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Stakeholder Analysis in Environmental and Conservation Planning

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ABSTRACT

Stakeholders are defined as the people and organizations who are involved in or affected by an action or policy and can be directly or indirectly included in the decision making process. In environmental and conservation planning, stakeholders typically include government representatives, businesses, scientists, landowners, and local users of natural resources. These groups of stakeholders often have very different positions and values that may be difficult to reconcile with each other and the planned project. This synthesis provides a brief overview of why it is important to incorporate different stakeholders, including underrepresented groups and "hidden" stakeholders, in the planning process and discusses the potential benefits of inclusion. Before involving stakeholders, conducting a stakeholder analysis can help to identify relevant stakeholders and to assess their views and interests on a proposed project. The synthesis describes specific techniques for conducting a formal stakeholder analysis, such as the use of stakeholder tables and a stakeholder influence/interest grid. Finally, the synthesis also highlights some approaches and strategies that can help to facilitate a fair and productive participatory process.

1. INTRODUCTION

Figure 1 shows a collection of headlines in newspapers from just the United States. Do you see a common theme? From this small sample it is clear that environmental, natural resource, and conservation plans or decisions are complicated and involve many different people with differing opinions and values. Decisions about environmental and conservation projects like these are being made all over the world at multiple scales: from a small community deciding whether a parcel of land should be protected from development, to a multinational debate on whether there should be a total trade ban on ivory.

But what is the process by which different people, or stakeholders, are involved in making these decisions? Who exactly is a stakeholder, and how can stakeholders be identified and fairly involved in a project? In the following three sections, this module explores these key questions. First, it provides a brief overview of what a stakeholder is and why it is important to include them in the planning of environmental and conservation projects. Next, it describes several tools that can be used to systematically identify and better understand the set of stakeholders relevant to a particular project. Lastly, it describes some approaches for successfully engaging stakeholders in project planning. While not a comprehensive guide of all possible methods for identifying and engaging stakeholders, this module is intended to provide an introduction to the topic as well as some useful tools for performing a stakeholder analysis. For further information on the subject, we have included an appendix with suggested resources, including stakeholder engagement toolkits and guides.

2. IDENTIFYING AND INVOLVING STAKEHOLDERS

Environmental and conservation project planning and management often involve striking a balance between the protection and use of natural resources. Who decides what natural resources should be conserved or used? Landowners? Federal or local government? Scientists? The public? Such a diverse group of people is likely to bring together a variety of perspectives, motivations, past experiences, and interests to a given project (Madden & McQuinn 2014). When the scale of a natural resource project is large (e.g., construction of a mega dam or a pipeline) or spans country borders (e.g., creation of an international marine protected area), the list of private and/or public stakeholders can be expansive. In this section, we discuss different types of stakeholders and explore why it is important to involve them in the decision making process.

Grizzly bears in California: Reintroduction push ignites strong emotions
Mercury News, September 6, 2016

Public meetings held on the expansion of Papahanaumokuakea National Monument
KHON 2, August 1, 2016

North Dakota Oil Pipeline Battle: Who's Fighting and Why
The New York Times, August 26, 2016

Residents share concerns over Monterey Dam removal
GazetteXtra, November 11, 2016

Coyotes Create Dangers and Divisions in New York Suburbs
The New York Times, June 23, 2016

Environmental nuisance or grocery-store necessity? California voters to decide fate of plastic bags
The Sacramento Bee, October 8, 2016

Figure 1. Sample headlines about environmental and conservation issues in the U.S.

2.1. Who is a Stakeholder?

Broadly speaking, stakeholders are defined as the people and organizations who are involved in or affected by an action or policy and can be directly or indirectly included in the decision making process (Freeman 1984; Annan 2007; Sterling et al. 2017). A particular organization may further define situation-specific groups of stakeholders for its projects. For example, the U.S. National Park Service defines a stakeholder as a group or individual that should be present in order to reach the desired outcome or overall team purpose (U.S. National Park Service, www.nps.gov/ncrc), while the United Nations Environment Programme identifies and engages with nine specific major stakeholder groups for sustainable development projects under their oversight: farmers, women, scientific and technological community, children and youth, indigenous peoples and their communities, workers and trade unions, business and industry, non-governmental organizations, and local authorities (UNEP 2015).

