Towards Improved Community-Based Conservation

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ABSTRACT

Conservation was developed as “One Great Policy” for the wise use of natural resources for a general good and a common purpose. From its inception by Gifford Pinchot and adaptation by John Muir and other environmental managers and advocates, conservation has been an approach to natural resource management that integrates interdisciplinary fields and equitable participation. However, contemporary conservationists are impeded by semantic debate of the science of conservation, and the dichotomy of sciences (e.g. natural and social) despite their unequivocal roles in conservation by definition. Moreover, increasingly conservationists take a top-down approach that excludes local communities, resulting in depressed human well-being, reduced community support and trust in conservationists, and impediment of conservation objectives.

Here I provide a synthesis of conservation, through history and into the current debate over the place of social sciences and community development in conservation planning and implementation. Based on this review of the literature, my own experiences as a Peace Corps Volunteer in the Philippines, and experiences shared by peers in conservation, five recommendations are given for improved community-based conservation project implementation: democratization, community empowerment, interdisciplinary synergy, proper project design and management, and good judgment.
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1. INTRODUCTION

Conservation is by no means a modern concept, even from a historical prospective. In fact, the earliest conservationists date back to early, pre-agricultural communities, and examples have been discovered globally (e.g. Gadgil and Vartak 1975, Debnath 2003, Bhagwat and Rutte 2006). These early examples may be deemed “conservation” through indirect means, which is to say not inherently framed with environmentalism in mind. However, as described below, the methods at work are not unlike those used today. Indeed, in many ways modern conservation is unchanged, for better and for worse, and these methodologies necessitate review and reflection.

In the pages that follow, conservation is defined, and its development from the “One Great Policy” into its contemporary context is described. Next, five recommendations are made for improvement of community-based conservation project planning, implementation, and management, informed by my experiences in conservation, experiences shared by peers, and reflections on conservation literature. Lastly, these recommendations are reviewed in the context of real-world examples, either through their realized application, or suggestions for future improvements. It is hoped that these recommendations may permit conservation to be carried out in a more equitable and sustainable fashion, in line with its original meaning.

“Conservation is the application of common sense to the common problems for the common good.” (Pinchot 1947)
2. DEVELOPMENT OF CONSERVATION

Before going further, the word “conservation” must first be defined in its modern context. This can prove quite difficult because the word means many things to different people, under various ideologies, disciplines, and through time. These variations highlight the dynamic nature of conservation. A review of publications concerning conservation will help to elucidate its contemporary meaning, before looking into its history and development.

To start, Michael Soulé’s seminal essay “What is Conservation Biology?” (1985) still retains its relevancy in describing conservation. In his opening paragraph, Soulé described the discipline as “a new stage in the application of science to conservation problems, [that] addresses the biology of species, communities, and ecosystems that are perturbed, either directly or indirectly, by human activities or other agents”. He goes on to highlight the “synthetic, eclectic, multidisciplinary structure” of conservation, and “dependence… on social science disciplines”; this idea has been further developed in the ensuing decades, but much more needs to be done to reach Soulé’s assertion that “multidisciplinary approaches will ultimately be the most fruitful.” But he also seems to ignore the legacy of early conservationists, and puts too much emphasis on conservation as a “crisis discipline”, going so far saying conservation “is analogous to that of surgery to physiology and war to political science.” Indeed conservation action can be, and unfortunately too often is, spurred by last-minute necessity, but it is certainly not the only, nor the most fruitful, path. A more conservative, precautionary approach to conservation will always be the most productive, not unlike preventative healthcare, to use Soulé’s own physiology analogy. Finally, Soulé provides important insights into conservation that conservationists are still struggling to realize today, that “A conservation biologist may have to make decisions or recommendations about design and management before he or she is completely comfortable with
the theoretical and empirical bases of the analysis” and “Tolerating uncertainty is often necessary” (i.e. adaptive management). Conservation is a dynamic process, particularly when approaching a novel problem, requiring flexibility and adaptability, and conservationists may be informed through the experiences of their peers.

In a more recent publication, “What is Conservation Science?” (2012), author’s Peter Kareiva and Michelle Marvier themselves revisit Soulé’s essay and redefine conservation more broadly, from his “conservation biology” to their “conservation science”. As the authors put it, “the major shortcoming of Soulé’s framing of conservation is its inattention to human well-being”, that is to say human lives and livelihoods. This is a logical progression for conservation, in an increasingly human world, one in which “ecological dynamics cannot be separated from human dynamics”. The authors note the changes that have occurred in the ensuing decades, and identify emerging priorities that include rebuilding public support and connecting conservation with human rights and equity. This is important, and a guiding principle of contemporary conservation, the idea that conservation efforts will be more successful and sustainable when orchestrated with human needs in mind, and local peoples directly involved in conservation planning. Soulé’s generation of conservationists were more likely to arrive at inequitable solutions, displacing and disrupting communities in pursuit of biodiversity conservation, which has contributed to resentment and loss of public trust. The authors also refute the notion of the inevitability of the tragedy of the commons, citing Ostrom (2009) who found communities will manage resources sustainably when benefits are transparent and equal; rather than a top-down approach, “sustainable conservation can be achieved by empowering local people to make decisions for themselves.” This conclusion is most important in Kareiva and Marvier’s article: including human dimensions in conservation. This sort of conservation, rather than being new and novel, rather hearkens back to
Gifford Pinchot’s original “Conservation Policy”, as explained later in this chapter. Projects such as economic development, education, livelihoods, and environmental justice not only benefit people, but the environment they live in by decreasing resource exploitation, with the added benefit of increasing trust and support by communities for conservationists who, rather than vilify impoverished peoples, play an active role in community development. The author’s concluding sentence summarizes their revised view of conservation succinctly, “conservation for people rather than from people.”

This trend continues, with discussions on the meaning of conservation focusing more on the inclusion of social sciences. The social sciences, although included in prior definitions, are all too often marginalized or given perfunctory attention. In a recent essay, “Mainstreaming the Social Sciences in Conservation”, Bennett et al. (2017) extend the social-dimensions of conservation into a field of itself, “conservation social sciences”. This is somewhat regressive and an ironic distinction, given the more multidisciplinary “conservation science” outlined by Kareiva and Michelle (2012) – not to mention Pinchot –, but perhaps necessary given that “conservation social sciences remain misunderstood and underutilized in practice” (Bennett et al. 2017). Conservation social science is itself multidisciplinary, including such subfields as ecological economics, environmental law, anthropology, and sociology, that inform policy and practice at all levels (Bennett et al. 2017). Conservation social science is worth mentioning because the human dimension of conservation has been acknowledged, yet neglected, for decades, but will be a vital aspect in conservation going forward (Bennett et al. 2017).

The trend occurring in describing “conservation” is increasingly multidisciplinary, and concerned with integrating human and environmental dimensions for the shared goal of managing and sustaining natural resources – biotic, abiotic, aesthetic, and utilitarian. Rather than being an
advancement, in the broad sense, of our understanding of conservation, these articles appear to settle into Pinchot’s original conservation ideal. Conservation in its modern sense is an interdisciplinary field of complementary sciences which inform the core “Consecration Policy” as it was originally envisioned.

