to collaboration in natural resources management and governance still reflect the impacts of colonialism.
When to code	<p>If the location is still dealing with the effects of colonialism - code 0</p> <p>If the area was not colonized and/or there are no noticeable effects from colonial administration or presence in past – code 1</p> <p>N/A – 99</p> <p>Briefly explain in text box</p>
Typical examples	EXAMPLE NEEDED
Atypical examples	EXAMPLE NEEDED

Mnemonic 3	COL_FORMAL
Short description	Formality of the collaboration - how formal is the collaboration?
Detailed description	<p>Does the collaboration operate under formal legal documents and directives, designated funding sources, formal positions, a constitution, etc.</p> <p>Code as formal when a bi/-multilateral contract on the collaboration and its goal(s) is signed by the parties.</p> <p>Somewhat formal might be when all stakeholders are involved, meetings take place, people are invited formally and information is shared publicly, but there isn't a formal agreement signed. An example might be a group of landholders coming together to conserve water in their region.</p> <p>Somewhat informal would be when only a subset of stakeholders are represented, such as an activist group attempting to change government policy or impact other activities.</p>
When to code	<p>Formal = 1</p> <p>Somewhat formal = 2</p> <p>Relatively informal = 3</p> <p>Missing in case = 98</p> <p>N/A = 99</p>
Typical examples	<p>White Mountains Stewardship Project in Arizona was established under a government contract, e.g., Stewardship Contract, a designation U.S. legal Act. Code = 1</p> <p>Need example of somewhat formal</p> <p>White Tank Mountains, AZ – local concerned citizens are organizing a group to try to convince government to create wildlife corridors and get open spaces planned into the future suburban sprawl planned for these mountains west of Phoenix = 3</p>
Atypical examples	

Mnemonic 4	SCALE-ECO
Short description	Scale. This variable refers to the spatial scale of the ecosystem that is subject of the collaborative effort.
Detailed description	<p>Scale is understood at spatial and ecological levels.</p> <p>Gibson et al. (2000) and Cash et al. (2006) define scale as the spatial, temporal, quantitative or analytical dimension used to understand a phenomenon. Scale includes the varied social and ecological levels identified through defining or addressing a problem (Andonova and Mitchell, 2010). These definitions illustrate how scale is not self-evident, rather, it is socially and politically constructed (Brenner, 2001; Bulkeley, 2005). Scale mismatch occurs when social or institutional systems function on different scales to the ecological processes it seeks to manage (Berkes and Folke, 2000; Cash et al., 2006; Cumming et al., 2006; Young, 2002). This may result in system disruption, inefficiency, and/or loss of some function (Cumming et al., 2006).</p>
When to code	<p>What is the spatial extent (scale) of the ecological system that is subject to the collaborative effort?</p> <p>Small-scale (50 km² or less) - code = 0</p> <p>Landscape (larger than 50 km²) - code = 1</p> <p>Continental - code = 2</p> <p>Global - code = 3</p> <p>Multi-scale = 4</p> <p>Missing in case = 98</p> <p>N/A = 99</p>
Typical examples	When nutrient pollution is combined with the systematic, large-scale removal of filter-feeding shellfish (e.g., oysters), each makes a larger contribution to algae blooms and eutrophication in the Chesapeake Bay and other estuaries than either factor

	<p>would without the co-presence of the other (code as 1 or 2 depending on location of nutrient pollution) (Karkkainen, 2002)</p> <p>Many species face impacts from multiple scales, e.g., for salmon there are local scale impacts in terms of habitat, but also global scale warming of water and continental scale impacts in that they migrate long distances. Code as Multiscale (4)</p>
<p>Atypical examples</p>	<p>Carbon sequestration actions are local but some carbon management regulations are global (Raudsepp-Hearne and Peterson, 2016). If some collaborators are at the global level, code as multi-scale (4). If collaboration is focused on smaller area, code as 0 or 1 based on size in km².</p>

Mnemonic 5	GRP_SIZE
Short description	Group size/number of collaborators
Detailed description	<p>The clearest early articulation of the effects of group size on collective action is in Olson (1968), which notes the increasing difficulty of achieving collective goals as the group gets larger. More nuanced approaches to group size come from Poteete and Ostrom (2004), Oliver and Marwell (1988) and Chamberlain (1974), among others, that note the need for a minimum group size to accomplish many collaborative goals. As a result, the effects of group size are often curvilinear with small and large groups both struggling to achieve some collective aspirations.</p>
When to code	<p>How many people/groups are active members of the collaborative initiative?</p> <p>Part 1</p> <p>Is the collaboration made up of individuals or organizations? (that is, who is considered a member, a group or a person?)</p> <p>Individuals representing own interests : 0</p> <p>Organizations with missions: 1</p> <p>Part 2</p> <p>Coding levels are based on a count of the group size:</p> <p>Small group - 15 or fewer members: 0</p> <p>Moderate sized group - 16-30 members: 1</p> <p>Large group - >30 members: 2</p> <p>Missing in case = 98</p> <p>N/A = 99</p>

Typical examples	The Upper San Pedro Partnership has 21 member organizations, each represented by 1-2 people (a moderate-sized group, coded as 1). It has various sub-committees and work groups under the umbrella group. It is clearly larger and categorically different than a small user group of a dozen people. Yet it is also much smaller than a project such as the Glen Canyon Adaptive Management Plan with representatives from multiple federal, state and local agencies, user groups, and advocacy groups. Code = 2
Atypical examples	

Mnemonic 6	USR_RTS
Short description	User rights refers to the type of access of people to the resource.
Detailed description	<p>The type of access individuals have to surrounding natural resources are often tied to their ability to sustain livelihoods. Schlager and Ostrom (1992) identify at least 4 ‘bundles of rights’ that determine the type of position one has within a common resource. The authors suggest that a schema including ‘authorized users, claimants, proprietors, and owners’ offers more conceptual clarity to the analysis of incentives that might exist for individuals to make sustainable extractive choices. The owner maintains the most rights. She can extract, manage, exclude others, and sell the resource. A proprietor has all the same rights except to alienation (offering the resource for sale). Claimants lose the right to exclusion, but maintain extractive and management rights. Users may only extract.</p> <p>Individuals who have access and withdrawal rights may or may not have more extensive rights authorizing participation in collective-choice actions. The distinction between rights at an operational-level and rights at a collective-choice level is crucial. It is the difference between exercising a right and participating in the definition of future rights to be exercised. The authority to devise future operational-level rights is what makes collective-choice rights so powerful. In regard to common-pool resources, collective-choice property rights include management, exclusion, and alienation. They are defined as follows:</p> <p>Management: The right to regulate internal use patterns and transform the resource by making improvements.</p> <p>Exclusion: The right to determine who will have an access right, and how that right may be transferred.</p> <p>Alienation: The right to sell or lease either or both of the above collective-choice rights.</p>

	<p style="text-align: center;">TABLE 1 BUNDLES OF RIGHTS ASSOCIATED WITH POSITIONS</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th style="text-align: center;">Owner</th> <th style="text-align: center;">Proprietor</th> <th style="text-align: center;">Claimant</th> <th style="text-align: center;">Authorized User</th> </tr> </thead> <tbody> <tr> <td>Access and Withdrawal</td> <td style="text-align: center;">X</td> <td style="text-align: center;">X</td> <td style="text-align: center;">X</td> <td style="text-align: center;">X</td> </tr> <tr> <td>Management</td> <td style="text-align: center;">X</td> <td style="text-align: center;">X</td> <td style="text-align: center;">X</td> <td></td> </tr> <tr> <td>Exclusion</td> <td style="text-align: center;">X</td> <td style="text-align: center;">X</td> <td></td> <td></td> </tr> <tr> <td>Alienation</td> <td style="text-align: center;">X</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>(Schlager & Ostrom 1992)</p>		Owner	Proprietor	Claimant	Authorized User	Access and Withdrawal	X	X	X	X	Management	X	X	X		Exclusion	X	X			Alienation	X			
	Owner	Proprietor	Claimant	Authorized User																						
Access and Withdrawal	X	X	X	X																						
Management	X	X	X																							
Exclusion	X	X																								
Alienation	X																									
When to code	<p>The collaborative effort is composed of:</p> <p>Authorized users = 1</p> <p>Claimants = 2</p> <p>Proprietors = 3</p> <p>Owners = 4</p> <p>Mix = 5</p> <p>Missing in case = 98</p> <p>N/A = 99</p>																									
Typical examples																										
Atypical examples																										

Mnemonic 7	PRP_RTS
Short description	Property rights refers to the type of ownership relationship between a people and the resource.
Detailed description	Land tenure has gained renewed importance with governments and organizations focusing on economic rural development. This is because functioning land tenure arrangements are essential to realizing sustainable development goals (FAO, 2002). Additionally, these groups recognize that land conflicts often arise due to the embedded values of homeland, ancestry, basis for survival, and/or prerequisite for individual freedom (GTZ, 1998). Because there is a range of different interests over land (overriding, overlapping, complementary, and competing), transparency and competency in land administration--the application and enforcement of land rights--is necessary to move toward development or stewardship.
When to code	<p>Private (an individual, a married couple, a group of people, or a corporate body such as a commercial entity or non-profit organization; can exclude others) = 1</p> <p>Communal (each member has a right to use, independently the holdings of the community; can exclude non-community members) = 2</p> <p>Open Access (specific rights are not assigned to anyone; no one can be excluded) = 3</p> <p>State (rights are assigned to some authority in the public sector and can exclude others) = 4</p> <p>Mixed rights (coder should explain in a comment box) = 5</p> <p>Missing in case = 98</p> <p>N/A = 99</p>
Typical examples	<p>Private: within a community, individual families may have exclusive rights to residential parcels, agricultural parcels and certain trees.</p> <p>Communal: members of a community may have the right to graze cattle on a common pasture.</p> <p>Open access: marine tenure where access to the high seas is generally open to anyone; or rangelands, forests, etc, where there may be free access to the resources for all.</p>