2.2. Why Engage Multiple Stakeholders?

The idea of involving multiple stakeholders in a project may at first seem daunting and possibly counterproductive. This is because bringing together individuals with different perspectives, interests, and positions has the potential to slow the implementation of a project and create conflict. Resource managers often prefer to avoid lengthy negotiations and political stagnation and thus have traditionally turned to methods described as a "theory-driven approach" to research and evaluation (*sensu* Chen & Rossi 1980). Under this

Box 1: Hidden Stakeholders

"Hidden stakeholders" are those whose incomes and/or livelihoods depend on the use of a natural resource, but whose participation in public stakeholder decisions is not normally considered. For example, when discussing a topic such as the trade in a particular species, hidden stakeholders could include hunters, collectors, fishers, and squatters. Illegal poachers and dealers in black market wildlife trade represent a more extreme category of "hidden stakeholders," and their influence on the conservation of endangered species may span multiple international boundaries.

method, managers leading a project make decisions by consulting prior research on similar projects to identify likely outcomes. Use of a theory driven approach alone, however, fails to involve relevant stakeholders who can provide their different views and perspectives, resulting in a more successful and fair outcome. Thus an inclusive process that engages stakeholders is important for both pragmatic and democratic reasons (Sterling et al. 2017).

On the practical side, integrating stakeholder input into an initiative's planning process can be beneficial by providing early feedback and gathering consensus before a new rule, plan, or decision takes effect. This can lead to a more harmonious process and avoidance of unnecessary conflict. Often stakeholders oppose a project if they have been left out of the process, or were not informed about the numerous factors and compromises made before their participation (Mascia et al. 2003; Jones & Burgess 2005; Peterson et al. 2007). When stakeholders perceive (rightly or wrongly) that their views were not given fair consideration, hostilities can develop and possibly doom a project (Jentoft & McCay 1995; Madden & McQuinn 2014). As a result, fostering stakeholder ownership in the process can lead to increased support for, and improved implementation of, the project (Richards et al. 2004).

Stakeholder engagement throughout a project can also lead to higher quality decisions by incorporating more sources of information (Reed 2008). By considering a range of perspectives, engaging stakeholders can lead to a wider set of more creative options (Richards et al. 2004). Further, including the perspectives of local stakeholders can allow for solutions better suited for the social and cultural context of a region (Richards et al. 2004). Large organizations, such as the United Nations Environment Programme, recognize that "broad and balanced participation of [stakeholders]... plays a central role in providing expertise and scientific knowledge, informing governments of local needs and opinions, as well as identifying the 'on the ground' realities of policy decisions" (UNEP 2015).

Consideration of stakeholder values and opinions regarding an environmental or conservation project is also important from a democratic perspective. In a democratic, fair process, those most impacted by a project should have a say in its formation and implementation. In this context, stakeholder engagement can be seen as taking into account a diversity of values and facilitating empowerment, trust, and equity by including local communities in the decision making process (see Sterling et al. 2017 and references therein; Reed 2008). An inclusive stakeholder engagement process should comprise relevant actors and thus reduce the marginalization of underrepresented groups (Reed 2008). Another potential benefit of engagement from this perspective is social learning, where stakeholders can learn from each other and develop new relationships along the way (Reed 2008).

In any situation, it is important to consider which stakeholders to engage, as the most effective approach will balance the benefits of including a wide range of opinions and perspectives without being overly burdensome, to the point of hindering success of the engagement process (Sterling et al. 2017).

3. CONDUCTING A FORMAL STAKEHOLDER ANALYSIS

Given the importance of engaging stakeholders, governmental agencies or project managers may perform a stakeholder analysis prior to the planning and development of a conservation or environmental project. A stakeholder analysis is a group of techniques used as part of the planning process to identify and assess the relevant viewpoints of key people, groups, or institutions on a project or proposed activity. This type of upfront analysis can provide useful insights into stakeholder motivations and illuminate ways to facilitate a productive and successful engagement process for all involved parties. The most basic stakeholder analysis simply involves the identification of people, groups, and institutions that have some interest in a project or will be affected by it. As a pre-proposal technique, this analysis can be extended to anticipate the level of influence and support (either for or against) each group will have regarding a project or initiative. While any stakeholder or individual involved in a project could complete stakeholder analyses, stakeholder analyses completed by a team of project planners working together may achieve the best result.

3.1. Stakeholder Analysis Table

One stakeholder analysis technique used and modified by many, including UNICEF (available at http://bit.ly/2jd69XY), involves a table to aggregate information on the different stakeholders (Table 1).

When adding potential stakeholders and their interests to the table, it is important to consider the benefits the stakeholders may receive from the project, changes the project might require the stakeholders to make, and project activities that might cause damage or conflict for the stakeholders. Project planners should also include whether each individual, group, or institution would likely agree or disagree with the initiative, and describe their level of support or opposition for the project. A final step is to consider the actions or project revisions that could be taken to obtain stakeholder support and/or reduce opposition.

A stakeholder analysis encourages planners to include a diversity of viewpoints and incorporate the perspective of potentially underrepresented stakeholders. Further, by listing strategies to gain the support of stakeholders likely to oppose the action, this analysis provides the opportunity to consider changes to the proposed action.

