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## A REVIEW OF STAKEHOLDER PARTICIPATION IN CONSERVATION EVALUATION: IDEAS FOR BEST PRACTICES

### Abstract

Stakeholder participation has become a critical aspect of sustainability and conservation programs worldwide. In order to assess whether conservation projects are meeting their goals, formal project evaluations have become increasingly important. However, while the inclusion of stakeholders in the projects themselves has been highly desirable, the evaluations of local stakeholder inclusion in conservation work have been both difficult to implement and harsh in their results. Considering the complexity of effectively meeting the stakeholders' needs in conservation and development projects, it logically follows that the inclusion of stakeholders in the evaluation process represents a key methodological component. Thus, the challenge for actors at the conservation development nexus is to develop effective participatory evaluation methods. This paper presents a history of community stakeholder involvement in conservation planning and subsequent evaluation in less developed countries, examining the critical issues with reconciling conservation and development, the evolution of the ethical underpinnings to stakeholder inclusion, and best practices for sustainable development practitioners.

### 1. Introduction

Stakeholder participation has become a critical aspect of sustainability and conservation programs worldwide (1, 2). Recent conventional wisdom holds that including stakeholders in decision-making is requisite, yet practitioners continue to disagree about how that participation can be meaningful, fair, and productive. This issue is especially salient in the context of sustainable development and conservation in less developed countries (LDCs), where cultural/language barriers and inherent power dynamics render successful community participation in conservation projects immensely difficult (1).

In order to assess whether community conservation projects are meeting their goals, formal project evaluations have become increasingly important (2, 3). However, while the inclusion of stakeholders in the projects themselves has been highly desirable, the evaluations of local stakeholder inclusion in conservation work have been both difficult to implement and harsh in their results (4). These assessments attempt to measure either the environmental accomplishments of a project or its ability to produce genuine and democratic participation within communities (or in some cases, both); many projects have fallen short in these reviews (1). However, despite past setbacks, the ability to effectively evaluate sustainable development/conservation projects remains imperative, as the failures of community-based conservation projects can provide justification for a return to exclusionary practices in biodiversity conservation (5).

Considering the complexity of effectively meeting the stakeholders' needs in conservation and development projects, it logically follows that the inclusion of stakeholders in the evaluation process represents a key methodological component, as the determination of whether they have been meaningfully included in the project can only be fully determined

by the stakeholders themselves (6). Thus, the challenge for actors at the conservation development nexus is to develop effective participatory evaluation methods.

This paper presents a history of community stakeholder involvement in conservation planning and subsequent evaluation in LDCs, examining the critical issues with reconciling conservation and development, the evolution of the ethical underpinnings to stakeholder inclusion, and best practices for sustainable development practitioners. The paper is structured as follows: First I offer an overview of participation and ethics in conservation thought and practice in the 20<sup>th</sup> century. After that I discuss some of the issues with reconciling conservation and development goals. Then, I offer a brief history of participation in conservation, including the justification for and barriers to its effective use. Following this is a similarly structured section on evaluation in conservation. I then offer ideas for best practices in conservation evaluation and its relevance to sustainable development. To conclude, I will offer some final thoughts on the matter.

Throughout this paper, unless otherwise noted, I speak about stakeholder participation in conservation broadly, referencing program development, management, and evaluation simultaneously. This choice reflects the general nature of much of the existing participation and conservation literature. Additionally, while I discuss conservation broadly, most of my text and examples come from land/biodiversity conservation and protected area management literature.

## 2.1. A Brief History of Conservation

The modern environmental movement's ethical origins can be traced to 19<sup>th</sup> century romanticism and early 20<sup>th</sup> century utilitarianism, defined by notable scholars such as Henry David Thoreau, Gifford Pinchot, and Aldo Leopold (7). Early environmental rhetoric featured a strong appreciation for nature and a moral obligation to preserve and manage it. This belief has led to a tradition of extensive domestic land protectionism in the West. The ensuing enthusiasm for global biodiversity conservation in the 1960s came in response to a political climate in which the world was being awakened to the damages done by western industrialization (i.e. Carson's *Silent Spring*) (8), and where Ehrlich's *Population Bomb* and Hardin's *Tragedy of the Commons* ignited a global fear that our natural resources would be depleted before we realized what was happening (9, 10). This "crisis narrative" coincided with the portrayal of LDCs as chaotic, unregulated social environments, which justified the intervention of northern governments in southern conservation decision-making (11).

While northern environmentalists held these abstract romantic and pragmatic views towards protecting the environment, in practice, the move to conserve natural areas in LDCs was a direct transition from colonial protectionism (12). Natural areas had been strictly protected by colonial powers as game reserves and national forests (13), and the belief persisted post colonialism that the best way to preserve biodiversity was to set aside land to be entirely free of humans. This type of conservation became known as "fortress conservation" (14). Fortress conservation was also closely aligned with a top down management approach, rooted in an authoritarian model that "science knows best" (15). This philosophy helped decision-makers justify both the protection of natural areas from development and the displacement of millions of people, creating animosity towards biodiversity conservation so acerbic it sometimes turned violent (16). Ideas of stakeholder participation were undeveloped at this time; in the 1960s and 70s there was a growing awareness of local perspectives in conservation, there were no good tools to help incorporate them meaningfully into decision-making (17).

The idea of participation in conservation came primarily as a response to the oppressive neocolonial environmental politics of the 1960s and 70s. While classical economic theory and traditional poverty alleviation strategies place little value on the environment, the anthropocentric narrative in the conservation arena values the environment *via* human needs (18). Essentially, this perspective highlights the interconnectivity of environmental conservation and quality of life for humans. This view suggests that both human communities and natural areas will fare better if conservationists include local people in land management decisions and permit them to use nearby natural resources for

sustainable livelihoods. Concern for the human environment produces a “win-win” situation for the environment *and* humans in this narrative (19). And of course, this perspective became the new practical narrative as traditional conservation measures had exacerbated poverty (20) and were ineffective at conserving biodiversity (21).

This narrative facilitated a shift in the international community to an emphasis on community-based management, livelihood strategies, and economic viability of protected areas in the 1980s and 1990s (22). Where governments in LDCs could once depend on international financial and political support to restrict human use in natural areas, the funding opportunities switched into more integrated human development programs. These funding structures serve as legitimizing forces, so the funding shifts represented greater acceptance for socially inclusive strategies. In these new conservation regimes, stakeholder participation was an indispensable aspect of the agenda (17). This change was also accompanied by a surge of interest in IUCN protected area classifications V and VI, which are mixed-use landscapes (12).

Today, the dominant mentality in the conservation arena can be seen as a combination of disillusionment with past strategies and determination to develop best practices (17). The call to include humans more directly in conservation persists in the literature (23), largely because the calls of the past have been unmet. Additionally, the shift towards participatory strategies has not necessarily produced truly inclusive or effective participatory regimes (24, 25). Participatory evaluations are considered one of the primary methods to help conservation practice move forward, as they simultaneously include local communities and work to correct past mistakes. With so few universally accepted methods or practices in participatory conservation, there are at present a diversity of ideas, actors, landscapes, and possibilities available to practitioners and researchers alike (12); the challenge now is to synthesize this information to produce recipes for success.