	<p>State: forest lands may fall under the mandate of the state, whether at a central or decentralised level of government.</p> <p>Mixed: Joint Forest Management rights in Indian Van Panchayats (managed jointly by forest communities and the Indian Forest Department)</p>
Atypical examples	Land trust that can exclude anyone would be coded as a "1" 1 (regardless whether the ownership is mixed private/public)

Mnemonic 8	DEC_MAKING
Short description	What level of decision-making authority does the collaborative hold?
Detailed description	<p>It can be useful to distinguish the different levels at which rule/decision-making occurs. This facilitates a better examination of the cumulative effects that rules and decision-making can have on the system of interest.</p> <p><i>Operational level rules/decisions</i> are rules that govern the day-to-day activities/decisions of the participants in any setting.</p> <p><i>Collective choice level and constitutional choice level</i> rules/decisions establish authoritative relationships that affect the decision-making context of others. <i>Collective-choice</i> level rules involve rule making, rule changing, and rule enforcement processes. They also determine who is eligible to be a participant at the operational level. <i>Constitutional choice level</i> rules affect the collective choice decision making processes by determining who is eligible to be a participant in the collective choice setting and the rules to be used to craft collective choice level rules. (Ostrom 2005, p. 59; Carter et al. 2016).</p>
When to code	<p>How is the collaboration organized regarding rule/decision-making? Can the collaboration affect decision-making at the operational level? Does it have authority to make, change, and/or enforce rules governing the resource (collective choice rules)? Can it oversee rule-making at the collective choice level (constitutional choice)?</p> <p>Decision-making is (mostly) at the (select in rank order all that apply):</p> <ul style="list-style-type: none"> (a) Operational level = 1 (b) Collective choice level = 2 (c) Constitutional choice level = 3 (d) (e) Missing in case = 98 (f) N/A = 99

Typical examples	The Huachuca Firescape collaboration drafted guidelines for fire management and restoration in the Huachuca Mountains in southern Arizona (operational level). However, the U.S. Forest Service and other governmental agencies have to adopt, implement, and enforce those rules (collective choice level). This would be an example of a mixed collaboration level.
Atypical examples	In the Puget Sound, treaty holding native American tribes hold legal rights to treaty-guaranteed resources (including salmon). These treaties are with the US government. Yet authority for the measures needed to assure salmon survival is split (and contested) amongst federal, state and local levels. This would be a case of mixed decision-making levels.

Mnemonic 9	DIV_OBJC
Short description	Diversity of objectives
Detailed description	This variable refers to the objectives of the collaboration: is there a single agreed-upon objective or goal for the collaborative initiative, or are there multiple objectives or goals?
When to code	Look to collaboration’s mission statement/action plan to determine is there more than one objective or goal (or resource of focus) for the collaboration? If there is a single objective, code 0 = 2 If there is more than one goal or objective code as 1 = 1 Missing in case = 98 N/A = 99
Typical examples	Canada’s Action Plan for Resident Killer Whales includes numerous objectives (improving food source, reducing ocean noise and pollution, etc.). Code = 1

Atypical examples	If there's one goal for the collaboration, although stakeholders may have different (more or less "declared") objectives, the variable will be coded as 0.
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Mnemonic 10	WHY_COL
Short description	What are the objectives (goals) of the collaboration?
Detailed description	<p>Top-down, centralized resource governance does not typically involve locals whose livelihoods are intertwined with their resources. In many cases, willing participants are ignored and therefore both the resource and people experience an increase in vulnerability (Ostrom 1998). Co-management aims to include local's perspectives and brings to bear their lived experiences on the land.</p> <p>Carlson and Berkes (2005) simply states that co-management (cooperative or collaborative management) is a logical approach to overcome resource issues through the use of building and leveraging partnerships. Co-management of natural resources has therefore been employed in a wide range of situations with different benefits.</p> <p>Sometimes there are existing norms that persuade members to collaborate even if they do not necessarily (personally) benefit. Sometimes collaboration is mandated.</p>
When to code	<p>Although there may exist multiple reasons for a collaboration, only code the <i>primary</i> objective or goal of the collaboration. List all goals in text box if more than one.</p> <ol style="list-style-type: none"> (1) Understanding the state of the resource (data gathering) (2) Logistical and allocation decisions (e.g. who can harvest how much of what, where, how, when) (3) protection of resource from environmental damage or restoration of ecosystem (4) improve monitoring and/or enforcement of regulations (5) enhancement of long-term planning (6) more inclusive decision-making and/or legitimacy of decisions (Pinkerton 1989). (7) share knowledge of local context; diversity of perspectives (8) collaboration is mandated / incentivized (9) Other (98) Missing in case (99) N/A
Typical examples	<ul style="list-style-type: none"> - Forest Service provides funding for Stewardship Contracting as an example of (8) - Fishing cooperatives dividing up areas, times of day, etc. to increase fishstocks for all <ul style="list-style-type: none"> - code 2 (even though may also be 5,6,7) - Reduce poaching by involving local communities

	<ul style="list-style-type: none"> - Inuit communities working with scientists (Carlson & Berkes 2005) - code 1 or 7 - NGOs working with farmers to implement water conservation practices code 2 (may also be 3, 4, 5)
Atypical examples	<p>The US Healthy Forests Restoration Act mandates planning collaborations known as Community Wildfire Protection Planning in order for federal funding to be received (code 5) (Brummel et al., 2009).</p> <p>Agua Fria National Monument (collaboration suggested by BLM, could be due to funding) (code 3).</p>

Mnemonic 11	RTYPE
Short description	Resource type
Detailed description	<p>Certain resource types may be easier to manage and, hence, more likely to be associated with successful collaborations. For example, relatively immobile resources, such as trees and oysters, are likely to be located in clearly defined resource systems, whereas highly mobile and/or transboundary resources, e.g. fish stocks, are more likely to be found in large, poorly defined resource systems. Accordingly, resource type may influence the level of institutional challenges and conflicts, as well as the learning environment of the collaboration (Armitage, et al. 2009).</p>
When to code	<p>What type of resource is being governed by the collaboration? Indicate all that apply:</p> <p>Forests (1)</p> <p>Water / Irrigation (2)</p> <p>Pasture/ grassland (3)</p> <p>Livestock (4)</p> <p>Fishery (5)</p> <p>Wildlife / Biodiversity (6)</p> <p>Climate (7)</p> <p>Multiple (explain) (8)</p> <p>Other _____ (9)</p> <p>Missing in case (98)</p> <p>N/A (99)</p>
Typical examples	<p>Peruvian anchovy fishery. Code as 5.</p> <p>Maine lobster fishery. Code as 5.</p> <p>Forest Van Panchayats in Uttarakhand, India. Code as 1.</p> <p>Irrigation systems in Nepal. Code as 2.</p>

	The “Other” category can include ecosystem level collaborations, coral reef, savanna system, landscape, energy, etc.
Atypical examples	Renewable energy commons (http://www.resilience.org/stories/2017-05-24/renewable-energy-commons/) Code as 7. Knowledge commons (https://mitpress.mit.edu/books/understanding-knowledge-commons). Code as 7 (but should be natural resource here)

Mnemonic 12	COLLAB_GOV
Short description	Governance of the collaboration itself – how are decisions made by the group? (internal decision-making)
Detailed description	When parties come together to collaborate, they make choices that govern a variety of collective action problems implicit in joint decision making- how to collectively develop sets of working rules to determine who will be eligible to make decisions, which actions will be allowed or constrained, what information needs to be provided, and how costs and benefits will be distributed (Ostrom 1990). The key to the success of these choices rests in participants' willingness to monitor themselves and each other and to impose credible sanctions on noncompliant partners. When collaborative partners are unwilling to monitor their own adherence to the agreed-upon rules, the ability to build credible commitment is lost, and joint decision making is unlikely.
When to code	<p>How is the collaboration governed?</p> <p>This is INTERNAL to the collaboration.</p> <p>(1) Hierarchical</p> <p>(2) Majority rules</p> <p>(3) Consensus / Unanimous</p> <p>(4) Other</p> <p>(98) Missing in case</p> <p>(99) N/A</p>
Typical examples	Heylings and Bravo (2007) evaluate the governance of the Galapagos Marine Reserve and assess how changes from majority rules to consensus based decision-making affected governance outcomes. As a result, this would be coded as a consensus-based collaboration (code 3).
Atypical examples	NEED EXAMPLE