3.2. Example: Analyzing a Stakeholder Table to Determine Strategies

For this example, a hypothetical watershed management proposal was modeled from several dam construction projects in locations as diverse as Harrisburg, Pennsylvania, and the Amazon (Tocantins River Basin) in Brazil. Typically, new dam construction (or renovation) provides downstream stakeholders safety benefits (e.g., reduction of flooding), and broader recreational or hydropower benefits to different stakeholder groups, depending on the specific project. In contrast, upstream stakeholders incur loss of land and natural river dynamics are altered, often to the detriment of wildlife and water quality. In some instances, there are further concerns regarding relocation of local peoples and political instability, which may add to the complexity of a project (see example in NCEP module, Environmental Climate Justice along the Brahmaputra River in Northeast India, accessible at ncep.amnh.org).

Table 2 shows a stakeholder analysis table for this hypothetical watershed management proposal. In this simplified example, the city government has proposed a new dam on the Pine River. This dam is proposed for hydropower, to prevent downstream flooding, and the city government proposes creation of a new city park with waterfowl habitat upstream. The city government's project planners have completed the below stakeholder analyses.

3.3. Stakeholder Grid

A stakeholder grid is a tool that can be used to visualize the relative influence (on one axis) and level of interest—either positive or negative—(on the other axis) of each of the stakeholder groups. This technique can be used either alone or in conjunction with the previously discussed table. A stakeholder grid can assist a project planner by visualizing which stakeholders share similar goals or have similar interests. A stakeholder grid is also useful for stakeholder groups to identify unexpected alliances, that is, groups that do not regularly share an interest, but which may join efforts to advocate for a singular position that both share.

An example of a stakeholder grid for the dam construction

Table 1. Pre-planning stakeholder analysis table template.

STAKEHOLDER	STAKEHOLDER INTEREST(S) IN THE PROJECT	LEVEL OF SUPPORT / OPPOSITION FOR PROJECT	NOTES AND STRATEGIES FOR OBTAINING SUPPORT OR REDUCING OBSTACLES

Table 2. A hypothetical pre-planning stakeholder table for a dam construction project.

STAKEHOLDER	STAKEHOLDER INTEREST(S) IN THE PROJECT	LEVEL OF SUPPORT / OPPOSITION FOR PROJECT	NOTES AND STRATEGIES FOR OBTAINING SUPPORT OR REDUCING OBSTACLES
Downstream Resident	Currently pays flood insurance costs	In favor	No new taxes would be used to subsidize construction
Upstream Landowner	Loss of land use of wet pasture	Strongly against	Financially compensate loss of use
City Government	Reduce flood potential, open up recreational use, possible hydropower generation could reduce air pollution and energy costs	In favor	Hydropower use could subsidize construction; needs strong support from other government agencies and offices
Bird Watching Group	Loss of riparian bird habitat	Strongly against	Mitigate loss by restoring adjacent habitat
Boating Group	Gain better boating access	Strongly in favor	Include development of boat ramp
Army Corps of Engineers	Stabilize flood cycles, but would also reduce wetlands	Somewhat neutral to mildly in favor	Mitigation of wetland loss; needs strong government support
State Department of Environment	Stabilize flood cycles, but also reduce water quality and native habitats	Somewhat neutral to mildly against	Mitigation of wetland loss; needs local government support
Regional River Commission	Improved water quality, for ecological, as well as human benefits	Moderately against	Fish ladders, water level management, downstream water user plan
City Parks and Recreation Department	Development of river park	In favor	Zoning and land use mitigation
Fishing Group	Public access to fishing, water quality for fish habitat	Mixed; members of group are split	Provide boat launch, mitigate upstream damage by habitat restoration, fish ladders
Energy Development Corporation	Develop hydropower plant	Strongly in favor	Will make proposal only after city support for dam announced

project is presented in Figure 2. Note that the placement of each of these hypothetical stakeholders depends on the specific project (e.g., city parks would become a low influence stakeholder if no recreational uses were planned).

Stakeholder grids can help identify potential group coalitions. Coalition building is an especially important tactic for stakeholders of low influence and high interest. Consider the bird watching group in the stakeholder grid above. The bird watching group and the upstream