## 2.2. Reconciling conservation and development

Nowadays, it is safe to say that conservation projects in LDCs more often than not include a development component. While these projects go by many names (e.g. ICDP, CWM, CBC, CCA, CBNRM, CBET, etc.), essentially all of these types of projects share a common goal, which is to meet both conservation and development targets simultaneously. However, there are issues at all project stages, from planning to evaluation, with incorporating development goals into conservation management (26).

Conservation biology, which is the driving academic force behind conservation, has been accused of failing to study the most pertinent problems plaguing natural systems. Conservation biologists mostly study non-human organisms in intact habitats, whereas the real problems facing natural resource conservation originate with people and are situated in mixed-use landscapes (27, 28). They also tend to focus on narrow measures of ecosystem health, such as species count, and not on the broader impacts of conservation actions, and rarely do they publish evaluations of these conservation actions (29). They also boast about the interdisciplinary nature of their field, but in the major conservation biology journals in 2001, only 13% of the articles were cross-disciplinary (29). Thus, conservation biology's contribution to the salient problems facing socio-ecological systems has been disappointing.

Conservation biologists are also more inclined to collect quantitative measures of success. Not only does conservation biology value the “truth in numbers,” but technical data is also easier to collect and less politically volatile, thus it is preferable in the face of political or financial pressure. The scientific obsession with proof and causality does not lend itself well to the conservation-development nexus; in some cases, the connections between conservation and development are so diffuse, causality is essentially unprovable (30). This limitation provides a source of notable frustration and an ongoing challenge for scientists working in conservation.

Conservation biology also has two disparate personalities, which hinders its effective integration with development (31). On one hand, some view conservation biology as a field capable of answering the hard science questions in resource management through

unbiased, straightforward use of the scientific method (32). On the other hand, it is a value-driven discipline, in which people work to preserve biodiversity because it is the morally correct thing to do (33-35). Franz (36) calls this latter side of conservation its “vivuntary responsibility.” These two identities combined allowed the field to dominate conservation projects in the developing world for several decades, by arguing both scientific and moral authority, but over time both types of authority have eroded in the face of competing interests. The definition of conservation biology in this more politicized landscape has been a source of disagreement within the academic field, as some conservation biologists have been wary of advocacy whereas others feel a calling to it (34, 37). Some social scientists even question whether conservation biologists are the right professionals to conduct conservation projects. Conservation biologists’ training simply may not lie in the areas of expertise needed to deal with the complex socio-ecological systems conservation projects are embedded within (38, 39). While conservation biology has over time slowly become more diverse and collaborative (40), the field has a long way to go before it is truly ready to tackle the challenges it faces, most notably the politics of conservation (39).

Evaluations in conservation suffer from the general trend in the hard sciences where research journals and grants reward theoretical research and marginalize practitioner reports (41, 42). Scientists need to give up the “self-serving belief that an increase in our scientific knowledge by itself will always move us toward effective conservation” (43). The research produced in academic peer-reviewed journals is typically not used by conservation practitioners because these resources are too hard to locate or understand, so most managerial decisions are based on anecdotal information or existing practices (44-46). This inability to translate conservation research and assessments into action falls into the well-known “knowing-doing gap” common to other sciences as well, including environmental psychology, ecology, restoration ecology, landscape ecology, and ecosystem management (41). In short, not enough overlap exists between conservation science and conservation practice.

Another problem with traditional scientific evaluation structures is their ultimately western origin. While some argue that the fortress conservation was the true imperialist (47), the reality is that even participatory conservation uses western ideals, bringing democracy, autonomy, participatory decision-making, and even biocentrism (in that nature nearby is “worth saving”) into communities who may not have cultural context for these ideas (48). In places without history of colonialism or western influence, it is now considered unethical to introduce participatory models that represent a large cultural shift for the participants (49). Alternately, in post-colonial countries where these western ideals bear cultural significance, the history they evoke often leads to political backlash, not improved implementation. Thus, both exclusionary and inclusionary conservation models have failed to fully accommodate local culture and needs, but unfortunately, there are not enough indigenously-generated evaluations in the literature to provide information on alternatives (50).

Despite these problems with integrating conservation and development, it cannot be denied that the ethics/practices of these two fields have been merging for some time now (38). However, even with this improved synergy, Adams et al. (20) provides some harsh realities: 1) poverty and conservation remain separate policy goals; 2) conservation will be undermined unless poverty is alleviated; 3) conservation has a moral obligation not to compromise poverty reduction; 4) poverty reduction depends on conservation of living resources (20). So the two fields are caught in a web of disparate but dependent forces, and solutions that truly synthesize conservation and development goals are difficult to produce given these limitations (26).

In opposition to other types of scientific research, evaluations are explicitly intended for use, they are derived from applied program questions, they are by their very nature judgmental, they call for specific actions, they acknowledge conflicts, and unfortunately, most of them go unpublished (51). In order to carry out effective evaluations, conservation biologists have to abandon the idea of scientific superiority or objectivity, and embrace the value-laden face of conservation biology. Also, the forces at work destroying biodiversity are much too great for one field to handle alone (12), and only through a more

interdisciplinary, participatory, and multi-scalar approach will conservation science gain the relevance it needs to address pressing natural resource conservation issues (26, 52).

### 3.1. Call for Participation

Participation is defined by Stringer as “a process in which individuals, groups and organizations choose to take an active role in making decisions that affect them” (53). There is a diversity of ways in which this participation has manifested in conservation. Many refer to Arnstein’s “ladder of participation”, which ranges from a minimalist top-down approach (e.g. soliciting public comments) to a grassroots approach in which stakeholders are allowed to design and implement the entire project (24, 54-56). However, in response to evidence that more participation is not always better, the “ladder” has also been referred to as a “spectrum” or a “wheel” (17, 38).

There are additional ways researchers have partitioned participation. Participation can be active or passive (57), or it can provide internal benefits (personal development for the participant) or external benefits (by way of generating useful data for public use). It can also be instrumental or transformative (58). In instrumental participation, a participant fills a role defined by others, whereas transformative participation changes the participants’ view of his/her role both in the project and the wider public sphere (58). Lawrence argues that transformative participation can occur in both top-down or bottom-up approaches (58). Participation can also be included at different stages of a project, including program and evaluation design, implementation, analysis, monitoring, and results communication (50).

The call for better participation mechanisms came partly from an ethical obligation to represent those whose land was commandeered by outside interests, but it also emerged from a pragmatist view that participation was a more effective way to produce success in conservation. Even though local people are often portrayed as possessing little power, they also have the ability to subvert even the most well-funded fortress conservation projects if they are not adequately included or compensated (57). In other words, there are two main reasons to include locals in conservation: first, the normative reason, which argues that the benefits for a democratic society and equity are indispensable; second, the pragmatic reason, which states that participation improves the quality and durability of conservation decisions (17, 59). In conservation, researchers tend to use participation for pragmatic reasons, whereas in participatory development, normative argument has been more prominent (38). Either way, the benefits to participation are palpable; participation develops local trust (23), improves a program’s “efficiency, self-reliance, and sustainability” (60), and it supports the theory that complex environmental problems must be met with diverse knowledge, values, and ideas (59).