2.1. EARLY BEGINNINGS OF NATURAL RESOURCE MANAGEMENT

The inception of conservation goes back before recorded history, with roots in early religion and spiritualism. Perhaps the earliest forms of what we may now call conservation are “sacred groves”, or tracts of forest protected by local people for cultural reasons, including religion and taboos (Khan et al. 2008). Examples of sacred groves range globally, aside from Antarctica, and date back to at least 2500 BCE (Bhagwat and Rutte 2006, Vogt et al. 2006). The reasons for these sacred groves varies as widely as their locations, including for deity worship, surrounding temples and other sacred sites, and burial grounds (Ramakrishnan et al. 1998, Pandey and Rao 2002, Mgumia and Oba 2003, Bhagwat and Rutte 2006, Vogt et al. 2006). Because of their sacred status, most of these groves, ranging from a clump of trees to many hectares, were (and in some cases continue to be) protected from human interference and represent some of the only remaining virgin forests, as well as invaluable habitat and biodiversity (Gadgil and Vartak 1975, Pandey and Rao 2002, Khumbongmayum et al. 2004, Kangah-Kesse et al. 2007).

While any one of these sacred grove sites is worthy of extended discussion, several will be described here to demonstrate their range of purpose, management, and ecological benefits. Among ancient Indo-Europeans, there is evidence of nature worship (i.e. animism) and protection of nature for that purpose, ranging from individual trees to forest groves (Frazer 1922, Vest 1985, Vogt et al. 2006). Among the Celts there was the “nemeton” (heavenly-place), which was a sacred grove or wilderness sanctuary given to the gods (Vest 1985); unmodified in any way, the land was
considered sacred, and only through its wild state could its “numinous” (heavenly or divine) character reveal itself. These sacred sites indirectly conserved patches of forest in Celtic Europe, at least until their destruction following the introduction of Christianity, either to dissuade such animus worship by “pagan heathens” or to replace these wild religious sites with artificial temples (Vest 1985). Sacred groves also occur throughout Africa, for reasons including religious and spiritual, but also political and social (Kangah-Kesse 2007, Sheridan 2009). The Osun-Osogbo Sacred Grove in Nigeria – designated a Word Heritage Site in 2005 by the United Nations Educational, Scientific, and Cultural Organization (UNESCO) – represents one such sacred grove, the largest remaining in that country, it demonstrates their value even into today, as the Osun-Osogbo Sacred Grove is one of the last remaining patches of primary high forest in southern Nigeria, protected historically from exploitation by its spiritual importance, and more recently by its cultural value (UNESCO 2005). Asia, too, has a long history of sacred groves, and their relevancy persists even into national forest policy today (Coggins 2003, Van Dyke 2010, Ormsby 2011); in fact, the earliest record of protected area legislation comes from the Maurya Empire of India, which will be discussed further in the next section (Vogt et al. 2006).

While the examples provided so far represent bottom-up, community-based management of natural resources, this is not the only way early conservation was conducted. Much of early conservation – and indeed modern conservation – is done through top-down control of the ruling class, rules and regulations imposed upon subjects and peasants. The first historical indication of such top-down control was as early as 2500 BCE in Mesopotamia, during the Babylonian Dynasty (~1800 BCE), in response to widespread cedar deforestation and resulting erosion (Grove 1995, Vogt et al. 2006). However, these early attempts at forest protection did not counter the need and desire for more timber; it is believed that the “Epic of Gilgamesh”, demonstrates an awareness of
the drought and erosion that would follow deforestation in the uplands of Sumer (Grove 1995). China too has an early history in, if not conservation per se, at least natural resource management from its rulers. During the Zhou Dynasty (1100 – 221 BCE), emperors assigned administrative positions for forest management to regulate hunting and timber harvest, and even roadside tree planting (Palo et al. 2001, Vogt et al. 2006); by the Qin Dynasty (221 – 206 BCE), more progressive conservation practices were implemented, including subsidies for tree planting (Palo et al. 2001). During the Maurya Empire (321 – 185 BCE) of India, Emperor Asoka’s “Law of Piety”, a moral code that, among other things, sanctified all life including wildlife, in alignment with his Buddhist philosophy (Draper 1995, Vogt et al. 2006). Rather than being any sort of “conservation”, he was enforcing his own dogmatic code (apparently fueled by “profound sorrow and regret” in Asoka from his earlier conquests) with no concern for resource management or the welling of his subjects, aside from his desire to share “peace of mind and joyousness” (Draper 1995); this sort of disregard, or misunderstanding from a privileged perspective, towards “forest folk” and other local peoples will be seen again through the history of conservation, and even into today.

In Europe, early philosophers like Plato and Theophrastus were at least concerned with issues relating to environmental mismanagement, including erosion and flooding resulting from deforestation, although no management seems to have followed (Grove 1995, Van Dyke 2010). As early as 1000 BCE, conservation concepts were utilized more for privileged use, in the form of game reserves (Vogt et al. 2006, Van Dyke 2010). Game reserves in China predate their occurrence in Europe, having been described as early as 1150 BCE during the Zhou Dynasty (Coggins 2003); game reserves would later be practiced in Europe by royal families, first by the 7th century Franks (Winters 1974). But it was the need for timber, for industry, construction, and shipbuilding, which

2.2 CONSERVATORS FROM FORESTRY

Active forest management began in earnest around the 11th century. In China, during the Song Dynasty, forests were protected and cultivated according to fengshui principles (Palo et al. 2001, Van Dyke 2010). In Europe, management was concerned with maintaining supplies of timber (Winters 1974, Vogt et al. 2006). Forests were more systematically managed, with controlled logging (e.g. Pinhal de Leira) and forestry officers (e.g. French Ordinance of 1219) being implemented (Winters 1974, Vogt et al. 2006). Forestry practices were championed by monks throughout Europe (e.g. Vallumbrosan Order) that would shape forest laws and the science of forestry itself (Winters 1974, Vogt et al. 2006, Van Dyke 2010). In 1669, Charles Colbert, Secretary of State for Foreign Affairs under King Luis XIV of France, passed an ordinance (Ordonnance des Eaux et Forets) to control natural resource use (including forests and water resources) to ensure sustained resource availability, the beginning of increasingly science-based policies in France, and eventually throughout Europe and into the colonies (Winters 1974, Vogt et al. 2006).

As forest resources dwindled at home, European nations increasingly relied on their colonies to supply wood, particularly for their navies. Of particular note for the history of conservation, Dietrich Brandis was appointed Inspector General of Forests in India in 1864 (Winters 1974, Vogt et al. 2006, Van Dyke 2010); Brandis, a German forester schooled in sustained yield forestry, developed influential techniques for science-based forestry, organized the Forest Department of India, and educated future foresters, including Gifford Pinchot, an American forester, politician, and father of conservation.
2.3. **EMERGING NATURE PHILOSOPHY**

Conservation is a product of American philosophy and literature, most notably writers like Ralph Emerson, Henry Thoreau, and John Muir. Early 19th century American environmentalism fell under the philosophy of Romantic Transcendentalism, valuing the intrinsic and aesthetic value of nature, and advocates like Thoreau prompted readers to reflect on nature’s beauty and experience it for themselves (Callicott 1990, Van Dyke 2010). With increasing exposure of environmental ideals, alongside westward expansion in the U.S., attitudes towards environmental resource use and conservation (though still not by that name) were changing. Under President Theodore Roosevelt, an avid outdoorsman and conservation advocate himself, the Yellowstone National Park was established in 1872 (Van Dyke 2010); the concept would be utilized by other countries in the decades that followed, including Australia (1879) and Canada (1885). In 1876, under President Roosevelt, the Division of Forestry was formed to manage forest resource concerns (Van Dyke 2010).