Mnemonic 13	RES_DEPEND
Short description	Dependency on resource (i.e. whether collaboration partners need it for survival or cultural survival)
Detailed description	Dependency on a natural resource increases the likelihood of collaboration (Ostrom, 2009). Generally speaking, stakeholders have different levels of dependency on a resource; the higher the dependency, the greater the likelihood of collaboration. Those with a higher level of dependency should have a more central role in the decision-making process (Armitage et al., 2009).
When to code	<p>No one in collaboration is dependent on natural resource: (0)</p> <p>Some or all in collaboration are partially reliant/dependent on the natural resource culturally and/or for a livelihood: (1)</p> <p>At least one group in the collaboration is reliant/dependent solely on the natural resource: (2)</p> <p>Missing in case: (98)</p> <p>N/A: (99)</p>
Typical examples	<p>Maine lobster fishery. If all fishers rely on the lobster harvest for a living, code as 2. (NB: dependence can also be based on more intangible factors and not just livelihoods)</p> <p>If collaborative members rely on both timber and firewood from the forest, as well as crops from the farm, code as 1. For people who choose to collaborate even if their livelihoods are not dependent on it, (e.g. Huachuca Firescape) code as 0.</p>
Atypical examples	International Whaling Commission meetings include stakeholders that are solely dependent on whales for subsistence purposes and stakeholders who are not dependent on whales at all. When viewed as an average, one would code this collaboration as a 1. However, because subsistence stakeholders are solely dependent

	on whales for their survival, this collaboration should be coded as a 2.
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Mnemonic 14	HIST_COL_CONF
Short description	Predominant History of conflict/collaboration
Detailed description	<p>This variable refers to whether the people participating in the collaborative initiative have a history of working together (i.e. a history of cooperation or collaboration), or a history of conflict.</p> <p>This is identified as an important factor in collaborative governance by Ansell & Gash (2008) as it sets the basic starting level of trust for the collaboration. They state the following: “Starting conditions set the basic level of trust, conflict, and social capital that become resources or liabilities during collaboration.”</p>
When to code	<p>Do the stakeholders in the collaboration have a previous history of interacting with one another? Is this history one of collaboration/cooperation, or one of conflict?</p> <p>If there is predominantly a history of collaboration =1.</p> <p>If there is predominantly a history of conflict, code = 2.</p> <p>If there is no history of previous interactions among stakeholders, code = 3.</p> <p>Missing in case = 98</p> <p>N/A = 99</p>
Typical examples	<p>When a catchment management forum is to be formed, and there is a group of farmers who have previously worked together successfully for example in a soil management forum, then they have a history of collaboration (code 1).</p> <p>If there is a plan to form a catchment management forum, but stakeholders have previously interacted in a situation of conflict (e.g. farmers and mining companies have been in conflict over land use), then they have a history of conflict (code 2).</p> <p>If the stakeholders in the collaboration did not work together at all previously, i.e. they have no history of working together, then code 3.</p>

Atypical examples	If there was collaboration but the goals were not met (unsuccessful), then code as a 1.
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Mnemonic 15	Fund
Short description	What is the funding situation of the collaboration?
Detailed description	Funding is seen to increase collaborative capacity (Huitema et al., 2009). Funding also indicates a willingness to commit to the process and devote the resources required to make the collaboration succeed (Olsson et al., 2004).
When to code	<p>What is the funding situation of the collaborative initiative? The funding can be from any source.</p> <p>No funding available: 0</p> <p>Low level of funding: 1</p> <p>Moderate level of funding: 2</p> <p>High level of funding: 3</p> <p>Missing in case: 98</p> <p>N/A: 99</p>
Typical example	The Heber Wild Horse Territory Collaborative Management Plan group has funding to pay for facilitation costs, meeting expenses, and trips to the field. It does not have a large budget, and it does not pay for collaborative members' time or travel expenses. Level of funding is coded as moderate.
Atypical examples	International conservation treaties, like the Convention on Migratory Species, depend on member state contributions to fund administrative costs and implementation of conservation measures at the national level, particularly in low income countries. This often leads to the pursuit of "pet projects" favored by richer donor countries and asymmetrical

	<p>distribution of funding for certain charismatic species which does not always align with overall global conservation goals. Level of funding would be coded as moderate.</p>
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Mnemonic 16	Facil_Collab
Short description	Facilitated vs non-facilitated (emergent)
Detailed description	<p>A facilitated group may benefit from having a person or group that is selected (whether from the outside or from within) to serve as facilitator and/or coordinator. A facilitator can be used to safeguard the integrity of the decision-making process (Susskind and Cruikshank 1987). In addition, facilitators can “give meaningful voice to participants” (Lasker and Weiss 2003). An independent facilitator can also serve as an “honest broker” in cases where participants have conflict or low trust levels (Ansell and Gash 2008). Finally, when facilitators play a lead role in linking knowledge and communication among actors in the network, they also facilitate the group’s capacity to adapt in the face of change (Emerson and Gerlak, 2014).</p>
When to code	<p>Does the collaborative group have a facilitator selected to coordinate, plan and facilitate for the group and serve as a point to distribute work, clarify assignments and serve as an organizational leader for the group?</p> <p>The collaborative group has a formally appointed/selected/hired (independent) facilitator or facilitation team in place = 2</p> <p>The collaborative group has an informally selected facilitator or facilitation team in place (already part of group) = 1</p> <p>The collaborative group does not have a facilitator or facilitation team in place = 0</p> <p>Missing in case = 98</p> <p>N/A = 99</p>
Typical examples	<p>The Verde Front is a collaborative management project in the Verde Valley of Arizona comprised of land managers, elected officials, NGOs and citizens. The group has hired a facilitation team who plans and facilitates meetings as well as provides strategic</p>

	support to the group. This would be an example of a facilitated collaboration coded as a 2.
Atypical examples	

Mnemonic 17	COL_COMPL
Short description	Level of complexity of the collaborative context
Detailed description	<p>This variable refers to the nature of the collaborative context.</p> <p>The level of complexity of the resource systems</p> <ul style="list-style-type: none"> a. Simple = single species targeted and limited use of technology, e.g. small-scale fishery in a developing country context b. Complex = multiple species targeted and high reliance on technology, e.g. industrial fishing fleet using radar to locate fish stocks and fully automated fishing gear.
When to code	<p>1= single resource, single user group</p> <p>2= single resource/species, multiple user groups</p> <p>3=multiple resources, multiple user groups</p> <p>4=multiple resources connected in complex ways and multiple user groups (or multiple scales)</p> <p>Missing in case = 98</p> <p>N/A = 99</p>
Typical examples	<p>Relatively simple: ‘Classical’ common pool resource systems such as local fisheries, local rangelands, or local irrigation systems have a clear focus on a specific (single) resource such as a fish population and the stakeholders are all fishers from one local village i.e. relatively homogeneous resource system and stakeholder composition, therefore code = 1.</p> <p>Relatively complex: A multifunctional landscape in which various resources are utilized and valued by a variety of different stakeholders e.g. the landscape is used and managed for agriculture, tourism, water production, biodiversity conservation, etc. and all these different resources are represented by different stakeholder groups, then code = 4.</p>
Atypical examples	

Mnemonic 18	POW_ASY
Short description	Power dynamics / asymmetries
Detailed description	Power imbalances between stakeholders are a commonly noted problem in collaborative governance (Ansell & Gash, 2008). If some stakeholders do not have the capacity, organization, status, or resources to participate, or to participate on an equal footing with other stakeholders, the collaborative governance process will be prone to manipulation by stronger actors.
When to code	<p>Are there any (group[s] of) stakeholders who have been consistently underrepresented or consistently disadvantaged during the time period examined?</p> <p>(1) Yes (2) No (98) Missing in case (99) N/A</p>
Typical examples	Echeverria (2001) criticizes the Platte River Collaborative Watershed Planning Process because he argues that the negotiating table is uneven and weighted toward development interests. He argues that development interests and environmental advocates have widely different capacities. Because their constituency is so large and diffuse, conservation advocates are routinely at a disadvantage in contests with representatives of relatively more cohesive and more easily organized economic interests. In this case, it would be coded as a 1.
Atypical examples	EXAMPLE NEEDED

Mnemonic 19	LOC_CLT
Short description	Does local culture facilitate collaboration (independent/communal, worldviews which inform collaboration)?
Detailed description	<p>In any given region, there may be more or less of a historical tendency to collaborate. Some cultures are more celebratory of independence and individualism and people tend to live more separate and solitary lives. For example, in some places, privacy and personal freedoms are generally valued above sharing or collective in public life. Some cultures have more of a history of communalism and may be more comfortable with sharing space, resources, or information. It would be interesting to see if cultures that have a history of more communal interaction are better at collaborating than those which are more individualistic.</p> <p>To code, we utilize cultural theory (Douglas 1999; Koehler et al. 2018) which is visualized in a 2x2 matrix with categories of Group (high and low) and Grid (high and low). “The grid axis measures the extent to which ranking and stratification constrains and facilitates the behavior of individuals. The group axis measures the extent to which an overriding commitment to a social unit governs the thoughts and actions of individuals.” (Koehler et al. 2018 p. 270-271)</p> <p>NB: “the four types are represented in any community, and social life is in permanent tension and flux.” (Douglas 1999 p. 411). See Koehler 2018 et al. Figure 1 reproduced below.</p>

	<p>(Koehler et al. 2018)</p>
<p>When to code</p>	<p>Code for the dominant cultural form within the collaboration (or community in which the collaboration takes place if appropriate / applicable):</p> <ul style="list-style-type: none"> - 1 – Individualist (low grid & low group) - 2- Fatalist (high grid & low group)_ - 3 – Bureaucratic (high grid & high group) - 4 – Egalitarian community (low grid and high group) - 5- Equal mix of two or more? - - - Missing in case = 98 - N/A (for global level cases) = 99
<p>Typical examples</p>	<p>Indonesian society has very few homeless, beggars or starving people, because people tend to live together and share what they have with family. They will have more of a tendency to squeeze together than sit far apart. They have a tradition of sharing resources and living closely with one another. For example, there is a tradition of the gotong-royong, or revolving fund, to fund small businesses especially among women in a village. There are examples of some revolving funds and collectively managed hydropower projects remaining functional from a world-bank financed project in Kerinci Seblat NP even though the project overall failed. Code = 4</p> <p>In the United States where individualism is the dominant narrative/guiding principle, collaborative and finding common ground may be more difficult if people identify more along the lines of how they are <i>different</i> versus their similar interests. Ranchers and environmentalists in a collaboration together may</p>

	have difficulty finding common ground (e.g. identifying strongly as a rancher and not an “outdoor enthusiast” even though they might also be one.) Code = 1
Atypical examples	

Mechanism variables (success factors)

Based on the assessment of the authors of 13 publications highlighted in bold in the references, this is a list of variables deemed important within the common pool resource (CPR), collaborative governance, and adaptive co-management literature that were important for successful collaboration. These variables are distinguished from contextual variables according to the CMO framework described in Cockburn et al (forthcoming), which notes that “Mechanism variables are plausible causal variables which explain the success (or lack of success) of a collaboration; they might be considered the elements or features of interventions required for a collaboration to work, often called success factors (Carr Kelman et al., 2018) or design principles (Ostrom, 1990).” The structure of the variable list follows recommendations by MacQueen et al. (2008) and Bernard, Wutich, and Ryan (2015). We have two types of variables: rules and process variables. The first 11 of the 20 mechanism variables are rules, directly adapted from Ostrom’s design principles. The next 9 are from the larger literature regarding the essential elements of a functional collaborative process. Thus, we are expanding upon Ostrom’s rules for institutions to include guidelines/ what is needed regarding *the process* of collaborating.