### 3.2. Limits to participation

Common across all literature dealing with participation is the issue of whether there is true empowerment in participation. Participation can give the illusion of inclusion, which can end up masking power dynamics within diverse groups that prevent less powerful people from being heard (61-64). Even relatively functional group identities can include people in their form but exclude them by crowding out dissident voices (62). Both structure and structurelessness have potential to exclude, either through structural discrimination or rule-less social networks (62). Clearly, participants need both the incentive *and* the capacity to participate (65). Prestby (66) describes a catch-22 in participation: people need to be empowered so they can participate in decision-making but they also need to be included in decision-making to help empower them.

Participation is also explicitly about devolving power, which is hard in any field, but in conservation biology the long-held belief that scientists are “correct” has made the true empowerment of communities especially difficult (38). Participation has previously been used in conservation as a mechanism to get local support for a project that has already been planned by experts, and altering this practice has been difficult because both communities

and scientists alike support the notion of scientific expert legitimacy (67, 68). This is why participation facilitation can quickly devolve into “facipulation” (69) when the facilitator pushes for an agenda instead of allowing the group to define their terms.

#### 4.1. Evolution of evaluation

In response to the failed attempts at both exclusionary and inclusionary conservation, as well as to the mounting threats to biodiversity, scientists and practitioners alike are calling for better monitoring and evaluation of projects (44, 50, 70, 71). Theoretically the inclusion of evaluations should be quite easy, because there is a wide breadth of literature on evaluations from international development to public health to education, and researchers in these different fields stand to learn a great deal from one another (50). Evaluation can be seen as a trans-discipline; in other words, you can evaluate anything, even evaluation itself (72).

Evaluations can play multiple roles within a conservation program. This includes, but is not limited to, knowledge development, program improvement, accountability, transparency, resource allocation, oversight/compliance, advocacy, and assessment of merit (50, 72). Evaluations also serve two wildly different purposes; on the one hand, they are meant for accountability, either to the stakeholders, donors, or wider public; on the other hand, they can be used to learn lessons and best practices for future conservation efforts (73). There are also different ways of thinking about the process of defining success. In some cases, participants describe a “picture” of success, which is what the program would look like in a successful iteration, and in other cases, they describe the “ingredients” of success, which identifies the necessary procedures and tools for a program to be considered successful (74). Success is also generally thought of as containing both a process and an outcome aspect, with process being more important to stakeholders and outcomes more important to donors, but both being key for overall success (50, 56).

According to Terre Blanche, Durrheim and Painter (75), there are three major types of evaluations. The positivist evaluation style was most popular until the 1960s and it contends that one can only evaluate what can be objectively observed and tested. This type is typically conducted by outsiders. Interpretive evaluation emerged in response to the positivist model, and it requires the evaluator to be engaged, subjective, reflexive, understand the perceptions of stakeholders, processes, and context. While this type is more qualitative, incorporating focus groups and lots of contact with participants, the evaluator is still in charge. Finally, in response to interpretive evaluations, critical evaluation emphasizes social concerns and participant agendas. In a critical evaluation, the evaluator is an advocate, working to correct both wider injustices and internal power imbalances in the group (75). Alternately, Guba and Lincoln (76) identify four stages of evaluation evolution: measurement, description, judgment, and finally responsive constructivist evaluation. They argue evaluation should be responsive and constructivist because there is no objective reality in evaluation. This reveals perhaps the most compelling argument for including stakeholders in evaluation: human values determine the important variables to measure, so including stakeholders ensures that their values are included alongside scientific metrics (56, 72).

Traditionally in conservation biology, evaluations were (and still often are) done in the positivist style, by scientific experts, with very little if any input from the local community (73). However, much like the rest of conservation practice, evaluations are becoming more participatory. There are definitely compelling pragmatic reasons to include stakeholders in evaluations in conservation. In a field where budgets are typically inadequate to cover all needs identified for the program, participatory evaluations are sometimes seen as a luxury (4, 77). However, including them can actually end up saving money in the long run by helping to avoid costly mistakes and gathering local support which will help promote program sustainability. (78, 79). Participatory evaluations also can have benefits beyond the evaluation itself; they can help build trust and accountability among stakeholders and promote synergy between the outcomes of the project and the community (4, 80). Additionally, research has shown that participatory processes produce conservation decisions that are just as good as or better than expert-driven processes, because they are

better at considering new resources and knowledge systems, and that participants can be adequately and easily trained in evaluation methods (73, 80).

This trend towards participatory evaluations in conservation has been accompanied by a push to include stakeholders in all phases of decision-making, as the evaluation will be more likely to reveal successes if the program was designed around locally-relevant indicators (49, 81). And of course, participatory evaluations in conservation programs are becoming increasingly common as “win-win” scenarios for conservation and development have proven incredibly difficult to produce. When serious tradeoffs must be made, stakeholders’ input in all phases alleviate potential conflict (46).

However, despite these positive trends, monitoring and assessment in conservation is still considered to be in relatively poor condition, which is “a shocking situation given the considerable budgets of many ICDPs” (82)(83). Even the relatively well-accepted theory that rural development can lead to biodiversity conservation has remained essentially untested (26, 30). Conservation is failing to learn not only from its own mistakes, but from research in other fields (38).

#### 4.2. Barriers to effective evaluation

Perhaps the biggest underlying problem with evaluations in conservation is how to define success. Defining success is different in terms of ecological, economic, attitudinal, and behavioral parameters, and success is defined differently by different actors (74, 83). Success can be defined by the project objectives themselves, but sometimes practitioners need other metrics in addition to pre-existing goals (74). Whether or not additional goals are used could depend on whether stakeholders were included from the outset; this begs for the inclusion of stakeholders early in the process, and not just in the evaluation, because if the stakeholders have divergent goals from the “experts” then finding common ground for success will be more challenging (17). Plus, even if participants can agree on the variables to include in success, there are still often huge gaps between perceptions of adequate levels of compensation, employment, and communication in locals and managers (57).

There are also some specific problems that arise when attempting to evaluate the outcomes of a conservation project. The first problem concerns the combining of both biological and social metrics. Of course, one needs metrics for both biological and social targets to conduct a thorough conservation evaluation, as well as biological, social, economic, political, and cultural variables (50, 84). But how do you compare these types of metrics when their units are wildly different? Weighing the variables is an incredibly difficult task, one that is nearly impossible to do without the input of stakeholders (65).

Participation itself is also a difficult thing to evaluate, as there are many activities and objectives housed under this term (58, 69). This is why there are not many examples of public participation evaluations in the literature; they are hard to do and they do not have a lot of established benchmarks or established instruments (56, 85). For example, there are no good measures for “cultural significance” of a project that can adequately be measured and compared with other data (86). Measuring participation based on sheer numbers is misleading, as it tells us nothing of the nature of the participation (24). Additionally, community conservation tends to have both positive and negative social impacts of some kind, so determining whether the project has an overall positive or negative effect is very difficult, again only possible with community stakeholder input (87).