Conservation, in our modern sense, is a product of “Progressivism”, and was developed by Gifford Pinchot in response to, and contrasting, Romantic-Transcendental nature philosophy (Callicott 1990). Pinchot was a utilitarian conservationist, valuing the fair use of natural resources by current and future users, and father of the “Resource Conservation Ethic” (Callicott 1990, Van Dyke 2010). In many ways, Pinchot’s valuation of natural resources aligned with Muir and other transcendental environmentalists, at least in terms of valuing responsible management, however a significant schism still existed, highlighted by the conservation versus preservation debate (Callicott 1990, Van Dyke 2010); a notorious example of this debate erupted publically between Muir (a preservationist) and Pinchot (conservationist) in regards to sheep grazing on park lands, and later river damming (Miller and Morrison 2005). In many ways these debates continue today.
2.4. *ONE GREAT POLICY*

Thus far conservation principles have been demonstrated through history in all but name. Although some had used the word “conserve” in reference to natural resource management before (e.g. John A. Warder), it was not used in its modern sense until the 20th century (Winters 1974, Steward and Globig 2012). This credit belongs to Gifford Pinchot, along with his friend and Deputy Chief Overton Price, who, in 1907, christened their new policy for natural resource management “Conservation”, in reference to the British Conservancies and Conservators of India (Pinchot 1947, Johnson 2017). Even in that time, at the inception of conservation, Pinchot was concerned with the complex interconnections of natural resources:

“The forest and its relation to streams and inland navigation, to water power and flood control; to the soil and its erosion; to coal and oil and other minerals; to fish and game; and many another possible use or waste of natural resources – these questions would not let him be [Gifford Pinchot speaking of himself]. What had all these to do with Forestry? And what had Forestry to do with them?” (Pinchot 1947)

It is worth noting that, as Pinchot framed it, conservation is not a science or philosophy, but a way of combing science-based management principles into “one great policy”, a “common policy with a common purpose, the change for the wise use of each of them [natural resources] becomes infinitely greater than it had ever been before” (Pinchot 1947). This is an important distinction, as the modern idea of conservation has, in many ways, shifted, or at least been muddied by semantics. As attempts in the preceding section to define conservation in the modern context demonstrated, contemporary conservation is having an identity crises. This is ironic, as “conservation biology” (Soule 1985), “conservation science” (Kareiva and Marvier 2012), and
“conservation social science” (Bennett et al. 2017) all fall under Pinchot’s one great policy for natural resource conservation.

2.5. CONSERVATION TODAY

A revolution in our understanding of the environment was led in the 20th century by Aldo Leopold. Eschewing the German (and Pinchot’s) model of natural resource management that sustains resource use and extraction, Leopold recognized the ecological underpinnings (i.e. systems and processes) of the environment (Van Dyke 2010). In a way, Leopold bridged the gap between preservationists and conservationists, understanding the need for natural resources, but underscoring the need to avoid disrupting ecological systems (Callicott 1990).

With increasing population and globalization in the 20th century and into the 21st, so too has conservation expanded to meet growing needs for resource management. The first international conservation policies came from multilateral treaties for equitable resource use (e.g. Migratory Bird Treaty Act of 1918), and similarly international organizations have been formed to tackle pressing environmental issues, both governmental (e.g. United Nations Environmental Programme) and private (e.g. International Union for the Conservation of Nature) (Van Dyke 2010). Increasingly, more grassroots, community-based conservation approaches are being used to empower local peoples to manage their own natural resources sustainably (e.g. U.S. Peace Corps).
3. CONSERVATION RECOMMENDATIONS

Great strides have been made in refining conservation into what it is today, however there is room for improvement, in sustainably implementing projects where people are an inseparable component of the landscape and ecology. Every inch of the Earth now falls into this category. The recommendations that follow are not entirely novel, but influenced by suggestions in the literature, personal experiences and experiences shared by peers working in conservation and community development. They are intended to improve project equity, and success in implementation, management, and sustainability of conservation projects.

The five recommendations for improved community-based conservation are: democratization (fair representation and lawful implementation), community empowerment (agency of resource users), interdisciplinary synergy (multidisciplinary approaches to problems), proper design and management (consideration of broad factors and long-term effects), and good judgement (critically reflecting on the validity of a project).

3.1. DEMOCRATIZATION

First and foremost is democratization and strengthening of political institutions for effective management of natural resources and society as a whole. Disorganized and weak governments are prone to internal conflict, contradictory laws and enforcement, corruption, loss of legitimacy and general mismanagement (Smith et al. 2003). Without an accountable and representative democratic government, humanitarian and environmental issues will arise. Of the recommendations outlined, democratization is the most daunting, but also fundamental to the others; therefore, conservationists need to be aware of the importance of equitable and consistent
legal frameworks, government accountability, public participation and oversight of government. Conservationists must step forward as advocates and participants in democracy.

Conservation success necessitates strengthening institutions and organizations as much as science and socioeconomic-based developments (Kellert et al. 2000). The issues wrought by undemocratic governance are varied, but all impede conservation goals in some way. The first and most straightforward is the honesty and integrity of government officials. Unfortunately, many of the biodiverse “hotspots” containing resources conservationists wish to protect and manage are also under the authority of dysfunctional governments and corrupt politicians. Many of these are relatively recently democratized, formally communist or otherwise authoritarian, such as the Philippines, Indonesia, or Somalia (Smith et al. 2003). This legacy of corruption, with the added instability and government weakness that comes from a transition centralized to decentralization, has resulted unchecked local-level corruption and power grabs (Bardhan 1997, Smith et al. 2003). In places where democracy was established rapidly following an authoritarian regime these issues of systematic corruption – including nepotism, cronyism, and bribery – are worsened (Smith et al. 2003). In these situations, individuals may take advantage of weakened democratic institutions for personal gain, worsening environmental and socioeconomic conditions, and disempowering local people (Duraiappah et al. 2013).

Governments must be pressured to act transparently and lawfully, easier said than done in nations with long histories of disempowerment and deep-seated corruption causing widespread disengagement and apathy toward the democratic system. The stability of government is reflected in the confidence of people governed, and is linked directly to conservation success (Crawford et al. 2000, Pollnac and Crawford 2000). However, the role of conservationists in mitigating this problem is limited. Although they should involve themselves in community development, if only
by nature of their own natural resource management goals, conservationists should be wary of involving themselves in politics, particularly non-nationals. If the site of targeted conservation lacks a democratic government, than conservationists should look to other organizations within the community, such as peoples’ organizations, clubs, and unions, to plan and implement conservation projects. Conservationists must knowledgably navigate and cooperate with governments, though there is a limit to what can be done to advocate democracy; in fact, excessive political meddling may prove counterproductive to conservation efforts and potentially dangerous for conservationists in the field (e.g. “losing face” with local political leaders). Citizens need to provide the oversight and political pressure to push their own country towards democratic ideals.

The second democratic issue is clarity, dissemination, and administration of laws. Laws may be ignored, particularly at local levels of government with little federal oversight (Smith et al. 2003, Eisma et al. 2005). The reality is, regardless of how well written, well intended, or well researched a law is, it means nothing if it is not properly implemented and enforced. Unfortunately, these ungoverned laws can be extremely important, such as regulation of take or land use, and their dismissal perpetuates the very issues the laws were written to fix under the guise of resolution. Assuming democratic institutions are established, conservationists may work directly with local governments, or advocate indirectly with local community groups to reinstate these laws, and educate and empower local people to hold their government accountable, as well as how to enforce environmental law (Christie et al. 2009).

Another issue is integrated management and legal cohesion, or a singular, coherent environmental management framework. Overlapping responsibilities among government agencies can cause confusion and reduce overall effectiveness. For example, there are overlaps in the responsibilities of agencies in the Philippines (i.e. Department of Environment and Natural
Resources and Bureau of Fisheries and Aquatic Resources) for management of mangroves, one emphasizing food production (e.g. aquaculture) and the other preservation of mangrove forests (Eisma et al. 2005). There is a serious need for a singular, coherent environmental management legal framework and interagency cooperation in countries like Philippines, as noted by Eisma et al. (2005):

“There are inadequacies and discrepancies in the legislation… And these laws commonly overlap in subject matter and delegate various types of authority and responsibility over the marine environment to numerous government agencies… Thus far, there has been no attempt made to harmonize these laws.”