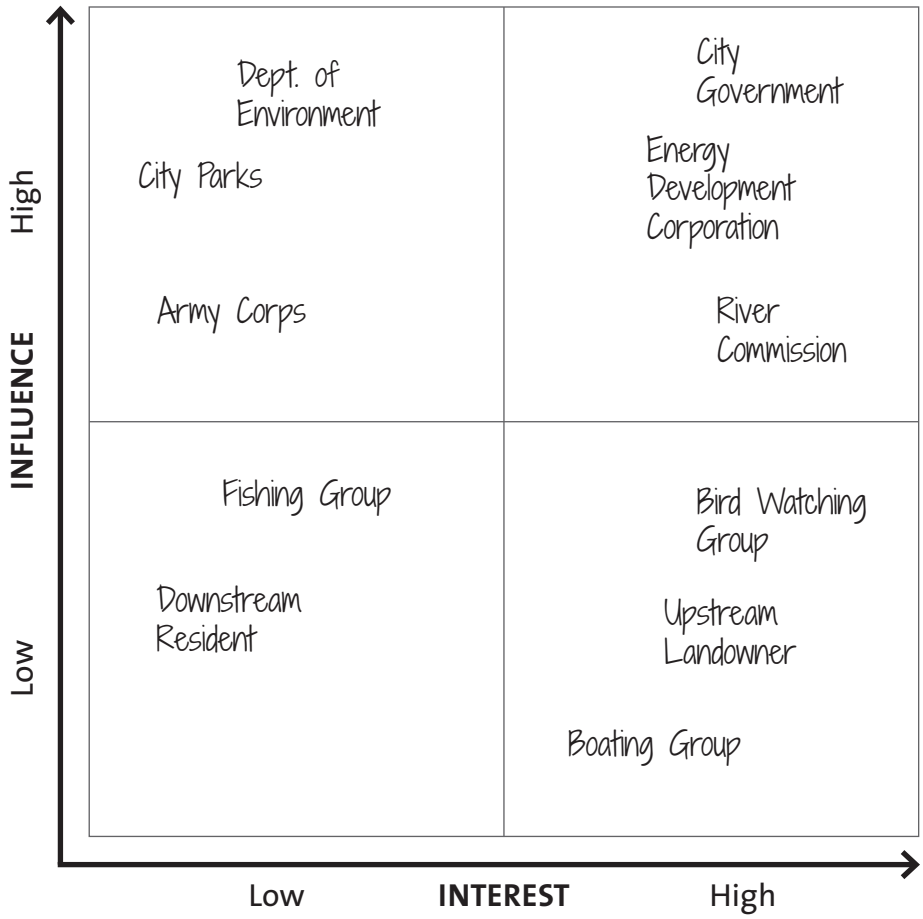

Figure 2. Stakeholder grid: an example using a hypothetical dam project.

landowner have similar (negative) views about a dam that would flood pastureland and destroy grassland bird habitat. Even if the upstream resident is not a bird enthusiast, he or she might be inclined to join forces with the bird watching group to gain a stronger voice in the debate.

Education and media coverage can also be used to possibly increase the interest level of other low influence groups. A coalition may eventually gain a higher level of influence than separate stakeholder groups, effectively moving to a new position in the grid. With greater numbers of informed stakeholders, coalitions can leverage that influence by appealing to stakeholders of even greater influence. In this example, coalitions of stakeholder groups with low influence but high interest could use their powerful collective voice to contact officials of groups with higher influence, such as the Department of Environment. Although perhaps not integral in the decision making process in this scenario, the Department of Environment may respond to a large public outcry and help to articulate these collective concerns to project organizers.

This flow of interest and influence can be visualized on the stakeholder grid as a backwards "Z" linking marginally interested stakeholders in the lower left quadrant, to the groups in the lower right through education and media, who use that empowerment to gain the assistance of stakeholders in the upper left, who ultimately advocate to the stakeholders holding the highest influence in the upper right quadrant (Figure 3). The dam proposer, the city government, could use this tool as well to identify and convene project supporters and opposition for early discussions.

3.4. "3 Rs" Approach: Rights, Risks, Responsibilities

Before assembling stakeholders, the project planners or meeting facilitators should consider acknowledging each stakeholder's individual rights, risks, and responsibilities. This "3 Rs" approach has been championed by the United Nations and is currently a part of their decision making process for the funding and planning of dam construction (Bird et al. 2005). Large water projects, especially those that span cultural or political borders provide good examples of how a 3 Rs stakeholder analysis early in the