There is also a general problem with confusing language as these conservation and development projects lie at the intersection of many disciplines, bringing diverse sets of concepts terms with them. For one project, there are outcomes, for others, there are results, for others, there are impacts (50). This can make synthesizing results from multiple evaluations extremely difficult, and it hinders the use of best practices. There are even multiple definitions of sustainability that get confused within the conservation literature. First, there is the environmental sustainability of the project, which is self-evident. But in the evaluation literature, one is more likely to refer to the sustainability of the program itself; there is even talk of the sustainability of conservation discourse (77, 88).

Existing conservation evaluations have also failed to explore some critical topics in program design/management. First, not many projects have evaluated the explicit tradeoffs between conservation and development; as the “win-win” strategies are proving more elusive than expected, more information is needed about the nature of these tradeoffs (46). Additionally, there is little research as to whether attitude changes within a target population actually leads to conservation behaviors; conservation has been very focused on getting people to view conservation more positively, but there is little evidence as to whether this is linked to conservation behavior (69, 89). The effects of conservation on human populations have also been neglected in the literature (90).

Kiss (71) sums up some of the problems with current conservation evaluations: “reports are often vague about criteria for success, lack baseline and monitoring data, focus on just a few species, do not distinguish between revenues and profits, and overlook issues such as income distribution and displacement effects” (91)(71). Because of these problems, not all conservation practitioners even agree that monitoring and evaluation are a good use of money; in a field where the “crisis narrative” still tends to dominate, evaluations pull valuable resources from other high-priority actions (42, 92). It is true that evaluations should not be done just for the sake of doing them; whether or not they are useful depends on information needs, decision context, political climate, competing information, personal characteristics of practitioners, and commitment or receptiveness of potential audiences (93). Conservation practitioners must strike a balance between taking action and conducting good assessments (18).

### 5.1. The Balance: Experts and Locals

A recurring theme at the conservation-development nexus is that of balance. That balance can be between top and bottom, insider and outsider, or big and small scales. Conservation planning has historically of course been top-down and expert-led (94), but the push to the other end of the spectrum has produced mixed results (95).

There are forces pushing for and against systematic production of knowledge from evaluations. Some argue that local contextual issues make generalization difficult, if not impossible (50, 74). However, a major impetus to conduct evaluations is to prevent repeating mistakes by using consistent scientific methods to take lessons from one situation and apply them to a wider framework (34, 45). This also relates to issues of scale; participation is often employed to solve a local problem, because it is the most readily observable and workable scale for conservation (55). However, if participation is relied upon too heavily it can mean the project might be ignoring issues at wider scales (49). This is often seen where environmental destruction is seen at a scale much wider than the community for which the conservation project is intended (35, 39). When the driving forces in the landscape are that large, no amount of local participation can fix them (39, 87, 96). Landscape approaches are quickly becoming the strategy du jour (46, 96), but the methods for how to combine local participation with wider mechanisms for change remain underdeveloped (46, 49).

A balance must also be struck between local and expert control. A common complaint among social scientists is that communities are only given nominal control over resources (67). Participatory conservation typically only includes locals in management decision-making, *not* the initial decision to conserve. However, not all communities can or should be expected to support sustainability initiatives (5, 12, 46, 68, 86). Empowering people does not mean conservation must be internally produced by the community. Instead of expecting locals to “get on board,” conservation enthusiasts can be thought of as one party at the table, and their will must be considered alongside local development interests (46). In this case, good processes and facilitation (not “facipulation”) is key to empowerment and cooperation (69). And of course, communities can make the valid choice not to participate; non-participation does not equate to social exclusion in all cases (24). Making participation good and non-participation bad encourages practitioners to include local stakeholders “just because” and not with an end goal in mind (24, 56, 62).

There is also debate about whether an outsider or an insider is best-equipped to evaluate a conservation program. While traditionally outsiders are seen as the best

“objective” observers (23), the newer literature often favors insiders (95), because it fits with the empowerment discourse and they have the best contextual information. However, both types of evaluators can have conflicts of interest and exercise biases, and minimizing these factors is perhaps more important than ensuring either an insider or outsider is in charge (69). Both insider- and outsider-generated evaluations are considered acceptable in the literature; Van Vlaenderen (77) calls an evaluation led by an outsider who collects data from insiders a “stakeholder evaluation,” whereas when stakeholders take the lead in goal setting, monitoring, and evaluation it is called an “action evaluation.”

There is also evidence that participation does not inherently result in better decisions, and can sometimes even hinder rather than support sustainability (97). Without proper supporting information and processes, groups can rationalize harms and risk (62). And practically speaking, local indigenous management practices, which have been heralded as the answer to many environmental management problems, have not been shown to function better than externally-generated ones (18). In response to the frenzy of participatory methods, there is even an alternative narrative of exclusion developing in which the non-local stakeholders are now being excluded from the process (96). In other words, sending conservation management to the other end of the spectrum may be a communities’ natural reaction to the injustices of the past, but treating science overly dismissively can run the risk of losing any measurable conservation benefits and missing key information for decision-making (39, 98).

In short, both locals and experts have much to contribute to conservation planning and evaluation. Conservation programs should be “conceptualized, negotiated and run by all stakeholders jointly” (99), and stakeholders in this case should include interests from multiple scales and backgrounds. Brooks et al. (83) say that more community control of the programs is good for attitudes and behaviors, but some kind of expertise is helpful to guide it. Push and pull between stakeholders via consensus building and collaboration has a lot of potential to produce solutions that are satisfactory to all parties (95). In this balance, there should be both top-down and bottom-up paradigms, because “it emphasizes the importance of participatory approaches setting the context for sustainability assessment at locals scales, but stresses the role of expert-led methods in indicator evaluation and dissemination” (100).

## 5.2. Best Practice in Conservation

Generally speaking, many researchers in the field are building systems from scratch, without learning from past monitoring and evaluation projects (18, 38). There are many recommendations in the literature about how conduct evaluations at the conservation/development nexus and how to better incorporate participation in the process.

Several authors mentioned that evaluations *and* participation should happen at all stages of a conservation program, from initial planning to follow-up (17, 56, 101). Accomplishing this sets the program up for success on several levels: the program will be less likely to create conflict, more likely to have synergy between goals and outcomes, and more likely to have long-term sustainability in the local community. The ideal program structure has little separation between implementation and evaluation, as evaluation should occur simultaneously with all other project elements.

While predicting project success has proven difficult, there is substantial information available about what conditions are more likely to lead to success (44). Roe et al. (87) listed conditions spanning several project areas. For example, when it comes to the wildlife population in question, it should require management at a small scale, be relatively scarce, possess substantial value, and be easy to monitor. The community involved should maintain secure land tenure systems, bestow cultural significance on wildlife, have institutions built on existing motivation, possess capacity for layered alliances, and be adaptable and resilient, have conflict-resolution capability, etc. These variables can be evaluated in the initial stages of a conservation project so that practitioners can better understand how to face the challenges before them and determine whether it is a good area for intervention.