Towards this issue, conservationists may play an advisory role, lending expertise in natural resource and biological (e.g. wildlife and forestry) management or environmental law. For example, the World Wildlife Fund has success in guiding management of sustainable yellowfin tuna (Thunnus albacares) fisheries in the Philippines, alongside the Bureau of Fisheries and Aquatic Resources and the Partido Development Administration in Camarines Sur (WWF 2013, personal observation). Conservationists may also have a role in training for institutional capacity (management skills, leadership ability, and education), in order improve the effectiveness of collaborative efforts (Christie et al. 2009).

Lastly, ensuring participation across all demographic groups (e.g. women, youth, elderly, indigenous peoples, etc.) is vital for effective and representative democratic governance. Representative government is fundamental to democracy, ensures social equality, and addresses poverty and class bias (Fung and Wright 2001, Wampler 2012). This means that all people, across socioeconomic lines, must be included in the democratic processes, notably historically disenfranchised groups like women and indigenous peoples. The importance of this towards
human rights and wellbeing is beyond the scope of this paper, but is relevant to conservation in that addressing demographic-specific values and use of natural resources can better inform effective natural resource management and equitable use (World Bank 2009, Painemilla et al. 2010). Fair and representative democracy also promotes a sense of agency and investment, and helps empower communities in the management and conservation of their resources.

3.2.  **COMMUNITY EMPOWERMENT**

There is a legitimate concern regarding the sincerity of “community empowerment”, and it must be clarified before proceeding. Community empowerment should promote community agency, rather than just a means of translating abstract concepts of “people” and “communities” into discrete concepts for consideration in planning (Mavhunga and Dressler 2007). Conservation project sites are unique, as are the communities therein, and no cookie-cutter approach to development and conservation will work. Instead, conservationists must engage communities in dialogue to determine what issues and gaps exist, and how that community specifically wishes to approach those problems, if at all. Conservationists bring with them a specific way of perceiving and interpreting issues, and rather than treating local people as merely “participants” should engage people across sociodemographic lines to better understand and cooperatively plan (Mavhunga and Dressler 2007). This may create scenarios wherein a conservationist and community owning a resource of conservation concern may disagree, and project implementation may be impossible at the time, but that is better in the long-term than imposing an exogenous and unwanted project on a community. Likewise, compromises may need to be made to ensure equitable resource management, which does not fit the science-based ideal. The likelihood of success in conservation projects is enhanced when communities are properly engaged and made
active planners and facilitators, not just “participants”, in conservation (Pollnac and Crawford 2000).

Building on an existing framework for empowerment that includes psychological, social, and political (Friedmann 1992), and economic (Scheyevens 1999), a fifth consideration is added: educational. The first of these, psychological, considers the confidence and self-esteem of people within a community, and its role in promoting agency (Christens 2012). Increased confidence may lead people to educational opportunities, or to seek community engagement or leadership opportunities, as well as promote self-reliance (Scheyvens 1999); this is particularly important for historically marginalized members of society (e.g. women, youth, indigenous peoples) (Christens 2012). Psychological empowerment is relevant to conservation directly in that it promotes participation, in planning and implementation. In many ways these levels of empowerment influence and reinforce one another, but in particular they build an actor’s own psychological empowerment and self-agency.

Social empowerment refers to the civility and cohesion of a community, or in other words the respect and cooperation that exists within the community towards a shared vision (Scheyvens 1999). Social empowerment includes equality of rights, opportunities, and access to natural resources (Scheyvens 1999). In conservation and development, it is important to ensure projects, particularly those relating to economic well-being, do not concentrate power to particular groups within the community (Kellert et al. 2000). Further than just democratic values, including formerly marginalized groups can improve conservation effectiveness. For example, a study of community forest management groups in Nepal and India showed markedly improved forest condition for those groups with a high proportion of women in decision-making roles, as well as a greater dissemination of forest management and rules within those communities and instilling a
“conservation ethic” in youth (Agarwal 2009). In the Philippines, management decisions made without community input and resource use consideration may be met with dismissal, non-compliance, or even resistance (Oracion et al. 2005, personal observation). The solution here is simple: inclusiveness and communication. Admittedly, despite the conspicuousness of this advice, it is easier said than done. The truth is, on the ground, conservationists must spend more time in communities in order to understand the intricacies of local politics, social dynamics, resource use (particularly demographic variations), assets, and needs unique to a community owning a resource of conservation concern. This takes time, requires integration and communication, but is a worthwhile investment to ensure communities are socially empowered and receptive to conservation projects.

Closely related to democratization, political empowerment refers to the representativeness of the government to constituents’ needs, and the community’s influence on decision making (Scheyvens 1999). In terms of conservation, political empowerment refers to political (and therefore constituency) agency over natural resource management. In the Philippines, citizen empowerment is encouraged (ideally) by the Local Government Code (RA 7160) and other decentralizing laws (Antlov et al. 2004); for example, there is relatively easy access to officials at the local level, where citizen participation is sometimes legally mandated, and community input can be communicated further to the municipal level through meetings and public forums. Furthermore, community-based resource management strategies utilized by the Philippines government (e.g. Fisheries and Aquatic Resources Management Councils) politically empower citizens by necessity. Perhaps not surprisingly, Pollnac et al. (2001) found that stability of local governments, supportive leadership, and community consultation were all linked to marine protected area success in the Philippines, including legal compliance and sense of empowerment.
Community empowerment can be seen as important to informing conservation projects, promoting trust of institutions (including conservation organizations) and participation in all levels of project planning and implementation.

Economic empowerment is empowerment through economic growth and improved livelihood (Scheyvens 1999). This includes equity in the spread of economic benefits or resource access throughout the community, or at least those involved in a given project or affected by resource conservation, and therefore is closely tied to leadership, social, and political empowerment. For conservation, or any other sort of development-related change, to be sustainable, livelihoods and income must be compensated. The term “compensation” is used with purpose, in order to make a distinction from simple incentivization of behavior, as such strategies are dependent on extrinsic finances and thus unsustainable, and may reduce motivation or even cause once intrinsically motivated behaviors to become financially (and therefore extrinsically) motivated (Deci et al. 1999, de Snoo et al. 2013, Duraiappah et al. 2013). In the context of the Philippines, economic empowerment is a vital component of community-based natural resource management, and research has shown that economic empowerment strategies, particularly alternative livelihoods, can reduce pressure on fisheries and improve environmental law compliance (Pollnac et al. 2001, Gjertsen 2005). Economic empowerment would ideally be endogenous to the community in order to retain ownership and agency, ensure potential livelihood projects are place-appropriate, and sustainable (Duraiappah et al. 2013). Outside help in economic empowerment should therefore be in the form of technical assistance (e.g. conservationists and community developers) and grants or loans to cover startup costs. An empowered and economically stable community is more apt to accept, comply with, and participate in conservation
efforts. Economic empowerment may also be used as an incentive for compliance, even if those empowered have no direct interest or belief in conservation goals.