Mnemonic 20	Ostrom Design Principle DP1A_BOUND
Short description	Collaborative boundary
Detailed description	Entities who have rights to participate in the collaborative process and those who don’t must be clearly defined.
When to code	<p>Is there evidence of rules or social norms that specify who can participate in the collaboration?</p> <p>If yes, then code this variable as present (=1)</p> <p>If no, the code this variable as absent (=0)</p> <p>If missing in case (=98)</p> <p>If N/A (=99)</p>

<p>Typical examples</p>	<p>“...[F]ishing vessels registered in the EU fishing fleet register have equal access to all the EU waters and resources that are managed under the CFP. Access to fisheries is normally authorized through a fishing license” (European Commission 2016). Code as 1.</p> <p>Only individuals who (1) are citizens of the United States or an alien who has demonstrated intent to become a citizen by having filed petition for naturalization with the clerk of the U.S. District Court; and (2) are of legal age in their state of residence at the time of application are eligible for a grazing permit with the U.S. Forest Service. (Adapted from the U.S. Forest Service 2017). Code as 1.</p>
<p>Atypical examples</p>	<p>Traditional taboos preventing the consumption of certain animals, e.g. sea turtles. Code as 1.</p>

Mnemonic 21	DP1B
Short description	Resource boundary
Detailed description	<p>“Clear resource boundaries are present that define a resource system and separate it from the larger biophysical environment” (Cox et al. 2010, Table 4).</p> <p>These boundaries can be the result of:</p> <ol style="list-style-type: none"> 1. Natural attributes which limit entry (e.g., a small lake) 2. Constructed attributes which limit entry (e.g., meadow fences) 3. Institutional arrangements (rules or norms) which limit entry (e.g., community rules that limit harvesting of a species to certain time periods) 4. A mixture of the above. <p>Resources in this context are meant to include consumptive and non-consumptive uses (e.g. biodiversity or preservation of open space as a non-consumptive use of a resource). This also includes pollution as a “resource”, where entry into the system can be limited through regulation.</p>
When to code	<p>Is there evidence of written rules or social norms that specify the boundaries of the resource?</p> <p>If yes, then code this variable as present (=1)</p> <p>If no, the code this variable as absent (=0)</p> <p>If missing in case (=98)</p> <p>If N/A (=99)</p>
Typical examples	<p>Maine Lobster Management Zone mapping (State of Maine 2017) Code as 1</p> <p>Boundaries of Forest Van Panchayats (Balooni, Ballabh, and Inoue 2007) Code as 1</p>
Atypical examples	<p>Fluid resource boundary: Niamir-Fuller (1998) gives an example of a fluid boundary system existing between different groups of</p>

	<p>pastoralists in Sahelian Africa. These pastoralists engage in ad hoc negotiations among interested parties for access to areas which have fuzzy boundaries and contain overlapping, jointly managed zones and areas.</p>
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Mnemonic 22	DP2A
Short description	Congruence with local ecological conditions (Ostrom 2009a, p. 40)
Detailed description	The rules and/or norms used to manage the resource or allocate benefits from a system are congruent with the ecological conditions at the local level.
When to code	<p>Is there evidence of written rules or norms that take into consideration the local condition of the resource?</p> <p>If yes, then code this variable as present (=1)</p> <p>If no, the code this variable as absent (=0)</p> <p>If missing in case (=98)</p> <p>If N/A (=99)</p>
Typical examples	<p>Hunting North American bear species to sell bile to Asian market. There is evidence that state regulations exist that e.g., limit the harvesting of black bears based on species local abundance estimates. This case would be coded as a 1.</p> <p>Other examples include:</p> <p>Community-based farming of Vicunas and sustainable production of Vicuna wool (Lichtenstein 2009). Coded as a 1.</p> <p>Ecosystem-based fisheries management (National Marine Fisheries Services 2017). Coded as a 1.</p> <p>Harvesting rules are driven by local economic and survival needs, not subject to international market demands. Coded as a 1.</p>

Atypical examples	At the international level, efforts are made to include local, regional and national stakeholder representatives in decision-making that involves restricting import/export of commercially valuable wildlife and their derivatives. Coded as a 1.
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Mnemonic 23	DP2B
Short description	Congruence of the rules with local culture (Ostrom 2009a, p. 40)
Detailed description	<p>Are the rules and/or norms crafted by the collaboration congruent with the local culture within which the resource is embedded? This design principle is useful to assess the influence culture may have on resource use and is based on the hypothesis that strong social norms and culture are more likely associated with sustainable resource utilization.</p>
When to code	<p>Is there evidence that the rules consider the social and cultural context of local appropriators/stakeholders?</p> <p>If yes, then code this variable as present (=1)</p> <p>If no, the code this variable as absent (=0)</p> <p>If missing in case (=98)</p> <p>If N/A (=99)</p>
Typical examples	<p>Basurto et al. Seri fishers have locally based rules for their community which prevents overfishing of shellfish. Code = 1</p> <p>Sacred rules that preclude removal of forest products Code = 1</p>
Atypical examples	<p>Because there are consumptive and non-consumptive uses of various resources, this may come up in considering this variable. For example, among the stakeholders collaborating to manage wild horses in Arizona, there are a variety of cultural approaches - some are consumptive resource users, such as ranchers, while others are interested in non-consumptive benefits of the horses such as existence value. The horses are also utilizing the same resources as the cattle owned by the ranchers, and because of overgrazing there is scarcity of water and food for animals in the desert. Code = 1 if the rules consider both the consumptive and non-consumptive culture of the resource users. Code = 0 if only one culture is considered.</p> <p>Miskito Turtle Fishery in Nicaragua - Green turtle harvesting rules are set by local indigenous population. However due to external market forces, the indigenous culture of the Miskito people has been altered and the context within which turtles are harvested are based on economic imperatives (lack of other income sources), instead of being embedded in the traditional culture where turtles were only harvested during certain times of the year and for community sustenance purposes only. Without any national oversight this has led to the over-exploitation of a once readily available local resource and undermined turtle conservation efforts in neighboring</p>

	Costa Rica. Code = 0 (cultural context has been replaced by economic drivers)
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Mnemonic 24	DP2C
Short description	Congruence between benefits and costs. Benefits received from resource appropriation match investments made into the resource (Ostrom 2009a).
Detailed description	<p>“The benefits obtained by users from a common-pool resource (CPR), as determined by appropriation rules, are proportional to the amount of inputs required in the form of labor, material, or money, as determined by provision rules” (Cox et al. 2010).</p> <p>Because this principle is about equity, the benefits should be accruing to those who bear the costs. For purposes of coding, this occurs at the level of the collaboration. It does include the benefits and costs of participating in the collaborative process itself, as there are always opportunity costs with time.</p>
When to code	<p>Is there evidence of rules or norms that aim to strike a balance between the distribution of benefits from the resource and costs (reinvestment in the resource such as conservation)?</p> <p>If yes, then code this variable as present (=1)</p> <p>If no, the code this variable as absent (=0)</p> <p>If missing in case (=98)</p> <p>If N/A (=99)</p>
Typical examples	<p>Rules in irrigation systems that mandate everyone who receives irrigation water participates or other contributes to the maintenance of the irrigation canals, e.g., participation in physically maintaining the canal or payment of water fees by users. Code this as a 1.</p> <p>Licensing fees for fishing boats that are staggered based on the size of the boat and potential haul. This would be coded as a 1.</p>

	Agreements that stipulate the protection of certain areas in exchange for grazing rights in other areas. This would be coded as a 1.
Atypical examples	<p>Municipal taxes that contribute to city park maintenance. This would be coded as a 1.</p> <p>Loggers and environmentalists both find it to be worth their while to come talk about better forest management strategies and try to come to an agreement on a method for sustainable forest restoration. Code as a 1 even if rules are not explicit, it could be that the norms of facilitation make the forum palatable for all parties involved.</p>

Mnemonic 25	DP3
Short description	Collective choice arrangements.
Detailed description	<p>“Collective-choice arrangements: Most individuals affected by the operational rules can participate in [making and] modifying the operational rules” (Cox et al. 2010).</p> <p>“Resource regimes that use this principle should be able to craft rules that fit local circumstances and that are considered fair by participants. As environments change over time, officials located far away do not know of the change, so being able to craft local rules is particularly important” (Ostrom 2009a).</p>
When to code	<p>Do local appropriators have the right to amend and change rules by themselves (collectively agreed upon by themselves)?</p> <p>If yes, then code this variable as present (=1)</p> <p>If no, the code this variable as absent (=0)</p>