There are also process criteria for success that can be used in project design and as indicators in evaluation. Rowe and Frewer’s (56) criteria include: representativeness of

participants, process independence, early participation (but not too many people, could be chaotic), procedural impact on policy, and transparency. There are also criteria in the conservation literature that are perhaps unsettling to protectionists: permitting natural resource use, allowing market access, and involving community in conservation projects all help contribute to success (83).

There are also conditions for success in related areas. Cousins and Earl (93) identified prerequisites for the evaluator: they must have appropriate training, be accessible to participant organizations, have access to resources, play a pedagogical role in process, be motivated to participate, and have tolerance for imperfection. The World Bank identified six dimensions of governance with which ICDP effectiveness is correlated: voice and accountability, political stability/no violence, government effectiveness, regulatory quality, rule of law, and control of corruption (44).

Stakeholders should be represented systematically throughout a project, and practitioners should be very clear with them about their role in the project (in terms of goals, procedures, project phases, techniques, and participatory objectives) to avoid conflict in the future (59, 102). Many argue the importance of allowing participants to define the linkages between livelihoods and conservation using their own values systems (35); if those are externally defined then the benefits may not be understandable or “real” to participants (65, 98). Generally, good clarity and linkages are seen as desirable program components. Brandon and Wells (18) concluded that projects will be more successful when there is a clear link between conservation and the project and when threats to resources are clear and direct.

The call for improved and increased evaluations includes more process evaluations, because they better demonstrate cause and effect and can highlight links between goals, objectives, and activities. It is a time-consuming process, but in the end this kind of evaluation helps uncover historically overlooked information that can help improve project design (50, 98). In that vein, evaluations should not be done unless they will be done correctly. For example, circumventing baseline data collecting can cause misidentification of the threats and needs and render the rest of the process useless (30). There is also evidence that if participation is to be included in a conservation plan that it must also be “all or nothing.” If participation is done poorly simply due to financial or time constraints, it will end up being a waste of limited resources; if a conservation program wants to maximize resource effectiveness, participation must be done fully and earnestly (56).

It is also recommended to collect both qualitative and quantitative data when measuring social impacts (4). Natural scientists (and donors) tend to prefer methods like questionnaires, surveys, and wealth rankings for social data, but anecdotes and narratives will help flesh out the data to make it more useful for practitioners, who may find the information more accessible and relevant to the ground realities they face (4, 56). In this case, “practical utility is more relevant than absolute truth in assessing evaluation results.” (103). Because conservation biologists tend to be ill-equipped to carry out a narrative-based, nuanced approach (70, 90), conservation teams would benefit from both lessons from and partnerships with the participatory development sector (4).

Adaptive management is an effective framework in which to incorporate many of the other recommendations about participation, management, and evaluation (34, 42, 56, 94, 96). Extended from Holling’s principles of dynamic systems and the concept of resilience, adaptive management rejects the traditional assumption that systems move towards a stable equilibrium or that system responses are linear and predictable (104, 105). Adaptive management strategies and subsequent evaluations are flexible, holistic, and inclusive, and the program participants constantly evaluate, learn, and apply new information to the existing management strategies (3, 57, 106). Adaptive management is “deliberate experimentation and systematic monitoring of the results” (6)(107) so by this definition the evaluation is inseparable from the project.

Adaptive management also relates to the idea of collective or active learning (50, 85, 95). While learning in conservation historically refers to locals learning how to manage resources, local scientists and practitioners have important knowledge about the resources that is essential to evaluating conservation programs (17, 102). In collective learning, both

experts and locals integrate their knowledge spheres and learn both from each other and from the decision-making and implementation process (27, 95). This technique seeks input from local citizens and managers on conservation planning in terms of both local knowledge and local needs (108). Active learning fits into an adaptive management framework by promoting constant change in the participants themselves and the project design, and it also facilitates consensus-building activities, reduces conflicts, and diminishes cultural barriers (98, 109). It also produces indicators and methods that are understandable to all stakeholders (98) and locally appropriate strategies (110). Failure can also be viewed as part of the “learning process” so that evaluations can be more honest and thorough (44).

Researchers mention consensus-building frequently as an ideal way to conduct participatory evaluations, and this also fits into an adaptive management framework (69). The consensus can even regard the outcome of the evaluation itself, because measurements alone cannot inform a group as to the nature of the success of the project. What consensus requires is a partnership in which former “outsiders” voluntarily relinquish power and become truly vested insiders, reaching out to the group’s most marginalized members (62, 98), (49). In fact, Warner argues that “consensus-building, not empowerment or institutional sustainability, should be the driving force behind participation” (111).

Several authors mentioned the medical field as a shining example of what conservation should aim for in terms of evaluation strength. Medicine is evidence-based, in that decisions incorporate evidence that has been critically evaluated and widely disseminated (45). Conservation biology, like medicine, is trying to cure ailments, but unlike medicine, conservation has neither consensus regarding what constitutes „health“ nor does it have a system in place to monitor the success of programs in order to improve them (27). Medicine has a rich history of synthesizing information and testing against a null hypothesis, two areas in which conservation biology literature is lacking (45, 112). Systematic reviews, which are a common tool in medicine, are more than just extensive literature reviews; they set out to answer a specific applied question, and because it is done using systematic methods, systematic reviews do not require an expert practitioner to do them (113). If conservation researchers could do more systematic reviews based on specific management questions, it would help local practitioners access the literature and use it in practice, and allow for science to be used to empower locals.

There are some good existing non-indicator based monitoring and evaluation methods in which participation is key (for a list see Wilder and Walpole (4)). One method that seems to have received good reviews is that of Multi-Criteria Analysis (MCA). MCAs “provide a flexible way of dealing with qualitative multidimensional environmental effects of decisions” (81)(114). MCA theory acknowledges that no solution can optimize all criteria at once, so compromises must be made. Subjectivity is taken into account by weighing of criteria and interactive procedures (81). MCA is useful when there are too many criteria to think of simultaneously. It accommodates participation, qualitative and quantitative data, and it is simple for people to grasp (69). This process is related to the participatory multi-stakeholder impact assessment approach described by Mendoza and Prabhu (69). In it they use value trees and value focused thinking method, which helps stakeholders identify parameters to be evaluated. This method breaks problems down into smaller manageable units within a hierarchy, and people express their preferences using that hierarchy so they can weight criteria. The object of this kind of assessment is not to prove success; rather, it identifies changes in perspectives and determines if these changes lead to propensity to make decisions that are more eco-friendly.

### 5.3. The overlap with sustainable development

So the question at this point is how does sustainable development (SD) fit in with this discussion? I would argue that SD has evolved from and overlapped with conservation sufficiently so as to merit this research entirely relevant for the SD field.