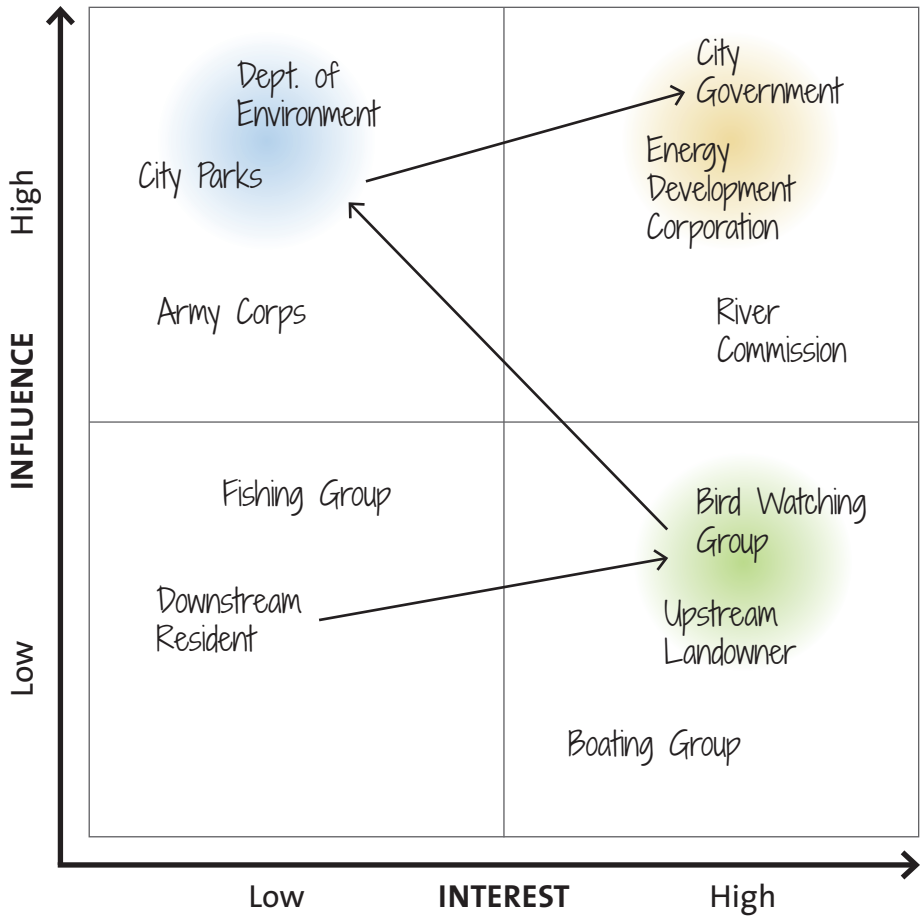

Figure 3. Stakeholder grid completed with backward "Z" included. Colors indicate possible coalitions or groups with common interests or concerns.

planning stages is vital to the well-being of upstream human communities and ecosystems, as well as to the success of the project (see World Commission on Dams 2000).

In this approach, project planners acknowledge and characterize stakeholder:

- **rights** (e.g., rights to extractable resources, rights of land tenure, human rights)
- **risks** associated with a project (e.g., loss of reputation, economic loss, loss of cultural integrity)
- **responsibilities** in planning and executing the project (may be included in a formal agreement or contract).

A 3 Rs approach may be used to inform the initial project planning, as an extension of a stakeholder analysis table. Can you envision what the rights, risks, and responsibilities could be for each of the stakeholders in Table 1?

Additionally, the 3 Rs approach may be used throughout a project as an independent and evolving document. As new stakeholders are brought into a project, or as the different agencies agree on specific responsibilities, the 3 Rs document can be modified. As the document develops, the responsibilities section can become the template for a legal contractual agreement or multi-party coalition (Bird et al. 2005).

4. FACILITATING INCLUSIVE STAKEHOLDER ENGAGEMENT

Following a pre-planning stakeholder analysis, a project proposal is typically announced and stakeholders are invited to participate in the process. Involving stakeholders early in the planning process is an important strategy to obtain support for an initiative and reduce obstacles to successful implementation (Jentoft & McCay 1995; Jones & Burgess 2005; Jupiter et al. 2014).

There are multiple ways in which stakeholders can be engaged. Some depictions of engagement have a normative framing, in which more participatory forms are viewed as better, such as Arnstein's (1969) Ladder

of Citizen Engagement. As shown in Figure 4, this framing lists non-participation as the lowest rung; non-participation can take many forms including situations where no provisions are made for participation at all or situations where stakeholders appear to have influence but actually have no say (i.e., manipulation). The ladder depicts increasing levels of stakeholder participation all the way to the top rung of "citizens decide" in which stakeholders hold the ultimate decision making power. Some have argued against such normative concepts, however, contending that optimal engagement methods should vary depending on the type and stage of a given project (Richards et al. 2004; Reid et al. 2009; Sterling et al. 2017). This more flexible approach eliminates a hierarchical framing and proposes that different stakeholder groups are likely to participate in different ways throughout the process. For example, in the Pine River dam case, it is possible that the area residents (upstream and downstream) are provided information, and asked for their input at different stages of the process, but not necessarily involved in making decisions at every step along the way.

Reviews of conservation actions involving stakeholders show that engagement of stakeholders per se does not necessarily always correlate with project success (Reed 2008; Mountjoy et al. 2013; Sterling et al. 2017). For this reason, it is important to evaluate key factors that lead to success across stakeholder engagement projects. A comprehensive review of the stakeholder engagement literature by Sterling et al. (2017) identified six key factors associated with successful conservation outcomes in stakeholder engagement projects (see Box 2).