	<p>If missing in case (=98)</p> <p>If N/A (=99)</p>
Typical examples	<p>Cooperative governance in small-scale fisheries, forestry and irrigation systems, i.e., systems where all appropriators are entitled to vote on appropriation rules and have a say in the distribution of resources. Code = 1</p> <p>Kayan Mentarang National Park in Indonesia co-management arrangements: The Forum Masyarakat Adat, a board of indigenous locals make management recommendations and help to set policy for the park. Code = 1</p>
Atypical examples	<p>Wild Horse management - coded as "no." The collaborative was creating recommendations for operational level rules which may or may not be accepted by the Forest Service. Code = 0</p> <p>In contrast, the Malpai Borderlands group frequently makes operational level decisions with regard to Firescape lands that are then adopted by the collaborative. Code = 1</p>

Mnemonic 26	DP4A
Short description	Monitoring the resource users and the resource
Detailed description	“Monitors are present and actively audit CPR conditions and user behavior... Principle 4A stipulates the presence of monitors” (Cox et al. 2010).
When to code	<p>Are resource users and the resource being monitored?</p> <p>Both resource users and conditions (1)</p> <p>Resource users only (2)</p> <p>Resource conditions only (3)</p> <p>Neither resource users nor conditions (0)</p> <p>If missing in case (98)</p> <p>If N/A (99)</p>
Typical examples	<p>Members of a forest community are required to monitor forest harvesting behavior of the community and encroachment by outsiders on a rotational basis as part of their responsibilities. Examples would also include the Indian van panchayat forest guards who may be volunteers or paid (Agrawal and Yadama, 1997). This is coded as a 1.</p> <p>Irrigation systems where water is distributed according to a set schedule in which sections were irrigated one at a time before moving on to the next. This turned irrigation into a public affair making monitoring easy and non-compliance difficult (Trawick, 2001). As written, this is coded as a 2 as no mention is made here regarding resource conditions. With more information, this case may be coded as a 1.</p>
Atypical examples	NEEDED

Mnemonic 27	DP4B
Short description	Monitoring the monitors
Detailed description	<p>“Monitoring: Monitors are accountable to or are the appropriators. Principle 4B stipulates the condition that these monitors are members of the community or otherwise accountable to those members. Monitoring makes those who do not comply with rules visible to the community, which facilitates the effectiveness of rule enforcement mechanisms and informs strategic and contingent behavior of those who do comply with rules” (Cox et al. 2010).</p> <p>Are there monitors in the system (either paid positions, volunteers, or as part of the rotational duty of resource users)? Is there evidence that the stakeholders are engaged in self-monitoring behavior, i.e., they are cognizant of each other’s appropriation behavior? Does an official position of monitor exist, aside from the willingness of all appropriators to monitor? Is this a paid position or voluntary?</p> <p>Are records of resource conditions kept and reviewed on a regular basis? Are appropriation practices of individual resource users publicly viewable or are users otherwise required to report their use? Are monitors employed by the community or are they externally appointed?</p>
When to code	<p>Are there any mechanisms to hold monitors accountable to the stakeholders?</p> <p>If yes, then code this variable as present (=1)</p> <p>If no, the code this variable as absent (=0)</p> <p>If missing in case (=98)</p> <p>If N/A (=99)</p>
Typical examples	Position of forest guard who is elected by a forest community and is paid a base salary and receives an additional bonus for any fines collected from rule violators. Code = 1
Atypical examples	Third party non-governmental organization reviewing reports of a government agency and blowing a whistle on negligence . Code = 1

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Mnemonic 28	DP5
Short description	Graduated sanctions
Detailed description	Users who violate operational rules are likely to be assessed graduated (depending on the seriousness and context of the offense) sanctions by other users, officials accountable to these users, or both. (Cox et al. 2010).
When to code	<p>Is there evidence that rule non-compliance results in fines or other penalties that are adjusted based on the severity of the rule violation and/or the number of times an individual has broken the rules?</p> <p>If yes, then code this variable as present (=1)</p> <p>If no, the code this variable as absent (=0)</p> <p>If missing in case (=98)</p> <p>If N/A (=99)</p>
Typical examples	<p>“Cow jail” observed by Ostrom in Nepal. When a member had not followed water harvesting or maintenance rules after receiving a verbal warning, they were authorized to bring a cow from the errant farmer’s fields to the village area. In an agricultural village, everyone knows who owns a cow. Thus, while the cow was grazing in the center of the village and producing milk for the village council to distribute, all the farmer’s neighbors were learning about the farmer’s nonperformance. Once the farmer had paid a modest fee for breaking the rules, the cow would be returned, so this second-stage sanction was not severe in the long run” (Ostrom 2009a). Code as 1</p> <p>An Alaskan fishing guide had his guiding license suspended until May 2018 and was fined \$10,000 for catching king salmon in the early-run special harvest area, failing to record king salmon, taking an annual over limit of king salmon and halibut... (Armstrong 2016). Code as 1</p>

Atypical examples	In a Philippine fishery, the implementation of published graduated sanctions depends on the social capital of both the sanctioning official and the community at large. Code as 1
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Mnemonic 29	DP6
Short description	Conflict resolution mechanisms
Detailed description	<p>“Conflict-resolution mechanisms: Stakeholders and their officials have rapid access to low-cost local arenas to resolve conflicts among stakeholders or between stakeholders and officials.” (Cox et al. 2010).</p>
When to code	<p>Is there evidence that resource users have options to take their grievances to an independent third party, such as a court or a tribunal? Can access to this conflict resolution forum be made in a reasonable time period? Can conflict resolution mechanisms be accessed at a reasonable cost?</p> <p>If the answer to all three questions is yes, then code this variable as present (=1)</p> <p>If not, then code this variable as absent (=0)</p> <p>If missing in case (=98)</p> <p>If N/A (=99)</p> <p>Text box prompt: Explain in text box if there were avenues for conflict resolution but they just weren’t cost/time efficient</p>
Typical examples	<p>“The forest users’ group (FUG) usually resolves smaller internal conflicts, particularly related to the harvest and distribution of forest products. More complicated conflicts internal to the FUG are resolved in FUG assemblies, sometimes with facilitation by local forestry staff. The FUG seeks support from the DFO for resolving conflicts arising from external factors. Being a semiautonomous entity, the FUG has the right to go to court for more serious conflicts, but that has not yet happened” (Gautam and Shivakoti 2005; Ostrom 2009a). Code as 1</p> <p>“In the acequia irrigation communities in northern New Mexico, for example, there is a long history of recourse to external court systems under different national regimes to resolve intercommunity conflicts. Several agreements reached by territorial probate courts more than 100 years ago are the basis for</p>

	<p>functioning, modern water-sharing agreements today” (Cox 2010 in Cox et al. 2010). Code as 1.</p> <p>Farmers engaged in groundwater allocation disputes in California can petition the State Water Resources Control Board for a resolution to their grievances (California State Water Resources Control Board 2017). Code as 1.</p>
Atypical examples	<p>The European Court has authority to rule on violations of EU environmental rules.</p>

Mnemonic 30	DP7
Short description	Minimal recognition of rights to organize.
Detailed description	<p>“Minimal recognition of rights to organize: The rights of stakeholders to devise their own institutions are not challenged by external governmental authorities” (Cox et al. 2010).</p> <p>“The rights and ability of appropriators to devise their own institutions are not challenged by any other authorities, internal or external, that have the ability to undermine the institution” (Morrow and Hull 1996 p.1651, quoted in Ostrom 2009a).</p> <p>Rights are defined as either formal/legal (de jure) or informal (de facto).</p>
When to code	<p>Is there evidence that stakeholders can self-organize in a manner that is relatively free from challenges by authorities external to the collaborating group?</p> <p>If yes, then code this variable as present (=1)</p> <p>If no, the code this variable as absent (=0)</p> <p>If missing in case (=98)</p> <p>If N/A (=99)</p>
Typical examples	<p>Collapse of the Grand Banks cod fishery, Newfoundland, Canada. The failure of the Canadian Department of Fisheries and Oceans (DFO) to listen to fishermen coupled with the utilization of an erroneous mathematical model to estimate fish populations led to the setting of an inappropriate maximum sustainable yield for cod. Subsequently, DFO ignored fishing communities’ complaints about overfishing in the fishery by foreign fleets (Watkins 2017; Greenpeace 2009). Their rights were undermined by the Department’s permitting of foreign fishing vessels to fish cod within the same waters. This is coded as 0.</p> <p>Massai communities that were relocated from Ngorongoro Crater for a protected area undermined this community’s rights to organize to manage their land (Dowie 2009). Code = 0</p> <p>Failure of community-based conservation projects due to failure to consider the needs and wishes of local communities, along with mandatory displacement of these communities from their traditional lands, restriction of access to resources communities have traditionally relied upon but which now lie within protected areas coupled with little or no compensation, can result in hostile towards the conservation groups and their efforts. Often, this leads to conflict, compelling the</p>

	communities to go against the established rules, and harvest resources and hunt illegally (Dasgupta 2016). Code = 0
Atypical examples	Sometimes NGO conservation projects do not take into account what communities have already been doing to organize. (See Hill July 2010 article in The Guardian on Rosaleen Duffy's Nature Crime book). Code = 0