SD is usually defined as “meeting the needs of the present without compromising the ability of future generations to meet their needs”(115) SD was loosely borne from various conservation and development programs in the 70s and 80s, notably the Man and Biosphere

program, the UN Conference on Human Environment, and the World Conservation Strategy (34); SD was solidified as a concept in the Brundtland report in 1987 (38). SD is essentially a catch-all for the blending of environmental, social, and economic goals (34, 38, 69). Some argue that conservation has been entirely absorbed into sustainable development because conservation programs without human inclusion are no longer viable, and once you have both conservation and development you essentially enter the SD discourse (39, 68).

The main difference between participatory conservation and SD lies in the delineation of ethical responsibility. In conservation and development programs, often the end is conservation of natural resources and the mean includes human development (116). In sustainable development, the moral target is people and the means to get them out of poverty is development that considers ecological and social issues. There is considerable overlap between conservation and sustainable development in practice (49), in that they both reconcile human and environmental targets, but the differences in ethical underpinnings might influence, for example, which metrics to select for evaluation. The reason I delineate sustainable development here is to note that while the history and discourses of the two are not completely synonymous, many of the issues with participation and evaluation can be considered interchangeable between conservation and sustainable development.

## 6. Final Thoughts

Participation and evaluation share many qualities in common, and for this reason they are often spoken of simultaneously in the literature. For example, it is argued against both of them that they are too expensive, too time-consuming, and the benefits of doing them may not outweigh the costs. However there is compelling evidence to suggest that their inclusion ends up saving funds in the long run by promoting program sustainability and responsible use of other resources. They are both ideally included in every stage of conservation project design, from initial decision-making all the way through lessons learned, because these two processes help project coordinators set relevant goals and promote synergy between goals and outcomes. Both are key aspects of adaptive management, which is seen as the most practical way forward in the field. And finally, both provide practical tools for reconciling disparate conservation and development goals, because they promote dialogue and learning.

Essentially, both participation and evaluation can improve the success of conservation programs which have historically been short on inclusion and reflection. But perhaps the reason they are paired together in the literature and theory so frequently is because they both represent a way to bring depth and improved perspective to a project. This is why participatory evaluation is seen as the new way forward, because it perfectly combines the things so obviously missing from traditional conservation. Together, participation and evaluation can help practitioners produce conservation/sustainable development programs that are both more empowering and more humbling.

## References

1. SONGORWA AN. Community-Based Wildlife Management (CWM) in Tanzania: Are the Communities Interested? *World Development*. 1999; 27: 2061-2079.
2. SATERSON KA, CHRISTIANSON NL, JACKSON RB, KRAMER RA, PIMM SL, SMITH MD, et al. Disconnects in Evaluating the Relative Effectiveness of Conservation Strategies. *Conservation Biology*. 2004; 18: 597-599.
3. SALAFSKY N, MARGOLUIS R, REDFORD KH, ROBINSON JG. Improving the practice of conservation: a conceptual framework and research agenda for conservation science. *Conservation Biology*. 2002; 16: 1469-1479.
4. WILDER L, WALPOLE M. Measuring social impacts in conservation: experience of using the Most Significant Change method. *Oryx*. 2008; 42: 529-538.
5. TERBORGH J. The Fate of Tropical Forests: a Matter of Stewardship. *Conservation Biology*. 2000; 14: 1358-1361.

6. MARGOLUIS R, SALAFSKY N. Measures of success : designing, managing, and monitoring conservation and development projects. Washington, D.C.: Island Press, 1998.
7. STOLL S. U.S. Environmentalism Since 1945 : A Brief History with Documents. . Boston: Bedford/St. Martin's, 2007.
8. CARSON R. Silent Spring. Boston: Houghton Mifflin, 1962.
9. EHRlich PR. The Population Bomb. New York: Ballantine Books, 1968.
10. HARDIN G. The Tragedy of the Commons. Science. 1968: 162: 1243-1248.
11. ROCHELEAU DE, STEINBERG P, A. BP. A Hundred Years of Crisis? : Environment and Development Narratives in Ukambani, Kenya. . Boston, MA: African Studies Center Boston University, 1994.
12. PHILLIPS A. Turning Ideas on Their Head: The New Paradigm for Protected Areas. The George Wright Forum. 2003: 20: 8-32.
13. HOMEWOOD K. Development, demarcation, and ecological outcomes in Maasailand. Africa. 1995: 65: 331-350.
14. CERNEA MM, SCHMIDT-SOLTAU K. Poverty Risks and National Parks: Policy Issues in Conservation and Resettlement. World Development. 2006: 34: 1808-1830.
15. FRANK DJ, HIRONAKA A, SCHOFER E. The nation-state and the natural environment over the twentieth century. American Sociological Review. 2000: 65: 96-116.
16. HOLMES G. Protection, Politics, and Protest: Understanding Resistance to Conservation. Conservation and Society. 2007: 5: 184-201.
17. REED MS. Stakeholder participation for environmental management: A literature review. Biological Conservation. 2008: 141: 2417-2431.
18. BRANDON KE, WELLS M. PLANNING FOR PEOPLE AND PARKS - DESIGN DILEMMAS. World Development. 1992: 20: 557-570.
19. ARCHABALD K, NAUGHTON-TREVES L. Tourism revenue-sharing around national parks in Western Uganda: early efforts to identify and reward local communities. Environmental Conservation. 2001: 28: 135-149.
20. ADAMS WM, AVELING R, BROCKINGTON D, DICKSON B, ELLIOTT J, HUTTON J, et al. Biodiversity conservation and the eradication of poverty. Science. 2004: 306: 1146-1149.
21. HALLER T, MERTEN S. "We are Zambians—Don't Tell Us How to Fish!" Institutional Change, Power Relations and Conflicts in the Kafue Flats Fisheries in Zambia. Human Ecology. 2008: 36: 699-715.
22. BARNES JI, MACGREGOR J, WEAVER LC. Economic efficiency and incentives for change within Namibia's community wildlife use initiatives. World Development. 2002: 30: 667-681.
23. GOLDMAN RL, TALLIS H. A Critical Analysis of Ecosystem Services as a Tool in Conservation Projects The Possible Perils, the Promises, and the Partnerships. Year in Ecology and Conservation Biology 2009, 2009.
24. HAYWARD C, SIMPSON L, WOOD L. Still left out in the cold: Problematising participatory research and development. Sociologia Ruralis. 2004: 44: 95-+.
25. IGOE J, BROCKINGTON D. Neoliberal Conservation: A Brief Introduction. Conservation and Society. 2007: 5: 432-449.
26. BARRETT CB, LEE DR, MCPEAK JG. Institutional arrangements for rural poverty reduction and resource conservation. World Development. 2005: 33: 193-197.
27. EHRENFELD D. War and peace and conservation biology. Conservation Biology. 2000: 14: 105-112.
28. ADAMS WM. Thinking like a human: social science and the two cultures problem. Oryx. 2007: 41: 275-276.
29. FAZEY I, FISCHER J, LINDENMAYER DB. What do conservation biologists publish? Biological Conservation. 2005: 124: 63-73.
30. KREMEN C, MERENLENDER AM, MURPHY DD. ECOLOGICAL MONITORING - A VITAL NEED FOR INTEGRATED CONSERVATION AND DEVELOPMENT PROGRAMS IN THE TROPICS. Conservation Biology. 1994: 8: 388-397.