Lastly, educational empowerment is needed for better understanding of conservation issues, existing legal frameworks, and for people to understand their own role in generating change. Often people do not understand the value of natural resources, or their finite nature. For example, the ecosystem services provided by mangroves are not common knowledge in communities adjacent to mangrove forests, despite the variety of ecosystem services they provide, including protection from shoreline erosion and storm events, as a nursery habitat for various fisheries species (Primavera 1995); the mainstreaming of such knowledge may reduce deforestation by demonstrating economic value. In the Philippines, education had a significant role in determining whether fisherfolk perceived non-market marine resources as having value and supporting conservation efforts (e.g. marine protected areas) (Launio et al. 2010). However, education alone does not inherently lead to behavioral changes in resource use, or instill a “conservation ethic” (Asah and Blahna 2013). It may prove most beneficial to focus on connecting people to nature on an emotional level (i.e. “biophilia”) either through educational or extracurricular activities (Zaradic et al. 2009, Zhang et al. 2014).

3.3. INTERDISCIPLINARY SYNERGY

Despite decades of conservation scientists calling for more interdisciplinary approaches to conservation planning and implementation, specifically involving the social sciences, conservation practitioners still fall short of fully integrating “soft science” approaches (Mascia et al. 2003, Ban et al. 2013, Sandbrook et al. 2013, Bennett et al. 2017). Those that have taken interdisciplinary approaches have reported success in implementing conservation projects. Conservationists should push themselves farther outside this dichotomy of fields and operate with natural and social
sciences synergized. The first step is recognizing that conservation is a management policy inclusive of biological and social sciences. The various fields of conservation must be recognized as a component of Pinchot’s “conservation” policy for natural resource management.

Conservation began as Pinchot’s solution to disharmony of natural resource management among various U.S. government agencies in the early 20th century:

“To put it in a sentence, there were three separate Government organizations which dealt with mineral resources, four or five conserved with streams, half a dozen with authority over forests, and a dozen or so with supervision over wild life [sic], soils, soil erosion, and other questions of the land.” (Pinchot 1947)

Pinchot was frustrated by this disarray, he noted resentment between agencies over conflicting authority, corruption, and general inefficiencies (Pinchot 1947); but he had a vision for unifying their purpose and bringing order to their squabbling. His idea came about through his exposure to these various agencies as chief of the Forest Service where he had “more to do with the work of more bureaus than any other man in Washington” (Pinchot 1947). He noted that the inception of each department, over the course of 50 years, contributed to this disconnect, and it was imperative that they be harmonized for the sake of public interest and the sustainability of resources. His epiphany and the origin of “conservation” have already been discussed, but the important takeaway here is Pinchot devised conservation in order to make “unity in this complication—that the relation of one resource to another was not the end of the story” (Pinchot 1947). Pinchot’s policy was based on the interconnectedness of resources, and the need to consider these connections, not from varying perspectives, but from the singular purpose of conservation:
“When the use of all the natural resources for the general good is seen to be a common policy with a common purpose, the chance for the wise use of each of them becomes infinitely greater than it had ever been before.” (Pinchot 1947)

Just as it was understood and advocated by Gifford Pinchot that natural resource managers must align under “a common policy with a common purpose”, his Conservation Policy, so too must contemporary conservationists of all fields unite and respect one another as conservationists. The biggest hurdle today in conservation is the lack of consideration for social dimensions, and acknowledgment of the ties between environmental and human concerns. This, again, is by no means a new or controversial observation. Aldo Leopold observed this very fact:

“One of the anomalies of modern ecology is that it is the creation of two groups, each of which seems barely aware of the existence of the other. The one studies the human community almost as if it were a separate entity, and calls its findings sociology, economics, and history. The other studies the plant and animal community, comfortably relegated the hodge-podge of politics to ‘the liberal arts.’ The inevitable fusion of these two lines of thought will, perhaps, constitute the outstanding advance of the present century.” (Leopold 1935)

The value of integrating the two sides into one unified conservation science has been promoted by many recently (Endter-Wada et al 1998, Mascia et al. 2003, Kareiva and Marvier 2012, Ban et al. 2013, de Snoo et al. 2013, Sandbrook et al. 2013, Bennet et al. 20171,2), and yet here again must its virtues be advocated.

Simply put, conservation would be better achieved through interdisciplinary approaches. Beyond unifying the dichotomy of social and natural sciences, to include community developers,
businesses (large and small), advocates and politicians. This is not to undermine the great strides taken in broadening the inclusiveness of “conservation science”, like the formation of a Social Science Working Group in the International Congress for Conservation Biology or the inclusion of the environmental initiatives in development organizations like the U.S. Peace Corps, but more can and should be done to include community development approaches and improve successful conservation engagement, implementation, and sustainability (Bennett et al. 2017). The role of social science in conservation, including potential and realized contributions, has been explained and promoted by others quite recently and in great detail (Mascia et al. 2003, Sievanen et al. 2012, Ban et al. 2013, Duraiappah et al. 2013, Bennett et al. 2017), and conservation science is, as Leopold predicted, advancing steadily and productively in that direction. Rather than dwelling on the idea of interdisciplinary understanding, conservationists must move forward towards unified conservation action.

Conservation, at its inception, was not a science but a policy. “E Pluribus Unum is and always must be the basis in dealing with the natural resources”, Pinchot wrote in his synthesis of “one great policy”, and indeed conservation necessitates such thinking, beyond even the boundaries of natural and social sciences, to include policy, development, and even advocacy. In more recent years, this distinction has been neglected or forgotten, and a semantic debate in its place over labelling the sciences of conservation, including “conservation biology” (Soule 1985), “conservation science” (Kareiva and Marvier 2012), and “conservation social science” (Bennet et al. 2017). It is trite that we must rediscover this point when Pinchot noted it so long ago, “There are just two things on this material earth–people and natural resources” (Pinchot 1947). If it is to be considered insightful to make such observations today, then let it be said and move on with addressing it.
The policy of conservation necessitates a balance between human and environmental needs. Therefore, the frontline of conservation is civic engagement, whether it is a large-scale policy necessitating the democratic support of voters or community engagement for grassroots development. Unfortunately, conservationists all too often enact conservation on people rather than with them, without empathy for their specific situations. Such actions are unproductive or even damaging, generating anti-conservationist sentiments in the worst cases (Bennett and Dearden 2014). Fairness, equity, and human rights must be considered in conservation planning, particularly when exogenously implemented.

Multidisciplinary and democratic considerations must be made throughout the conservation project planning and implementation process. For identifying natural resource conservation needs, natural sciences (e.g. conservation biology) remain most informative, particularly in identifying biodiverse regions and imperiled species or populations in crisis; this is the “systematic assessment” side of conservation (Knight et al. 2006). But for identifying conservation implementation strategy, broader perspectives are needed, including consultation with and inclusion of local peoples in proximity and effected by conservation of a resource of concern (Knight et al. 2006). This approach has been advocated (e.g. Kareiva and Marvier 2012), but best synthesized by Ban et al. (2013) for a “social-ecological approach to conservation planning” under their social-ecological systems framework – this strategy is near identical to the community development methods taught to Peace Corps Volunteers (e.g. Deguit et al. 2004, Peace Corps 2007). Achieving conservation goals requires encouragement, compromise, and trade-offs with human needs (Knight et al. 2006, McShane et al. 2011, Ban et al. 2013). Additionally, as described in the proceeding recommendation, empowerment of a community through engagement may increase acceptance, compliance, sustainability, and overall project success.
Conservation assessments inform conservation planning (Knight et al. 2006). These steps towards effective conservation require increasingly area-focused considerations. For example, one might identify the Coral Triangle as a biodiverse hotspot worth conserving, and assess candidate areas based on biophysical and political factors; once sites are identified, conservationists may navigate the site-specific physical, social, and political landscape to determine implementation viability. Only after these steps can conservationists encourage and empower stakeholders, and make compromises to best align environmental and humanitarian goals.