4.1. Strategies for Engaging Stakeholders at Face-to-Face Meetings

Bringing stakeholders to the table is an important step of the engagement process. **Facilitated discussion** among stakeholders is one method that has been shown to help foster collaboration and the willingness to participate (Danielsen et al. 2005). This involves having a skilled, outside facilitator (a non-stakeholder) who can help encourage effective communication across the varying groups as well as set common goals and reduce conflict. Some governments have certified facilitators to moderate stakeholder discussions. For example, the State of Pennsylvania's Center for Collaboration and Environmental Dispute Resolution and the United Kingdom's Centre for Effective Dispute Resolution both maintain staff available to facilitate or mediate stakeholder meetings. In any case, the role of the facilitator is to maintain order and guide the discussion at arm's length, ensuring broad and meaningful participation by all while not advocating for a particular outcome. These mediators set the agenda and pace of discussion, and may solicit alternate views and counterpoints, especially in large group settings.

Scenario planning is a type of planning process that seeks to find innovative solutions to complex problems by allowing stakeholders to develop and share their mental models of the future (Bennett et al. 2015). Scenario planning can help stakeholders to consider desirable and undesirable future aspects and relevant tradeoffs as well as determine appropriate collective action (Bennett et al. 2015). **Capacity development** is another approach, which involves building the

Figure 4. Examples of levels in the ladder of citizen participation (adapted from Arnstein 1969).

Box 2. Key Factors Associated with Success in Externally-Driven Projects*:

1. **Identifying stakeholders**. It is important to foster inclusiveness without having so many stakeholders that it undermines the process.
2. **Timing and degree of stakeholder engagement**. Incorporating stakeholders early in the process can be beneficial. The manner in which stakeholders are engaged can also have an impact on overall project success; stakeholders should be appropriately involved while not overly burdened by engagement.
3. **Recognizing and respecting stakeholder values and institutions**. One important dimension of engagement is the recognition and integration of the values and institutions of stakeholders—keeping in mind that within a particular stakeholder group there can be a range of perspectives.
4. **Stakeholder motivation for engagement**. Understanding what drives stakeholders to participate can help to ensure adequate resources for their continued participation. Motivations could be economic or socially driven, which require different management approaches.
5. **Effective leadership**. Strong leadership and local champions are associated with project success, making it important to foster and support leadership among local stakeholders.
6. **Effective partnerships**. Strong positive relationships between stakeholders and project managers are important; trust can be built through open communication and transparency.

**Derived from Sterling et al. 2017.*
Note: Externally-driven stakeholder engagement projects are those that are led by an outside group or organization (e.g., a national or international NGO) that is organizing local stakeholders.

capacity of stakeholders to understand and solve the issue at hand and has been associated with more successful project outcomes (Brooks et al. 2013). It can include training workshops, courses, or professional development for key stakeholder groups to provide them with the necessary knowledge, skills, and tools for more productive engagement.

In the spirit of inclusion, a new approach for stakeholder input called a charrette has emerged out of a community of urban planners and architects. It was created to engage stakeholders who may not be able to meet at specific times due to their daily schedules, but yet want to participate in the design of a project. A **charrette** is an open, collaborative process that lasts at least three to four days, during which stakeholders offer input and feedback. A "design team" organizes the event, and works day and night to produce successive iterations of the design, as individual stakeholders cycle into and out of the process as their schedules allow. For more information, see Appendix 1.

Lastly, in the interest of civil and fair participation, stakeholders should agree to a common set of rules or principles of engagement at the onset and post them for reference during the actual discussion. An outside facilitator may provide an especially important service in maintaining adherence to these rules.

One example of such guidelines or principles are those proposed in the Brisbane Declaration (2005) by the Government of Queensland, Australia, in conjunction with a United Nations conference (Box 3). This model for inclusive stakeholder engagement recognizes four core principles of engagement in the creation of policy, particularly focused on addressing the inequity typically suffered by underrepresented indigenous and low-income groups (Brisbane Declaration 2005).

Can you envision a process whereby the multiple stakeholders in the Pine River Dam project would be able to engage in the decision making process, adhering to each of these four principles?

5. CONCLUSION

Conservation and environmental planning initiatives are best developed with key stakeholders identified and diverse viewpoints considered even before the stakeholders formally meet. Inclusion of stakeholders is important for both pragmatic and democratic reasons. A range of stakeholders should be encouraged to

Box 3: Core Principles of Stakeholder Engagement*

Core principles of integrity, inclusion, deliberation, and influence apply in many situations where conservation goals and human needs may conflict, and reflect the following:

- **Integrity**: when there is openness and honesty about the scope and purpose of engagement;
- **Inclusion**: when there is an opportunity for a diverse range of values and perspectives to be freely and fairly expressed and heard;
- **Deliberation**: when there is sufficient and credible information for dialogue, choice, and decisions; and when there is space to weigh options, develop common understandings, and to appreciate respective roles and responsibilities; and
- **Influence**: when there is the opportunity for stakeholders to have input in designing how they participate, when policies and services reflect the stakeholders' involvement, and when the stakeholders' impact is apparent.