31. APLET GH, LAVEN RD, FIEDLER PL. THE RELEVANCE OF CONSERVATION BIOLOGY TO NATURAL-RESOURCE MANAGEMENT. *Conservation Biology*. 1992; 6: 298-300.
32. BROSIUS JP. Common ground between anthropology and conservation biology. *Conservation Biology*. 2006; 20: 683-685.
33. BARRY D, OELSCHLAEGER M. A science for survival: Values and conservation biology. *Conservation Biology*. 1996; 10: 905-911.
34. MEINE C, SOULE M, NOSS RF. "A mission-driven discipline": the growth of conservation biology. *Conservation Biology*. 2006; 20: 631-651.
35. WALLINGTON TJ, HOBBS RJ, MOORE SA. Implications of current ecological thinking for biodiversity conservation: A review of the salient issues. *Ecology and Society*. 2005; 10.
36. FRANZ EH. Ecology, values, and policy. *Bioscience*. 2001; 51: 469-474.
37. BRADSHAW GA, BEKOFF M. Ecology and social responsibility: the re-embodiment of science. *Trends in Ecology & Evolution*. 2001; 16: 460-465.
38. CAMPBELL LM, VAINIO-MATTILA A. Participatory development and community-based conservation: Opportunities missed for lessons learned? *Human Ecology*. 2003; 31: 417-437.
39. WHITTEN T, HOLMES D, MACKINNON K. Conservation biology: a displacement behavior for academia? *Conservation Biology*. 2001; 15: 1-3.
40. HARRISON AL. Who's who in Conservation biology - an authorship analysis. *Conservation Biology*. 2006; 20: 652-657.
41. KNIGHT AT, COWLING RM, ROUGET M, BALMFORD A, LOMBARD AT, CAMPBELL BM. Knowing but not doing: Selecting priority conservation areas and the research-implementation gap. *Conservation Biology*. 2008; 22: 610-617.
42. SHEIL D. Conservation and biodiversity monitoring in the tropics: Realities, priorities, and distractions. *Conservation Biology*. 2001; 15: 1179-1182.
43. EHRENFELD op. cit., p.105
44. GARNETT ST, SAYER J, DU TOIT J. Improving the effectiveness of interventions to balance conservation and development: a conceptual framework. *Ecology and Society*. 2007; 12.
45. PULLIN AS, KNIGHT TM, STONE DA, CHARMAN K. Do conservation managers use scientific evidence to support their decision-making? *Biological Conservation*. 2004; 119: 245-252.
46. SAYER J, CAMPBELL B, PETHERAM L, ALDRICH M, PEREZ MR, ENDAMANA D, et al. Assessing environment and development outcomes in conservation landscapes. *Biodiversity and Conservation*. 2007; 16: 2677-2694.
47. ANDRADE GI. Science and society at the World Parks Congress. *Conservation Biology*. 2005; 19: 4-5.
48. BROWN K. Innovations for conservation and development. *The Geographical Journal*. 2002; 168: 6-17.
49. WARNER M. 'Consensus' participation: an example for protected areas planning. *Public Administration and Development*. 1997; 17: 413-432.
50. STEM C, MARGOLUIS R, SALAFSKY N, BROWN M. Monitoring and evaluation in conservation: a review of trends and approaches. *Conservation Biology*. 2005; 19: 295-309.
51. WEISS CH. Evaluation : methods for studying programs and policies. Upper Saddle River, NJ: Prentice Hall, 1998.
52. KITCHER P. Responsible biology. *BioScience*. 2004; 54: 331-337.
53. STRINGER ET AL., op. cit., p.78.
54. ARNSTEIN SR. LADDER OF CITIZEN PARTICIPATION. *Journal of the American Institute of Planners*. 1969; 35: 216-224.
55. HORWICH RH, LYON J. Community conservation: practitioners' answer to critics. *Oryx*. 2007; 41: 376-385.
56. ROWE G, FREWER LJ. Public participation methods: A framework for evaluation. *Science Technology & Human Values*. 2000; 25: 3-29.

57. BRUYERE B, BEH A, LELENGULA G. Differences in Perceptions of Communication, Tourism Benefits, and Management Issues in a Protected Area of Rural Kenya. *Environmental Management*. 2009: 43: 49-59.
58. LAWRENCE A. "No Personal Motive?"™ Volunteers, Biodiversity, and the False Dichotomies of Participation. *Ethics, Place & Environment*. 2006: 9: 279-298.
59. STRINGER LC, SCRIECIU SS, REED MS. Biodiversity, land degradation, and climate change: Participatory planning in Romania. *Applied Geography*. 2009: 29: 77-90.
60. WAINWRIGHT AND WEHRMEYER op. cit., p.934.
61. AGRAWAL A, OSTROM E. Political science and conservation biology: a dialog of the deaf. *Conservation Biology*. 2006: 20: 681-682.
62. BUHLER U. Participation 'with justice and dignity': Beyond 'the New Tyranny'. 2002.
63. IGOE J, CROUCHER B. Conservation, Commerce, and Communities: The Story of Community-Based Wildlife Management Areas in Tanzania's Northern Tourist Circuit. *Conservation and Society*. 2007: 5: 534-561.
64. LEACH M, MEARNS R, SCOONES I. Challenges to community based sustainable development - Dynamics, entitlements, institutions. *Ids Bulletin-Institute of Development Studies*. 1997: 28: 4-+.
65. SALAFSKY N, WOLLENBERG E. Linking livelihoods and conservation: A conceptual framework and scale for assessing the integration of human needs and biodiversity. *World Development*. 2000: 28: 1421-1438.
66. PRESTBY JE, WANDERSMAN A, FLORIN P, RICH R, CHAVIS D. BENEFITS, COSTS, INCENTIVE MANAGEMENT AND PARTICIPATION IN VOLUNTARY ORGANIZATIONS - A MEANS TO UNDERSTANDING AND PROMOTING EMPOWERMENT. *American Journal of Community Psychology*. 1990: 18: 117-149.
67. BROWN K. Three challenges for a real people-centred conservation. *Global Ecology and Biogeography*. 2003: 12: 89-92.
68. INOGWABINI BI. Can biodiversity conservation be reconciled with development? *Oryx*. 2007: 41: 136-137.
69. MENDOZA GA, PRABHU R. Evaluating multi-stakeholder perceptions of project impacts: a participatory value-based multi-criteria approach. *International Journal of Sustainable Development and World Ecology*. 2009: 16: 177-190.
70. HOCKINGS M. Systems for assessing the effectiveness of management in protected areas. *Bioscience*. 2003: 53: 823-832.
71. KISS A. Is community-based ecotourism a good use of biodiversity conservation funds? *Trends in Ecology & Evolution*. 2004: 19: 232-237.
72. MARK MM, HENRY GT, JULNES G. Evaluation : an integrated framework for understanding, guiding, and improving policies and programs. San Francisco: Jossey-Bass, 2000.
73. MCDUFF MD. Building the capacity of grassroots conservation organizations to conduct participatory evaluation. *Environmental Management*. 2001: 27: 715-727.
74. AXFORD JC, HOCKINGS MT, CARTER RWB. What Constitutes Success in Pacific Island Community Conserved Areas? *Ecology and Society*. 2008: 13.
75. DURRHEIM K, PAINTER D, TERRE BLANCHE MJ. Research in practice : applied methods for the social sciences. Cape Town: UCT Press, 2006.
76. GUBA EG, LINCOLN YS. Fourth generation evaluation. Newbury Park, CA: Sage Publications, 1989.
77. VAN VLAENDEREN H. Evaluating development programs: building joint activity. *Evaluation and Program Planning*. 2001: 24: 343-352.
78. FERRARO PJ, PATTANAYAK SK. Money for nothing? A call for empirical evaluation of biodiversity conservation investments. *Plos Biology*. 2006: 4: 482-488.
79. WAINWRIGHT C, WEHRMEYER W. Success in integrating conservation and development? A study from Zambia. *World Development*. 1998: 26: 933-944.
80. BEIERLE TC. The quality of stakeholder-based decisions. *Risk Analysis*. 2002: 22: 739-749.