A shortcoming of conservation literature is the saturation of in-depth, repetitious assessments, but lack of proportionate representation for documented planning and implementation. As an example, one of the most cited articles on the subject of conservation planning (Margules and Pressey 2000) overemphasizes assessment and makes relatively little mention of actual implementation, and features no discussion of collaborative planning with stakeholders, a conservation planning mistake that would reduce the success of their projects. To repeat a point made several times previously, “Conservation initiatives ultimately stand or fall on their ability to encourage and empower stakeholders to implement sustained conservation action” (Knight et al. 2006), and “most of the success encountered involved socioeconomic objectives, while most of the failures focused on conservation and biodiversity protection goals” (Kellert et al. 2000). Contrary to academia today, interdisciplinary education, rather than discrete specialization, should be promoted (Endter-Wada et al. 1998). The future of conservation belongs to applied conservationists who will follow more accurately Pinchot’s ideal of the Conservation Policy, one that attends to environmental and human needs.
3.4. **PROPER DESIGN AND MANAGEMENT**

Proper design and foresight, followed through with active management, monitoring, and evaluation, can make or break a project. Conservation projects are no different. Beyond even the “operational models” for conservation outlined elsewhere (e.g. Knight et al. 2006, Pressey and Bottrill 2009), proper design and management of projects at their core is vital to project planning – e.g. Project Design and Management (PDM) under USAID and U.S. Peace Corps, or more recently the Program Management and Improvement Accountability Act (PMIAA) of 2015 (S.1550). Many project management methodologies exist, and some are better fit for conservation than others, but the importance is that it systematically maintains a project to meet the original vision, goals and objectives.

Project design is a fastidious process, requiring careful planning and well-worded strategy. It is invaluable to ensuring successful, on-time, and on-budget project implementation. It would be unproductive to get entangled in the details of any one project management methodology; what matters is that they share common steps, principles, and guidelines. For the sake of discussion, management methodology along the lines of “goals, objectives, and actions” is considered, which provide clearly defined and measurable steps towards a conservation-based vision. Planning is key, regardless of how tedious it may seem. Goal and objective writing, budgeting, actions and timetables, are all vital to project success. To skip or give perfunctory attention to any one of these steps is to sow the seeds of a project delaying action, wasting resources, and deviating from its intentions.

Proper project design matters, down to the details. Planning that considers the full suite of factors, human and environmental, and the interplay between them, is vital to project success (McShane et al. 2011, Ban et al. 2013). For this reason stakeholder involvement in planning is
crucial (Ban et al. 2013, Duraiappah et al. 2013). Even if not exactly matching the science-based ideal for conservation project design, a compromise between stakeholder-based and science-based priorities may yield the best results for both, with conservation targets being at least partially met and community acceptance (and therefore compliance) having been gained (Ban et al. 2009). For example, community participation in decision making (i.e. project planning) has been found to be a significant contributor to marine protected area success in the Philippines (Crawford et al. 2000, Pollnac and Crawford 2000, Pollnac et al. 2001). All too often exogenously developed conservation projects are brought to communities, without stakeholder involvement, resulting in unwanted and unsustainable projects.

Management decisions must be made with public input, or better yet community-generated, as implementation without community input is likely to result in failure. “Traditional” or biological science-based conservation practitioners are particularly susceptible to making decisions based purely on biophysical data, however these sorts of actions may polarize community support (Endter-Wada et al. 1998). For understandable reasons, rural communities prioritize their own livelihoods and wellbeing, before conservation. Therefore conservation planning must include objectives that improve the lives surrounding a resource of conservation concern. It is prudent that such things be separate or at least to the periphery of conservation objectives (e.g. alternative livelihoods for fisherfolk to reduce pressure on fisheries), rather than tying the objectives too directly, at least without first considering and addressing potential conflicts of interest.

Lastly, localized or small-scale conservation planning must take an adaptive approach to project management. Ecological systems are exceedingly complex, as are sociopolitical systems, and to combine the two compounds this complication, bringing uncertainty and unpredictability. No matter how well thought out a project design may be, without built-in flexibility or assumed
uncertainty, complete project breakdown may occur from any number of disturbances. Therefore, adaptive management strategy is paramount for project resilience and flexibility (Allen and Gunderson 2011, Williams 2011).

3.5. GOOD JUDGEMENT

This last recommendation for improved conservation may seem most ancillary, but considerable thought needs to be put into conservation projects before investing even modest resources into planning. Conservationists must make hard choices in terms of where to implement projects, and ask critical questions before investing resources. Such questions may include the validity of the potential project site (Does the site have an honest, democratized government and empowered people?), impact (Will the project contribute to conservation goals?), sustainability (Can/will local people continue the without outside support?), or the merit of the resource of conservation concern (Is this resource of ecological/economic priority over another?). Unfortunately in the world today, conservation is needed in more places than can be effectively implemented, and conservationists must budget their attention and resources to priority areas.

Much of what goes into good judgement is a mix of common sense and experience. While little may be done here to instill the former in a person, the conservation literature can do much to inform the latter. At present, there is a shortage of documented real-world conservation projects, particularly those integrating more interdisciplinary design. Such documentation of project successes and failures would be extremely informative, and would build on the shared experience of conservationists worldwide (Mascia et al. 2003, Sutherland et al. 2004, Knight et al. 2006, Kareiva and Marvier 2012, Ban et al. 2013, Bennett et al. 2017). For this reason, examples utilizing the five recommendations presented here, or situations that could have been improved with consideration of these recommendations, are presented in the proceeding chapter.
4. EXPERIENCES IN CONSERVATION

As stated previously, the recommendations given are borne out of my own experiences in conservation, particularly as a Peace Corps Volunteer in the Philippines, as well as experiences shared by conservation and community development peers. Not all of these experiences represent “successfully” implemented projects, however “failure” too may be instructive to future conservationists, particularly with reflection on the causes and application of the recommendations. What follows are real-world examples that are inclusive of the recommendations towards improved conservation project implementation, or if not, the recommendations are applied in ways to improve the project in a similar future scenario.

4.1. DEMOCRATIZATION

Conservationists often find themselves working in countries with a history of European colonization and political instability. The Philippines, for example, has a long history of colonization, starting with the Spanish in 1571 (later the British, then United States, and occupation by the Japanese during World War II), and did not gain independence until 1945 (Francia 2010). It was important to highlight the colonial history of the Philippines above in order to explain the widespread corruption, kleptocracy, and other institutional issues today; essentially, the legacies of colonial political patronage that permeate civic and social life are culturally normalized and excepted, and maintained via weak checks and balances (Varona 2012, Agator et al. 2013). And it is the people and the environment who suffer the most from this dysfunctional government. Exacerbating this issue is the Local Government Code, which decentralizes governance into provincial and local governments, with the primary level empowered being the Local Government Unit (LGU); however, without the oversight required to ensure fair and democratic governance, LGUs often fall short of national goals for serving community needs. All of this is to say that the
Philippines demonstrates the role of democratization in conservation, sometimes through fulfillment of this recommendation but often in its exclusion of true democratization.

Two experiences shared by peers in Coastal Resource Management (CRM), working in separate LGUs in the Philippines, highlight the consequences of insufficient democratization, namely distrust by citizens in political institutions implementing conservation projects. These anecdotes highlight the importance of honesty, integrity, and trust in local political institutions. The first told of their experience facilitating a large-scale assessment of coastal habitats (i.e. seagrass, mangroves, and coral reef) and socioeconomic survey of coastal communities; the project was led by the LGU, with thirty non-government volunteers participating in data collection. However, there was a rift in the relationship of LGU employees and the community participants, stemming from preexisting distrust in the local government from known cases of corruption. Because of this distance, many participants did not take part in the assessment training, and data collection was poor (e.g. dead corals being reported as healthy), producing inaccurate results. Furthermore, no action plan was developed from the data due to the increasing frustrations and distance between participants and LGU employees. Perhaps if the LGU had been more transparent and equitable in past projects, participants in the coastal assessment would have been more willing to trust LGU employees and work cooperatively towards a shared goal, but at present citizens there are politically disempowered and distrustful.