Mnemonic 31	DP8
Short description	Nested enterprises
Detailed description	<p>“Nested enterprises: Appropriation, provision, monitoring, enforcement, conflict resolution, and governance activities are organized in multiple layers of nested enterprises... Many scholars, particularly those focusing on pastoral and irrigation systems, have stressed the importance of nesting smaller common-property systems in larger and still larger ones, given the high probability that the social systems have cross-scale physical relationships when they manage different parts of a larger resource system and thus may need mechanisms to facilitate cross-scale cooperation” (Lane and Scoones 1993, Niamir-Fuller 1998, as cited in Cox et al. 2010).</p> <p>“Intercommunity connections can be thought of as horizontal linkages, whereas connections between multiple jurisdictional levels can be thought of as vertical linkages” (Cox et al. 2010).</p> <p>In more complex governance systems, governance should consist of a mix of institutional types, e.g., hierarchies, markets, self-governance, with differing decision rules related to incentives, inducement of compliance, information sharing, monitoring, and sanctioning. Governance structures that provide a multiplicity of rules will make it more difficult for “innovative rule evaders” to skirt the rules and/or free-ride (Dietz, et al. 2003).</p>
When to code	<p>Is there evidence of nested enterprises - a multi-level system in which governance and information sharing are linked across governance levels, between user groups and government organizations?</p> <p>If yes, then code this variable as present (=1)</p> <p>If no, the code this variable as absent (=0)</p> <p>If missing in case (=98)</p> <p>If N/A (=99)</p>
Typical examples	Narwhal management by the Inuit in Canada which is horizontally linked to other local hunter organizations, as well as vertically

	<p>connected to regional, national, and international government bodies and organizations would be coded as 1.</p> <p>Management of migratory, threatened species, such as sharks and sea turtles, are embedded in a web of management rules that extend from local fishing regulations, to national laws, and international treaties (NOAA 2016) would be coded as 1.</p>
Atypical examples	

Mnemonic 32	INST_ADAPT
Short description	Institutional adaptability/variety/flexibility
Detailed description	<p>Governance systems should be built for adaptation and change, i.e., include an adaptable institutional design and a variety of institutional types, engage in iterative risk management with an emphasis on flexible/adaptive management practices (Dietz et al. 2003, Stern 2011, Olsson et al. 2006, Gruber 2010).</p> <p>In the event of changing conditions within the social-ecological system, a governance system designed to cope with said changes can respond quickly by referring to a portfolio of adaptable management measures. Additionally, facilitating social learning and capacity building, and including early warning devices can reduce the intensity of unforeseen change and allow for a more effective response (Armitage et al. 2009, Olsson et al. 2006, Young 2002, Plummer et al. 2012).</p>
When to code	<ol style="list-style-type: none"> 1. . 2. <p>If the institutional structure is designed to be flexible and adaptable, incorporating iterative management practices, and/or a variety of institutional types (=1)</p> <p>If not (=0)</p> <p>If missing in case (=98)</p> <p>If N/A (=99)</p>
Typical examples	White Mountains Stewardship Project iterated designs for forest thinning and compared their performance in wildfires. The design of their collaboration was set up so that all parties would all agree to experiment with a number of different treatments without anyone involved in the collaboration raising concerns outside of the forum of the WMSP. Code as 1.
Atypical examples	

Mnemonic 33	SOC_LEARN
Short description	Social learning
Detailed description	<p>This variable is focused on the process of social learning facilitated within the collaboration so that the participants learn differently (and more productively) together than they would separately on their own, and are then able to move forward and create collective decisions based upon the group process of learning. This includes the openness of participants to share and draw on a plurality of knowledge systems and resources. Learning in general, and social learning in particular, are associated with effective local governance systems (Armitage et al. 2009, Olsson et al. 2006, Young 2002, Plummer et al. 2012, Gruber 2010).</p>
When to code	<p>Is there evidence that the collaboration is actively encouraging learning and sharing knowledge between the participants?</p> <p>If yes, then code this variable as present (=1)</p> <p>If no, the code this variable as absent (=0)</p> <p>If missing in case (=98)</p> <p>If N/A (=99)</p>
Typical examples	<p>In the White Mountains Stewardship Project in Arizona (2004-2014), they needed to decide how to better manage US national forests in eastern Arizona. Working with the USFS, they decided to conduct a an experiment by thinning three different areas differently, with different tree placement patterns, and then collectively discussing and deciding which one they liked best. This process would not have happened without the collaboration, and the collaboration engaged in social learning through this process.</p> <p>Code = 1</p>
Atypical examples	NEEDED

Mnemonic 34	LT_COM
Short description	Long-term commitment
Detailed description	<p>Long-term commitment in support of the shared goals (or vision) of the collaboration has often been identified as a core component of collaborative natural resource management. This includes mobilizing broad support for change among stakeholders, sharing power and sharing responsibility among those involved in the collaborative process (Armitage et al. 2009, Olsson et al. 2006, Ansell and Gash 2008, Gruber 2010).</p>
When to code	<p>Is there evidence that participants maintain a long-term commitment to the goals of the collaboration?</p> <p>If yes, then code this variable as present (=1)</p> <p>If no, the code this variable as absent (=0)</p> <p>If missing in case (=98)</p> <p>If N/A (=99)</p>
Typical examples	<p>In 2005, Sonoita Valley community members collaborating under the name Sonoita Valley Planning Partnership (near Tucson, AZ) lobbied federal representatives to recognize the Las Cienegas riparian area as a National Conservation Area (LCNCA). Thus, collectively, they sought to create a collaborative adaptive management scheme, demonstrating that the members planned to engage in long-term management of the LCNCA.</p>
Atypical examples	

Mnemonic 35	LEAD
Short description	Leadership
Detailed description	<p>Leadership and willingness to champion the collaboration have repeatedly been identified as important to collaborative governance (Ostrom and Cox 2010, Armitage et al. 2009, Olsson et al. 2006, Ansell and Gash 2008, Plummer 2012, Gruber 2010, Gutiérrez et al. 2011). Leadership can appear in a variety of different ways, and may come from key individuals who are not necessarily designated as the collaboration head.</p>
When to code	<p>We identify leadership by looking to see if there are individuals in the collaboration who provide some of the following functions:</p> <p>coordinating efforts across scales, building networks, reconciling problems and resolving conflict, building group trust, and fostering novel thinking.</p> <p>If any of these characteristics are present in individuals within the collaboration, then code this variable as present (=1)</p> <p>If not, then code this variable as absent (=0)</p> <p>If missing in case (=98)</p> <p>If N/A (=99)</p> <p>Please explain in text box.</p>
Typical examples	Sven Erik Magnussen provided leadership for the EKM in Sweden (Olsson et al., 2006). Code = 1
Atypical examples	<p>WMSP built on the success of the NRWG in the White mountains, which had been informally organized by a professor at U of A Ag Extension Service for several years. The NRWG built a network, helped parties move past conflict and develop a common vision, built group trust and identity, and fostered an open-minded exploratory approach to sustainable forest restoration and management. So leadership from a prior network also served to facilitate success.</p>

Mnemonic 36	CAPACITY BLDG
Short description	Capacity of the collaboration to succeed, including provision of adequate resources and the ability to build further capacity (e.g., through providing training and resources)
Detailed description	Does the collaboration have the capacity to provide the necessary infrastructure (physical, economic, and social), investment in science, training, and resources, including technology and social networks, at the local, regional, and national stakeholder level (Ostrom and Cox 2010, Stern 2011, Armitage 2009, Olsson et al. 2006, Ansell and Gash 2008, Plummer et al. 2012).
When to code	<p>Is there evidence that the collaboration is supported from within or by outside sources so that it has the resources, technology, jurisdiction and ability to train that is necessary for it to function?</p> <p>If yes, then code this variable as present (=1)</p> <p>If no, the code this variable as absent (=0)</p> <p>If missing in case (=98)</p> <p>If N/A (=99)</p>
Typical examples	Huachuca Firescape - -had all of the necessary leadership but once the EIA was finalized, the Forest Service diverted all funding to the 4FRI collaboration leaving the Huachuca Firescape without funding to implement the work plan outlined in the EIA. As a result, the collaboration collapsed and was never implemented. Code = 0
Atypical examples	Lack of capacity may hinder “stewardship”: Creating monitoring as citizen science in Eastern Europe (Loos et al. 2015)

Mnemonic 37	KNOWL-BUILD
Short description	Knowledge building by, e.g., learning and information sharing; commissioning of scientific studies etc.
Detailed description	<p>Knowledge building includes mechanisms that provide the collaboration with information related to environmental and social conditions in their resource system, including monitoring of resource and social conditions (Dietz, et al. 2003, Ostrom and Cox 2010, Stern 2011, Olsson et al. 2006, Ansell and Gash 2008, Plummer et al. 2012, Gruber 2010, Folke et al. 2005).</p> <p>This should also include multiple ways of knowing that represent all stakeholders present in the collaboration. Traditional ecological knowledge, for example, can be incredibly useful for understanding a context and recognizing its value is necessary for fostering relationships of mutual respect in working with indigenous people (Gadgil et al 1993).</p>
When to code	<p>Are there processes and interactions that foster knowledge building and/or sense-making?</p> <p><i>Clarifying questions to consider:</i></p> <p><i>Does the collaboration engage in joint fact-finding missions?</i></p> <p><i>Is the information provided to the stakeholders perceived to be trustworthy?</i></p> <p><i>Did the collaboration consult relevant experts and the best available science?</i></p> <p><i>Did they include local traditional environmental knowledge?</i></p> <p>If yes, then code this variable as present (=1)</p> <p>If no, the code this variable as absent (=0)</p> <p>If missing in case (=98)</p> <p>If N/A (=99)</p>
Typical examples	<p>Colorado River Basin knowledge banks</p> <p>Steering Committee Meetings, Technical Work Groups, Websites and databases with annual reports and meeting minutes for external sharing</p>