81. MUNDA G, NIJKAMP P, RIETVELD P. QUALITATIVE MULTICRITERIA EVALUATION FOR ENVIRONMENTAL-MANAGEMENT. *Ecological Economics*. 1994: 10: 97-112.
82. BROOKS ET AL., op. cit., p1534.
83. BROOKS JS, FRANZEN MA, HOLMES CM, GROTE MN, MULDER MB. Testing hypotheses for the success of different conservation strategies. *Conservation Biology*. 2006: 20: 1528-1538.
84. XU JY, LU YH, CHEN LD, LIU Y. Contribution of tourism development to protected area management: local stakeholder perspectives. *International Journal of Sustainable Development and World Ecology*. 2009: 16: 30-36.
85. BLACKSTOCK KL, KELLY GJ, HORSEY BL. Developing and applying a framework to evaluate participatory research for sustainability. *Ecological Economics*. 2007: 60: 726-742.
86. STRAGER MP, ROSENBERGER RS. Incorporating stakeholder preferences for land conservation: Weights and measures in spatial MCA. *Ecological Economics*. 2006: 58: 79-92.
87. ROE D, MAYERS J, GRIEG-GRAN M, KOTHARI A, FABRICIUS C, HUGHES R. Evaluating Eden: Exploring the Myths and Realities of Community-Based Wildlife Management: Series Overview. . London: International Institute for Environment and Development, 2000.
88. SULLIVAN S. How Sustainable if the Communalizing Discourse of 'New' Conservation? In: Chatty D, Colchester M, eds. *Conservation and Mobile Indigenous Peoples: Displacement, Forced Settlement, and Sustainable Development*. Oxford: Berghahn Books, 2002.
89. HOLMES CM. The influence of protected area outreach on conservation attitudes and resource use patterns: a case study from western Tanzania. *Oryx*. 2003: 37: 305-315.
90. WEST P, IGOE J, BROCKINGTON D. Parks and peoples: The social impact of protected areas. *Annual Review of Anthropology*. 2006: 35: 251-277.
91. KISS, op. cit., p.233.
92. SALZER D, SALAFSKY N. Allocating resources between taking action, assessing status, and measuring effectiveness of conservation actions. *Natural Areas Journal*. 2006: 26: 310-316.
93. COUSINS JB, EARL LM. THE CASE FOR PARTICIPATORY EVALUATION. *Educational Evaluation and Policy Analysis*. 1992: 14: 397-418.
94. GOLDMAN RL, TALLIS H, KAREIVA P, DAILY GC. Field evidence that ecosystem service projects support biodiversity and diversify options. *Proceedings of the National Academy of Sciences of the United States of America*. 2008: 105: 9445-9448.
95. SCHWILCH G, BACHMANN F, LINIGER HP. APPRAISING AND SELECTING CONSERVATION MEASURES TO MITIGATE DESERTIFICATION AND LAND DEGRADATION BASED ON STAKEHOLDER PARTICIPATION AND GLOBAL BEST PRACTICES. *Land Degradation & Development*. 2009: 20: 308-326.
96. HARRINGTON C, CURTIS A, BLACK R. Locating Communities in Natural Resource Management. *Journal of Environmental Policy & Planning*. 2008: 10: 199-215.
97. PRETTY JN. PARTICIPATORY LEARNING FOR SUSTAINABLE AGRICULTURE. *World Development*. 1995: 23: 1247-1263.
98. REED MS, FRASER EDG, DOUGILL AJ. An adaptive learning process for developing and applying sustainability indicators with local communities. *Ecological Economics*. 2006: 59: 406-418.
99. VAN VLAENDEREN, op. cit., p. 343.
100. REED ET AL., op. cit., p. 406.
101. CONSERVATION MEASURES PARTNERSHIP. 2004. . ACCESSED NOVEMBER 15. *Open Standards for the Practice of Conservation*. 2007.
102. FAZEY I, FISCHER J, LINDENMAYER DB. Who does all the research in conservation biology? *Biodiversity and Conservation*. 2005: 14: 917-934.
103. HOCKINGS, op. cit., p. 829.

104. BERKES F. Rethinking Community-Based Conservation. *Conservation Biology*. 2004: 18: 621-630.
105. HOLLING CS. Resilience and Stability of Ecological Systems. *Annual Review of Ecology & Systematics*. 1973: 4: 1-23.
106. STRINGER LC, DOUGILL AJ, FRASER E, HUBACEK K, PRELL C, REED MS. Unpacking "participation" in the adaptive management of social ecological systems: A critical review. *Ecology and Society*. 2006: 11.
107. MARGOULIS AND SALAFSKY, op. cit., p. 8.
108. FLASPOHLER DJ, BUB BR, KAPLIN BA. Application of conservation biology research to management. *Conservation Biology*. 2000: 14: 1898-1902.
109. SKOGEN K. Adapting adaptive management to a cultural understanding of land use conflicts. *Society & Natural Resources*. 2003: 16: 435-450.
110. CIHAR M, STANKOVA J. Attitudes of stakeholders towards the Podyji/Thaya River Basin National Park in the Czech Republic. *Journal of Environmental Management*. 2006: 81: 273-285.
111. WARNER, op. cit., p. 430.
112. SUTHERLAND WJ, PULLIN AS, DOLMAN PM, KNIGHT TM. The need for evidence-based conservation. *Trends in Ecology & Evolution*. 2004: 19: 305-308.
113. PETTICREW M. Systematic reviews from astronomy to zoology: myths and misconceptions. *British Medical Journal*. 2001: 322: 98-101.
114. MUNDA ET AL., op. cit., p. 99.
115. STRINGER ET AL., op. cit. p. 77.
116. BRUNER AG, GULLISON RE, RICE RE, DA FONSECA GAB. Effectiveness of parks in protecting tropical biodiversity. *Science*. 2001: 291: 125-128.