The second experiences shared by a peer in CRM is similar in that it highlights the ramifications of distrust in government institutions, this time financially. For a mangrove reforestation project, a community group was given funds for propagating seedlings and to cover other project costs. The group was given the funds for the fiscal year. With time running out for using project funds, tree replanting was rushed during the driest months and at inadequate
mangrove sites. This is a common occurrence in the Philippines – based on my own experiences and those shared by peers – rather than risking returning funds to an LGU where money may be embezzled or otherwise “disappear”, project facilitators will use funds improperly in an attempt to push through a project idea, even if it ultimately fails the original vision of said project. Had there been trust in the local government, perhaps the community group could have proposed extending the project, or place unused funds into a conservation budget to finance future projects.

An experience of mine highlights the importance of disseminating and administrating environmental laws. At the LGU level in the Philippines, local laws and regulations are proposed and passed through a municipal council or “Sangguniang Bayan” consisting of elected officials. Unfortunately, bills are sometimes passed without any commitment to actually enforcing them; in extreme examples, they are not even disseminated to officials outside the Sangguniang Bayan. One such case concerns the fisheries permits intended to fund coastal resource management projects, under a 2014 Municipal Ordinance. Curiously, the ordinance was passed but never left the municipal legislative building, or shared with the relevant government offices, and the singular copy was kept in the Sangguniang Bayan archive. The significance of the discovery was highlighted by the Municipal Fisheries Officer who, having never seen the ordinance, estimated that the permit revenue could have funded many resource management and fisherfolk livelihood improvement projects annually since it had become law. To ensure this and other ordinances are appropriately implemented and enforced, community groups (e.g. the Municipal Fisheries and Aquatic Resource Management Council) must hold the LGU accountable, which necessitates monitoring bills passing through the Sangguniang Bayan.

The role of the conservationists in these examples may be to advise project participants, citizens, and community groups in active democratic participation, and empowering them to do
so. Furthermore, in all the aforementioned cases, the conservationists were serving alongside LGU staff, and may help connect and network between citizens and government officials. Lastly, conservationists may provide legal counsel, summarizing and explaining often abstruse legal language into more relatable language relevant to environmental and community concerns.

4.2. COMMUNITY EMPOWERMENT

Empowering local people to engage in conservation action often requires framing of environmental issues in way that affects them personally (e.g. livelihoods, income, food/water access). A CRM peer in the Philippines described the attitude in their municipality as defensive towards conservation due to previous environmental engagement being overly critical of local people’s role in natural resource degradation, and ignoring human issues that may have contributed to mismanagement. Such blame and undue criticism is counterproductive and disempowering; conservation planning and implementation should embolden local people to participate in sustainable conservation action.

In another case, a conservationist reduced illegal fishing in a municipality in a manner that considered educational, economic, and social empowerment. The issue was widespread use of illegal fishing gears (e.g. small net mesh size) among fisherfolk in a Philippines municipality. To combat this, the conservationist and cooperating LGU considered the livelihoods and future of the fisherfolk. They first engaged the community in a campaign to educate them in the unsustainability of illegal fishing practices, and how it affected current and future fish catches in the region – fish catch volume has decreased in the country in recent decades despite increased fishing effort and fisherman overall (Anticamara and Go 2016). Additionally, the LGU implemented a year-long educational campaign to inform fisherfolk of municipal laws regulating fishing gear use. This approach resulted in a more informed and educationally empowered community, aware of the
conservation issues. However, changing fishing gears is a big investment, particularly for the low-income fisherfolk community; in order really change their behavior, the fisherfolk needed economic empowerment via compensation for their now obsolete fishing gears. With financial help from the provincial government, the conservationist and LGU purchased legal fishing gears for a “gear trade-in” program: local fisherfolk could trade in their old illegal fishing gears for new legal gear, but had to qualify by attending a workshop on fisheries management. Through educational and economic empowerment, the project also influenced the culture of fishing, promoting a sense of shared accountability in the sustainability and future access to the shared fisheries resource. Increased fisherfolk engagement in the legal process regulating fishing (e.g. volunteer coast guards or “bantay dagat”) also suggests political empowerment through the project.

Economic empowerment is a vital part of community-based conservation. Alternative livelihoods in particular have been shown to contribute to successful conservation project implementation (Pollnac et al. 2001, Gjertsen 2005). Such projects should be community-driven and based on local needs. For example, while working in a rural Philippines community, I participated in a seaweed farming alternative livelihood project in order to meet conservation and community development goals. Like much of the country, fisheries there had been reduced by historical overfishing and loss of coastal habitat; nevertheless, much of the income and subsistence of local people depended on the fisheries. A livelihood project grew endogenously from the community through the leadership of a local peoples’ organization president, who had identified seaweed farming as a potential income source for one island community. Planning had gone as far as identifying participants and a cooperative business model, but funding was lacking. Unfortunately, partly due to preexisting political tensions between local leaders, the LGU was unable or unwilling to fund the project. This highlights a point of democratization that sometimes
the best course of action for a conservationist is to delicately bypass politics, in this case assisting a project that the local government was not willing to support financially, but had no incentive or authority to restrict outright. To fund the project, resources (including seaweed propagules) were supplied by the regional Bureau of Fisheries and Aquatic Resources, and additional supplies were purchased with a grant from USAID. The project was deemed a success overall, with over fifty (mostly women) fisherfolk trained in seaweed farming, and over five metric tons of seaweed harvested and sold in the first crop cycle alone, only three months after farming began; this resulted in $1,200 of shared profit for participants, a significant supplement to fishing income. The hope from a resource conservation perspective is that alternative income such as this will reduce reliance on local fisheries, allowing fish populations to recover under reduced fishing pressure. Economic empowerment projects such as this one have the added benefit of fostering conservationist-community relationships, and the hope for this alternative livelihood project is that it will help garner support for a future marine protected area in the region. Rather than shoehorning an idea exogenous of the local people, the project was endogenous to community and conformed to the region and lifestyles therein. Interestingly, terrestrial agriculture (rice, cassava, etc.) in the community had not been so readily excepted, seemingly for cultural reasons relating to their affinity with and pride in ocean-based livelihoods (i.e. fishing), so farming seaweed and still maintaining comfort and pride may have factored into its acceptance (personal observation). This again highlights the need for situation-specific planning and projects, to conform to the issues and culture endemic to communities around a given resource of conservation concern.

4.3. **INTERDISCIPLINARY SYNERGY**

In my own experience, interdisciplinary synergy could greatly improve conservation and management of coastal resources. For the Philippines specifically, there are numerous peer-
reviewed articles informing natural- and social-science based coastal resource management and conservation planning (e.g. Crawford et al. 2000, Pollnac and Crawford 2000, Pollnac et al. 2001, Oracion et al. 2005, Pollnac et al. 2010, Pollnac and Seara 2011). Of course, local governments cannot be expected to have read or even have access to all of these articles and literature resources, but that is where conservationists can play a role, as advisors and project planners. In a way, conservation may be seen as a goal or culmination of multiple objectives within community development. The abovementioned experiences highlight some such objectives, including levels of empowerment, democratic mobilization, and decoupling local economies from unsustainable livelihood practices, all of which require varied, situation-specific approaches, and necessitate conservationists to take interdisciplinary approaches.