**Derived from the Brisbane Declaration (2005), available at: http://www.ncdd.org/exchange/files/docs/brisbane_declaration.pdf*

participate, including underrepresented groups, not only because they are the people most likely to be impacted by an action, but also because consideration of diverse perspectives can lead to higher quality decisions that are better suited to the local context. A stakeholder analysis is a useful tool in developing strategies for a conservation plan, including identifying representative stakeholders, their likely positions and potential mitigation strategies. Ideally, a balanced—inclusive, but manageable—set of relevant parties should be brought to the table, and collectively agree to a common set of principles of engagement. While project success is not guaranteed by merely involving stakeholders, following key engagement principles can promote an inclusive engagement process and help achieve the best outcome.

6. REFERENCES

Annan, K. 2007. How to engage stakeholders and mainstream biodiversity. Pages 155–225 in Hesselink F., W. Goldstein, P. P. van Kempen, T. Garnett, J. Dela, editors. Communication, education and public awareness (CEPA): a toolkit for national focal points and NBSAP coordinators. Secretariat of the Convention on Biological Diversity and IUCN, Montreal, Canada.

Arnstein, S. R. 1969. A ladder of citizen participation. Journal of the American Institute of Planners 35:216–224.

Bennett, N. J., A. Kadfak, and P. Dearden. 2015. Community-based scenario planning: a process for vulnerability analysis and adaptation planning to social-ecological change in coastal communities. Environment, Development and Sustainability 18:1–29.

Bird, J., L. Haas, and L. Mehta. 2005. "Rights, Risks and Responsibilities" approach to implementing stakeholder participation: a scoping report commissioned by the former commissioners of the World Commission on Dams. Available at http://www.internationalrivers.org/sites/default/files/attached-files/world_commission_on_dams_final_report.pdf (Accessed December 2016).

Brooks, J., K. A. Waylen, and M. B. Mulder. 2013. Assessing community-based conservation projects: a systematic review and multilevel analysis of attitudinal, behavioral, ecological, and economic outcomes. Environmental Evidence 2:1.

Chen, H. -T., and P. H. Rossi. 1980. The multi-goal, theory-driven approach to evaluation: a model linking basic and applied social science. Social Forces 59:106–122.

Danielsen, F., N. D. Burgess, and A. Balmford. 2005. Monitoring matters: examining the potential of locally-based approaches. Biodiversity & Conservation 14:2507–2542.

Freeman, R. E. 1984. Strategic management: a stakeholder approach. Cambridge University Press. Cambridge, U.K.

Jentoft, S., and B. McCay. 1995. User participation in fisheries management: lessons drawn from international experiences. Marine Policy 19:227–246.

Jones, P. J., and J. Burgess. 2005. Building partnership capacity for the collaborative management of marine protected areas in the UK: a preliminary analysis. Journal of Environmental Management 77:227–243.

Jupiter, S. D., A. P. Jenkins, W. J. L. Long, S. L. Maxwell, T. J. Carruthers, K. B. Hodge, H. Govan, J. Tamelander, and J. E. Watson. 2014. Principles for integrated island management in the tropical Pacific. Pacific Conservation Biology 20:193–205.

Madden, F., and B. McQuinn. 2014. Conservation's blind spot: the case for conflict transformation in wildlife conservation. Biological Conservation 178:97–106.

Mascia, M. B., J. P. Brosius, T. A. Dobson, B. C. Forbes, L. Horowitz, M. A. McKean, and N. J. Turner. 2003. Conservation and the social sciences. Conservation Biology 17:649–650.

Mountjoy, N. J., E. Seekamp, M. A. Davenport, and M. R. Whiles. 2013. The best laid plans: community-based natural resource management (CBNRM) group capacity and planning success. Environmental Management 52:1547–1561.

Peterson, A., C. A. Mcalpine, D. Ward, and S. Rayner. 2007. New regionalism and nature conservation: lessons from South East Queensland, Australia. Landscape and Urban Planning 82:132–144.

Reed, M. S. 2008. Stakeholder participation for environmental management: a literature review. Biological Conservation 141:2417–2431.

Reid, R., D. Nkedianye, M. Said, D. Kaelo, M. Neselle, O. Makui, L. Onetu, S. Kiruswa, N. O. Kamuaro, and P. Kristjanson. 2009. Evolution of models to support community and policy action with science: balancing pastoral livelihoods and wildlife conservation in savannas of East Africa. Proceedings of the National Academy of Sciences 113:4579–4584.

Richards, C., C. Carter, and K. Sherlock 2004. Practical approaches to participation SERG policy brief no. 1. Macauley Land Use Research Institute, Aberdeen, Scotland.