Atypical examples	In American West wild horse management, a stakeholder shared with the collaboration that “Wild horses cured my cancer”. The collaboration then voted to decide whether or not to include this information in their decision-making. As a group, they elected to not include this. This would be coded as a 1, as they made decisions on how to include knowledge in their collaborative process.
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Mnemonic 38	PRIOR NETWORKS
Short description	Do prior networks and cooperative efforts exist?
Detailed description	The importance of networks, in particular pre-existing networks, partnerships, collaborative efforts, or conflict appears foundational to the establishment of a robust collaboration. (Olsson et al. 2006, Ansell and Gash 2008, Plummer et al. 2012).
When to code	<p>Is there evidence of a network or partnership that existed prior to the collaboration/adaptive co-management effort?</p> <p>If yes, then code this variable as present (=1)</p> <p>If no, the code this variable as absent (=0)</p> <p>If missing in case (=98)</p> <p>If N/A (=99)</p>
Typical examples	White Mountains Stewardship Project built on the success of the NRWG in the White mountains, which had been informally organized by a professor at U of A Ag Extension Service for several years. The NRWG built a network, helped parties move past conflict and develop a common vision, built group trust and identity, and fostered an open-minded exploratory approach to sustainable forest restoration and management. So the prior network served to facilitate success. Code as 1.
Atypical examples	NEEDED

Mnemonic 39	FACE
Short description	Face-to-face dialogue
Detailed description	Face-to-face communication among stakeholders and others involved in collaborative resource governance. (Ansell and Gash 2008, Olsson et al. 2006, Ostrom 1990).
When to code	<p>Is there evidence of face-to-face interactions in order to facilitate good faith negotiations?</p> <p>Clarifying questions to consider:</p> <p>Is there evidence of a consensus-building process in negotiations among stakeholders, e.g., the stakeholders come together to discuss the issues and try to come up with mutually acceptable solutions?</p> <p>Are there regularly scheduled meetings where all stakeholders come together to discuss the issues and potential solutions?</p> <p>If yes, then code this variable as present (=1)</p> <p>If no, the code this variable as absent (=0)</p> <p>If missing in case (=98)</p> <p>If N/A (=99)</p>
Typical examples	Face to face communication in a market CPR laboratory experiment improved efficiency in coordinating and implementing strategies, as well as dealing with non-conformers (Ostrom and Walker, 1989) Code as 1
Atypical examples	Online face-to-face communication is as effective in facilitating cooperation as in-person face to face communication (Brosig, Ockenfels, Weiman, 2001). Code this as 1

Mnemonic 40	TRUST
Short description	Level of trust among stakeholders in the collaboration
Detailed description	<p>Trust among stakeholders in the collaboration is deemed a crucial indicator for the “success” of a collaboration and the basis for adaptation and change (Ostrom 1990, Ostrom 2009b, Cox et al. 2010, Dietz et al. 2003, Ostrom and Cox 2010, Stern 2011, Armitage et al. 2009, Ansell and Gash 2008, Olsson et al. 2006, Young 2002, Gruber 2010).</p> <p>Trust is also viewed as an important building block for social capital. Social capital is an important factor in collaborations (Gutiérrez et al, 2011).</p>
When to code	<p>Is there evidence that the stakeholders in the collaboration trust each other?</p> <p>If yes, then code this variable as present (=1)</p> <p>If no, the code this variable as absent (=0)</p> <p>If missing in case (=98)</p> <p>If N/A (=99)</p>
Typical examples	<p>During the collaboration of Arizona’s intrastate Drought Contingency Plan (DCP), several stakeholders have been cooperating together in watershed management. These historical interactions and upholding these historical agreements between government agencies and Native American tribes in Arizona has built trust over time. This has assisted with the current decision-making process of the DCP. Code = 1</p>
Atypical examples	

Outcome variables

One of the greatest challenges in the collaboration literature is in comparing outcomes. In particular, how do we define a successful outcome in a generalizable fashion. Given the wide diversity of resource types, collaborative initiatives and contexts, we have elected to have some simple metrics for assessing outcomes across cases. We assume that individual case studies may have additional social, ecological and linked social-ecological outcomes of specific importance for individual cases.

Mnemonic 41	COLL_OBJECTIVE
Short description	Are the collaboration objectives met?
Detailed description	Is the collaboration achieving its core objectives? This could include improved environmental (resource) conditions, social conditions, or whatever is specified in the collaboration mission/goals.
When to code	<p>Short answer component: List each objective of this collaborative effort. Explain how each of the objectives of the collaboration have or have not been met. Have environmental / resource conditions improved? If so, which environmental/resource conditions have improved, and how? Have social conditions improved (including equity), if that was an objective of the collaboration?</p> <p>Core objectives not met; code = 0</p> <p>Core objectives met; code = 1</p> <p>If missing in case; code =98</p> <p>If N/A; code =99</p>
Typical examples	<p>White Mountains Stewardship Project was able to demonstrate that mechanical thinning of overgrown forests reduces wildfire. Code = 1</p> <p>Canada’s Species at Risk Act (SARA) outlined in its Recovery Strategy for the Northern and Southern Resident Killer Whales (Orcinus orca) in Canada the following as one of its recovery objectives:</p> <p>5.3.1 Objective 1 <i>Ensure that resident killer whales have an adequate and accessible food supply to allow recovery</i></p> <p>This objective identifies the need to learn more about the year-round diet of killer whales, and to understand and mitigate the threats to key prey populations and their habitat. Food supply can limit the growth and recovery of any population, and there are concerns about the quality and quantity of resident killer whale prey, as well as the prey's habitat. In some areas of the US, for example, runs of chinook salmon, a principal prey species for residents during the summer, have been listed as either endangered or threatened (NWR 2004). We know very little about what killer whales eat during the winter and spring, and this information is critical to understanding whether the quantity or quality of their food supply could be</p>

	<p>responsible for the recent decline in killer whale numbers, and may prevent their populations from recovering.</p> <p>Increased killer whale mortality in the Southern Resident population due to starvation suggests this objective has not been met (The Guardian 2019). Code = 0</p>
Atypical examples	<p>the City of Vancouver: As part of their “Greenest City Action Plan” they set a goal to reduce their ecological footprint by 1/3. In practice, they found that they could neither measure nor directly impact this metric. So they changed the way they measured it to use a proxy metric: “the number of people empowered by City led or City-supported projects, training or personal lifestyle changes to take action.”</p> <p>By this new proxy metric they met their goals, but it was not the original goal.</p> <p>(Chapman et al 2017)</p>

Mnemonic 42	Unexpected Environmental Outcomes
Short description	Environmental outcomes from the collaboration that were unplanned and unanticipated.
Detailed description	These unintended environmental impacts of the project or side-effects may be somewhat separate from the outcomes of the project itself or whether it met its goals.
When to code	Negative unanticipated environmental outcomes = 0 Positive unanticipated environmental outcomes = 1 If missing in case; code =98 If N/A; code =99
Typical examples	In the WMSP, biodiversity of flowers, birds, and butterflies increased in the meadow areas that developed after the forest was thinned using the clumpy model developed in the demonstration project. Code as a 1.
Atypical examples	

Mnemonic 43	Unexpected Social, Political or Economic Outcomes
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Short description	Social, political or economic outcomes from the collaboration that were unplanned and unanticipated.
Detailed description	These unintended social, political or economic impacts of the project or side-effects may be separate from the outcomes of the project itself or whether it met its goals.
When to code	Negative unanticipated social, political or economic outcomes = 0 Positive unanticipated social, political or economic outcomes = 1 If missing in case; code =98 If N/A; code =99
Typical examples	In the WMSP, the level of social capital building was so strong that it may have engendered some tribalism that could prove challenging in scaling up the restoration efforts to include northern Arizona forests as well, in the Four Forest Restoration Initiative (4FRI). Code as a 0.

Mnemonic 44	COLL_PROCESS
Short description	The process of collaboration is deemed effective by stakeholders.
Detailed description	Collaboration is seen as an end in itself, regardless of the outcome of the collaboration. Here we test whether the process of collaboration is seen as beneficial to each individual participating and, separately, to the overall group itself
When to code	By collaborating did the stakeholders benefit from working together (even if the goals were not met)? If the collaboration was beneficial for some stakeholders, but not for others, code as 2 If the collaboration was viewed as beneficial by all, code as 1 If not beneficial for any of them, code as 0 If missing in case; code =98

	If N/A; code =99
Typical examples	The White Tank Mountains Conservancy strengthened social ties, increased base of stakeholder, formalized smaller collaborative groups which buttress the conservancy, despite no discernable outcome (yet). Code as 1.
Atypical examples	

Meta variables (largest scale)

Mnemonic 45	GOV_QUAL
Short description	Measuring the Quality of Governance: Worldwide Governance Index project https://info.worldbank.org/governance/wgi/#home
Detailed description	<p>Overall government effectiveness is likely to be key to creating a context in which a collaboration can thrive. On the other hand, sometimes collaborations may arise to fill the gaps that exist in a system with less effective governance at a higher level. Coding for government effectiveness should help us to learn more about the nature of the relationship between government effectiveness and collaboration success.</p> <p>The WGI database is offered by the World Bank as a trusted source of information on government effectiveness as well as political stability, rule of law, regulatory quality, government accountability and control of corruption.</p> <p>The dataset must be downloaded (excel file) and the percentile ranking column for the most recent year is the one to use.</p> <p>This is EXTERNAL to the collaboration.</p>
When to code	<p>To locate the ranking of the effectiveness of the government in the country that the collaboration is embedded within, download the excel file and click on the tab for government effectiveness. find the country in the left column, and its percentile rank in the column labeled Rank for the most recent year. Code according to Quartile:</p> <ol style="list-style-type: none"> 1. 75-100 ranking - Most effective 2. 50-74.9 ranking - Effective 3. 25 - 49.9 ranking - Less effective 4. 0 - 24.9 ranking - Least effective 98. Missing in case 99. N/A
Typical examples	<p>Fort Huachuca Firescape in southern Arizona is embedded in a hierarchical system in which different local, state and federal government agencies had decision-making and budgeting authority. Because it is within the US, it is ranked as 92.79, so code (1)</p>