Again focusing on my own experiences in CRM, issues encountered may have been reduced with more interdisciplinary awareness, by the conservationists as well as local government. For example, the municipality established a marine protected area in an outlying, island “barangay” (a subdivision of the municipality) in 2011, to reduce destructive fishing there and improve the local fishery. There were two issues with this plan as it relates to interdisciplinary synergy. The first was a lack of community-based planning considerate of local needs and area-specific issues, which for a social-science conscious conservationist would call the project into question. The second was the ignorance towards existing marine protected area planning literature; the barangay is consistent with nearly all indicators of marine protected area “failure” highlighted by existing literature (Pollnac et al. 2001): it is located on a small island, far from the central government (making enforcement difficult), with a low perception of crisis in fish abundance, with an impoverished and disempowered community (the barangay lacks electricity and even consistent access to freshwater) without livelihoods alternative to fishing (it is too small for agriculture). Had
the implementing organizations (which included the LGU and an international non-government organization) considered the factors, and first taken appropriate steps in community development, and taken a community-based planning approach to the marine protected area, perhaps the area would see the envisioned benefits rather than the continued fisheries collapse and destructive fishing practices observed today. Admittedly, such interdisciplinary approaches do take more time, resources, and effort, but will result in better informed and more sustainable conservation projects.

4.4. **PROPER DESIGN AND MANAGEMENT**

The marine protected area planning discussed above highlights the need for projects to be informed through interdisciplinary approaches (i.e. natural and social sciences, community development), and this is vital for project design and management. Additionally, strong leadership in project management is important, and in a community-based sense it is advisable to not come from an outside conservationist directly, but from a local leader (e.g. the peoples’ organization president in the seaweed farming alternative livelihood example) to ensure sustainability following project implementation. A conservationist peer working in invasive species removal and habitat restoration highlighted this importance from their experiences, stating that “strong leadership, clear communication and designation of tasks, and complete participation and stewardship” were vital to completing what they described as a difficult and underfunded project.

A fellow CRM conservationist in the Philippines described an experience in coral restoration which highlights the need for careful project monitoring and adaptive management strategies. In their experience, coral was to be restored through a cooperative project between the LGU and a local fisherfolk organization. Coral nurseries (to propagate coral fragments for later attachment to reef substrate) were placed in technically ideal conditions (i.e. clear water with flowing currents, approximately five meters depth), at a location recommended by fisherfolk
participants; however, in considering non-human environmental facts, placement of the nursery units ignored the proximity of nearby shrimp aquaculture, which produced thermal pollution and nutrient runoff that stressed coral polyps into “bleaching” and promoted algal growth on the nurseries, impairing light exposure and thus coral growth. A narrow focus on nursery placement, without considering all factors (i.e. aquaculture), threatened project success. However, taking an adaptive approach, the nurseries were moved in order to account for non-human and human-influenced environmental factors.

As in all project planning, conservationists should develop a specific action plan prior to beginning a project, which ideally considers a wide range of factors including local community needs, environmental variables, social and political contexts. Project plans must also be written carefully and with attention to detail. I personally encountered an example of poor conservation planning while working in community development in the Philippines, the National Greening Program (NGP) for reforesting (EO 26-2011). The plan of the NGP was to “plant 1.5 billion trees in 1.5 million hectares of lands of the public domain for a period of six (6) years from CY 2011 to CY 2016”, a seemingly noble aim. However, just by critically analyzing this guiding objective, potentially (and eventually realized) issues occur. Most critically, it by no means meets the intention of the “greening” program: to reforest, sustainably manage, provide goods or ecosystem services. The key is in the minutia of the writing, that it is all about planting and not reforesting: the NGP aims to plant a specified number of trees in a given area rather than recovering ecosystems. The repercussions of this are severe, the greening program is ironically degrading lands nationally and wasting government resources. Replanting is mostly conducted by local peoples, funded by Department of Environment and Natural Resources, and these people are incentivized to plant trees. Since the program lacks long-term monitoring and evaluation, people
can and do destroy saplings in order receive government payments to replant the same area, again and again (Ranada 2014, personal observations). This is usually done through controlled burnings of saplings, a process that contributes to soil denudation, air pollution, and deforestation. And yet, the Department of Environment and Natural Resources is able to consider the NGP a huge success due to the way it was written; in fact they exceeded the targeted area for replantation (NGP 2017). The NGP was expanded until 2028 (EO 193-2015) without any major changes to project design or implementation strategy.

4.1. **GOOD JUDGEMENT**

Project planning depends on good judgment. Much of this comes from simply broadening the perspective of a project beyond the resource of conservation concern, and considering the wider environmental and socio-political context it is in. The coral restoration example shows how applying good judgement to conservation project planning can affect the outcome, and I had a similar experience in coral restoration with an LGU in the Philippines, empowerment and democratization also playing a role. The project aimed to restore corals in two separate barangays, with funding from the LGU. The project was carried-out with participation from fisherfolk in the respective barangays, however the input from on group was not adequately considered, or they were not empowered to participate effectively in planning, resulting in improper placement of the coral nurseries on the side of an island prone to storm surges. After only a week, one nursery was badly broken and the other damaged. As in the previous example, the nurseries were moved to a more suitable location, but this experience highlights that conservationists should consider local insight in planning site-specific projects. In this example, resources (including coral propagules) and time could have been saved through better inclusion of local fisherfolk in project planning. Additionally, in order to reduce project costs (for LGU approval) the nurseries were built with
bamboo (rather than more resilient metal or plastic), which degrades in seawater after about three months. The nursery stage of coral restoration is only two months, however this meant that the project was assumed to follow the implementation schedule exactly, a naïve consideration in a community development context, and one that left little opportunity for adaptive management. Due to political issues in the LGU, funds to complete the project were withheld for nearly eight months after the first stage of the project, at which point the nurseries had degraded and the coral propagules were lost. Both of these errors represent oversight and poor judgement, and ultimately the project failed. However, these errors may still be constructive towards conservation targets by informing future conservationists and conservation project planning.

Conservation as a policy necessitates adaptation over time. Error must be made into lessons, and experiences must be shared to ensure peers do not repeat mistakes, and every conservation project is a step forward towards improved conservation implementation. Ego has no place in this. To repeat what conservation writers have written before, success and failures must be shared to improve collective conservation action. As a peer in Philippines CRM stated:

“For me, two things that really stand out [in regards to improving conservation practices] are being realistic, and working together on the same goals rather than competing against each other… Working together, communicating efficiently, and openly sharing of knowledge to other conservationists could ideally help everyone reach the same goal more efficiently. By sharing what was learned from a failed project, someone could use those ideas to see success in even a completely different project.”
5. CONCLUSION

The above recommendations are borne out of experiences in conservation, most notably, as well as a review of the literature. It is hoped that each may contribute to conservation targets, but together the recommendations reinforce one another and Conservation Policy as a whole. Democratization begets community empowerment, interdisciplinary synergy informs project design, and good judgment determines when, where, and how conservation should take place. Considered together, these recommendations can lead to more effective conservation.

To improve upon conservation, conservationists must be reflect critically on their own and shared experiences, to adapt and learn. In an increasingly human world, understanding conservation social science and engaging stakeholders as active conservationists themselves is a necessary complement of conservation policy. At present, there is a shortage of documented conservation projects, yet judgement necessitates experiences. To improve upon conservation implementation further, sharing of success and failures will be extremely informative, building on shared experiences among conservationists worldwide.
REFERENCES


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