Sterling, E. J., E. Betley, A. Sigouin, A. Gomez, A. Toomey, G. Cullman, C. Malone, A. Pekor, F. Arengo, M. Blair, C. Filardi, K. Landrigan, and A. L. Porzecanski. 2017. Assessing the evidence for stakeholder engagement in biodiversity conservation. Biological Conservation 209:159-171.

Brisbane Declaration. 2005. Brisbane, Australia. Available at http://www.ncdd.org/exchange/files/docs/brisbane_declaration.pdf (Accessed December 2016).

[UNEP] United Nations Environmental Programme. 2015. Handbook for stakeholder engagement. Available at http://www.unep.org/civil-society/Handbook (Accessed December 2016).

World Commission on Dams. 2000. Dams and development: a new framework for decision-making: the report of the World Commission on Dams. Available at http://www.internationalrivers.org/sites/default/files/attached-files/world_commission_on_dams_final_report.pdf (Accessed December 2016).

APPENDIX 1. ADDITIONAL TOOLS FOR STAKEHOLDER ANALYSES & STAKEHOLDER ENGAGEMENT

- **U.S. National Park Service, River Trails and Conservation Assistance**
  Their Community Tool Box website has concise downloadable guides to Facilitation, Stakeholder Analysis, Charrettes, Consensus Building and related tools. www.nps.gov/ncrc/programs/rtca/helpfultools/Toolbox/index_comtoolbox.htm

- **National Audubon Society**
  Audubon Tools of Engagement: A Toolkit for Engaging People in Conservation. The toolkit provides "20 steps to success" that take the reader through a detailed overview of how to plan for successful stakeholder engagement in a conservation project. http://web4.audubon.org/educate/toolkit/toolkit.php.

- **Convention on Biological Diversity**
  Communication, Education and Public Awareness (CEPA) Toolkit: How to engage stakeholders and mainstream biodiversity. Part 3 of this toolkit has information on how to engage stakeholders in conservation projects and also includes checklists and numerous examples of engagement. https://www.cbd.int/cepa/toolkit/2008/doc/CBD-Toolkit-Complete.pdf

- **Victoria Department of Environment, Land, Water and Planning (DELWP)**
  DELWP was created in 2013 from the Australian governmental department previously known as the Department of Sustainability and Environment. Their Effective Engagement Toolkit website provides an alphabetical list of over 40 tools to guide stakeholder participation in decision making including a dozen case studies involving stakeholders where these tools were deployed. http://www.dse.vic.gov.au/effective-engagement/toolkit

- **World Bank Group**
  The stakeholder resources website of this financial and global assistance group provides examples stakeholder grids and other analysis tools used in supporting economic and environmental initiatives in developing countries. http://www1.worldbank.org/publicsector/anticorrupt/PoliticalEconomy/stakeholderanalysis.htm

- **Nature Conservancy Water Funds Toolbox**
  While the website is targeted specifically to water projects, the examples involving multiple sectors from private, academic, public and international organizations demonstrate application of the tools of stakeholder analysis and downloadable templates. http://www.nature.org/ourinitiatives/habitats/riverslakes/wftoolkit-stakeholder-analysis.xml

- **The Sonoran Institute**
  Examples are provided from their own programs

where multiple partners or stakeholder groups were brought together to develop conservation plans. Their Resilient Communities Starter Kit is a downloadable "road map for communities" specific to climate change preparation, but should be adaptable to other community engagement activities. https://sonoraninstitute.org/resource/resilient-communities-starter-kit-08-29-2015/

- **National Charrette Institute (NCI)**
  The NCI provides training for teams to organize a Charrette event for stakeholders. Their website provides details on conducting a Charrette with examples focusing on regional planning that can be modified for specific conservation planning goals. http://www.charretteinstitute.org/

- **CARE Climate Change**
  This organization provides a short powerpoint on SlideShare as an introduction to Participatory Scenario Planning (PSP). It is followed by a case study of developing risk reduction in Kenyan communities under climate change scenarios. http://www.slideshare.net/CANSA2014/psp-southern-voices-workshop

- **U.S. Agency of International Development (USAID)**
  An Adaptive Management Tool for Conservation Practitioners provides a guide to develop, implement and test assumptions while using results to learn and adapt. It is available as a free download from the USAID Natural Resources Management and Development Portal. https://rmportal.net/library/content/tools/biodiversity-conservation-tools/putting-conservation-in-context-cd/adaptive-management-resources/5-5-a.pdf

- **United Nations Environment Programme (UNEP)**
  UNEP handbook provides guidance and recommendations for stakeholder engagement http://www.unep.org/civil-society/Handbook. The UNEP website is also a good source for specific programs, such as Agenda 21 for the Conservation of Biodiversity. http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=52&ArticleID=63&l=en