Atypical examples	International collaborations should be coded as N/A unless all governments involved fall into one quartile.
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Mnemonic 46	CORRUPT_INDEX
Short description	Corruption Perceptions Index by Transparency International https://www.transparency.org/cpi2018
Detailed description	It is critical to understand the factors that shape the incentives that stakeholders have to engage in the “shadow of the state” (Bentrup, 2001). Many cases of successful collaborative natural resource management are found in countries in which government is responsive and accountable to the public, providing a safe and predictable context, such as Sweden and Canada. However, in cases where the government is not providing public goods at the optimal level, collaborative efforts may arise to fill these gaps in governance. Therefore we may see non-intuitive results. While there are likely to be cases of successful collaborative natural resource management in Cambodia, the country has a score of 20, which is comparatively very corrupt. Coding this variable for all cases will help us to understand whether high or low levels of corruption can help to explain overall outcomes of cases.
When to code	Find the score for the country in which the collaboration is located in the most recent edition of the Corruption Perceptions Index by Transparency International and code in these categories: (1) 70 and higher - Cleanest (2) 46-69 - Somewhat Corrupt (3) 26-45 - Corrupt (4) 0-25 - Very corrupt (98) Missing in case (MIC) (99) N/A
Typical examples	
Atypical examples	Corrupt Secretariat of an international organization cannot be coded

Mnemonic 47	Human Development Index (HDI)
Short description	Level of economic and human development of country
Detailed description	<p>The purpose of this category is to capture the contextual qualities related to economic development and opportunity for people in the given country. While this is still based largely on GDP, the Human Development Index also includes other variables in their ranking - years of schooling and life expectancy are the most important of these - this starts to get at the basic freedoms and opportunities available to an individual in this economic and political context.</p>
When to code	<p>Code based on the indicator data provided by the U.N. for the country within which your research is based. Most recent (2017) UN Human Development Indicators (HDI) report can be accessed here: http://hdr.undp.org/en/composite/HDI</p> <p>There are 5 HDI indicator categories. Find your country in the table, and code according to HDI indicatory category under which your country is assessed:</p> <ul style="list-style-type: none"> - Very high human development: code = 5 - High human development: code = 4 - Medium human development: code = 3 - Low human development: code = 2 - Country not assessed: code = 1 - Missing in case = 98 - N/A = 99
Typical examples	<p>Germany – very high human development. Code = 5</p> <p>Lebanon – high human development. Code = 4</p> <p>Benin – low human development. Code = 2</p> <p>Tuvalu – not assessed. Code = 1</p> <p>South Africa - medium human development. Code = 3</p>
Atypical examples	N/A

Mnemonic 48	LEG_SYS
Short description	<p>Legal system protection of property rights, as ranked by the Fraser Institute’s (Canadian think tank) ranking of economic freedom https://www.fraserinstitute.org/economic-freedom/dataset?geozone=world&page=dataset&min-year=2&max-year=0&filter=0&sort-field=legalSystemsPropertyRights&sort-reversed=1</p>
Detailed description	<p>The robustness of legal systems (regarding property rights) within which a collaboration is embedded in may be of importance with regard to instances of legal dispute, settlement and other legal matters. We use the Fraser Institute because they have rated legal systems with regard to their ability to protect property rights.</p> <p>“In order to receive a high EFW rating, a country must provide secure protection of privately owned property, a legal system that treats all equally, even-handed enforcement of contracts, and a stable monetary environment.”</p> <p>https://www.fraserinstitute.org/economic-freedom/economic-freedom-basics</p>
When to code	<p>Indicate whether the country in which the case study is situated is ranked high, medium-high, medium-low, or low (<i>in the legal systems and property rights category only</i>) by the Fraser Institute:</p> <ul style="list-style-type: none"> (1) High = score of 6.5 and higher (2) Medium-High= scores between 5.0 and 6.5 (3) Medium-Low= scores between 4.0 and 5.0 (4) Low= scores 4.0 and below <p>(98) Missing in case</p> <p>(99) N/A</p>
Typical examples	<p>Most countries that score well in the legal systems and property rights category do well in their overall ranking as well. New Zealand, for example, received an 8.72 for legal systems & property rights, putting them in our (1) High category, and also scored an 8.49 overall, ranking third globally.</p>

Atypical examples	Be sure you're NOT using the overall color-coded ranking of the country, but the specific grade it received for the legal systems & property rights column. So, for example, while in 2016 Guatemala received an overall favorable score of 7.64 and is ranked 23 in the world overall for economic freedom, it only received a 4.38 for the legal systems and property rights column, putting it in our (3) Medium-Low category.
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Quick Starter Guide to participating in this survey on collaborative conservation/ NRM

This guide is for practitioners and researchers studying and/or implementing collaborative natural resource management (CNRM) and collaborative conservation projects/programs.

We designed this survey/codebook to aggregate/collect examples/cases of collaboration around natural resources, from which we can make generalizations about the theory and practice of collaborative resource management. We conducted a review of metastudies looking at collaborative governance of natural resources and discovered twenty core components of successful collaborations in the literature (Carr Kelman et al, forthcoming). In addition to these 20 variables, we include variables about the context and outcomes of these collaborations. We aim to learn more about the impact of these factors by collecting cases of collaborative conservation to study. Our research questions are:

1. What are the core components of effective collaborative NRM?
2. What contextual factors impact outcomes of collaborative projects?
3. Are there clusters of indicators or variables that tend to show up together in successful cases, or clusters that tend to come up missing from cases that failed?
4. What can we learn from failed cases of collaborative NRM?
5. How can we use these findings to improve real-world collaborations?

We hope you are interested in participating in our study on the most important factors of successful collaborative efforts. We also hope that participation is useful to you, by providing insights from a multi-disciplinary review of academic literature on the salient features of collaboration. This guide aims to answer the following questions:

Is my case study a useful example of collaborative natural resource management?

What if the collaborative effort failed to meet its goals?

Who should be entering cases into the survey?

What kinds of questions will I need to be able to answer about the case study?

Where will the information entered be saved and how will it be used?

Will I receive credit for the information I enter in the survey?

How does this study differ from others?

Is my case study a useful example of collaborative natural resource management?

We are interested in exploring a diverse set of cases over a variety of different places and contexts, not just formal legalistic cases involving government authorities. Semi-formal or informal cases of

collaboration are also useful. We purposefully adopt a very wide view of collaborative efforts for the purposes of this manual.

For a collaboration to be a good fit, it should:

1. Aim to solve a problem that individuals cannot solve on their own
2. Clearly state the goal(s) of the collaboration
3. Have a goal or focus that is environmental or ecological

It is also helpful if the collaboration in your case:

1. Has policy making and/or decision making authority or government involvement in or recognition of the collaboration
2. Includes multiple authorities operating at different levels

Your collaboration will probably not be a good fit if:

1. The involvement is purely consultative
2. Non-human life-forms are not involved (e.g. squatters movement to save their slum)

What if the collaborative effort failed to meet its goals?

That is okay! Even if the collaboration was not successful, we are still interested in the variables that were involved in order to learn more about what may have caused its failure.

Who should be entering cases into the survey?

Anyone with significant/enough knowledge of a case can enter it into the survey, whether that knowledge is first-hand or through reading about the case, or conducting interview-based research of the case. Ideally, experts have first-hand experience with the case, but it is often possible to answer many of the questions after reading published literature on the case, especially if that reading is then followed by in-depth semi-structured interviews with those involved in the case. In other words, cases can be coded based on primary or secondary data collection.

What kind of questions will I need to be able to answer about my case?

The survey asks you to select answers for forty-eight variables. We ask questions about:

1. Biophysical attributes - location, size, ecosystem type etc.
2. Property rights and institutional arrangements

3. History of case and context
4. Dynamics of the collaborative process
5. Outcomes of the project - ecological and socio-economic

Where will the information entered be saved and how will it be used?

The information will be housed in a secure, password-protected database. The only people with access are faculty and students in the Collaboration Lab, studying with Drs. Schoon and Carr Kelman. This research was approved by the Arizona State University Internal Review Board.

We view the purpose of the coding to be twofold. First, a main research goal is to enable the aggregation of cases across a variety of contexts to allow for cross-case and synthetic comparisons. Second, we also see an inherent value to understanding individual cases through a systematic approach to data collection.

Your contact information will only be used to follow up on the case study for further information if needed, or if your case is of particular interest.

Will I receive credit for the information I enter in the survey?

You will be acknowledged for your contributions to this research in publications and presentations of the research findings. Please indicate in the survey if you wish to be more involved in the research, listed as a co-author, etc.

How does this study differ from others?

We see this database as building on past meta-analytic studies such as SESMAD, IFRI and the SES library and draw on common sets of variables, definitions and literature. This particular database extends this research in a new direction – one that is focused on collaboration and working together to resolve collective challenges.

We hope that it is possible in future work to allow cases from across these databases to be studied in aggregate across limited sets of common variables. As these variables share definitions, we believe that this work will be achievable without the degree of difficulties commonly found in trying to aggregate disparate data sources.

If you have further questions, please email us candice.carr.kelman@asu.edu