



# Moving Rio Forward and Avoiding 10 More Years with Little Evidence for Effective Conservation Policy

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Imagine that on your 20th wedding anniversary your partner turns to you and says, “I’m not sure this is really working.” Perhaps it would hit you like a kick to the teeth. Perhaps it would not surprise you at all. Either way, it would be a pretty clear signal that things need to change.

In 1992, we saw the official marriage of conservation and economic development at the The United Nations Conference on Environment and Development in Rio. This marriage was built on 2 decades of courtship since the 1972 UN Conference on the Human Environment in Stockholm. In Rio the delegates imagined a world where the goals of biological diversity conservation and human development went hand in hand. In fact, the first 7 principles of the Rio Declaration explicitly address equitable and sustainable development sought in harmony with nature (UNCED 1992).

Two decades later, we’re not really sure the Rio Declaration is delivering results on the ground. The most recent meeting Rio+20 has failed for many reasons—no global agreement on climate issues and fossil fuel use; no agreement to financially support green economies in poor countries; and no solid plan for clear and operational sustainable development goals. Perhaps the most critical failure in the past 20 years is, despite initiatives such as integrated conservation-development programs and payments for ecosystem services (PESs), we are not really sure what works.

Of course, the issue is much bigger than what is and is not working. Calls for being more explicit about the trade-offs involved in any conservation program are get-

ting louder and clearer (Ostrom et al. 2007; McShane et al. 2011). Recognizing the social context makes us step even further back and ask if, in some cases, interventions are wise at all. Existing power relations, human capital levels, and governance conditions need to be clearly understood to avoid the possibility of conservation interventions exacerbating existing inequalities or impairing development capabilities (Hirsch et al. 2011).

However, these inherent complexities do not go away when we narrow our vision to the simpler issue of what is working and what is not. A recent review of over 400 conservation-development case studies concluded there is very little empirical evidence of poverty alleviation from conservation-development projects (Leisher et al. 2012). Although poverty reduction is only one aspect of the development landscape, it probably attracts the most evaluation-based research (e.g., Andam et al. 2010; Sims 2010). A recent review of PESs schemes, once touted as an approach for simultaneously improving poverty and conservation outcomes, found a result similar to Leisher et al.’s (2012) and concluded that it is “not yet fully understand either the conditions under which PES has positive environmental and socioeconomic impacts or its cost-effectiveness” (Pattanyak et al. 2010).

So, our Rio+20 marriage has 2 distinct and connected problems. First, most of the work on the relationships between conservation and development has failed to adopt rigorous impact evaluation methods (Pullin & Knight 2001; Ferraro & Pattanyak 2006; Leisher et al. 2012), without such methodologies, inferences about whether

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interventions are responsible for any changes, positive or negative, are difficult to draw. Second, there has been a lack of continuous learning and coordination that would enable broad lessons to be learned about the “success” or “failure” across different social or biophysical contexts. And herein lies some good news. Both of these problems can be addressed so that at Rio+30 we will have concrete and robust lessons of what works, how it works, and under what conditions it works best.

## Rigorous Evaluation

We need to start building a stronger, empirical evidence base on which to design future initiatives. Such an evidence base would focus on testing the ecological and social impacts of policies and interventions, understanding how these effects vary with observable ecological, social, political, and economic conditions (e.g., Ferraro et al. 2011), and discovering the specific mechanisms by which conservation actions can maintain biological diversity and alleviate poverty. Achieving these goals requires the widespread adoption of rigorous and systematic approaches.

For example, an evidence base capable of guiding the implementation of protected areas (PAs) would need to be robust regarding the social and environmental impacts of PAs; provide knowledge on how these effects are modulated by context (e.g., human population density); and highlight why the PA has the effect it does by linking governance, resulting changes in human behavior and drivers (e.g., illegal logging), and ultimate outcomes (e.g., viability of wildlife populations and human income and food security). This kind of evidence base will tell us whether, how, and under what conditions policies or interventions actually work (Miteva et al. 2012).

Such an approach has become standard practice in the evaluation of initiatives in medicine, education, and development (Banerjee & Duflo 2009). Assessing the biological and social outcomes of conservation interventions with impact evaluation has lagged behind these other policy spheres (Pullin & Knight 2001; Ferraro & Pattanyak 2006; Pattanyak et al. 2010). The few impact evaluations that exist on the effects of PAs on poverty (Andam et al. 2010; Sims 2010), certification of green products on social and environmental outcomes (Blackman & Rivera 2011), and payment schemes on conservation outcomes (Pattanyak et al. 2010) demonstrate how the use of such methods may overturn the conventional wisdom that underpins conservation policy and practice. More importantly, they point the way toward more effective practice in the future.

For example, Blackman and Rivera (2011) examined 46 studies that purported to study the social or environmental impacts of product certification schemes. However, only 11 studies had credible evaluation

approaches—measuring impact against appropriate baseline or business-as-usual scenarios. Only 4 of these showed positive social impacts for producers. How can we design more effective policies and approaches with such weak understanding of the impacts of policies we have already implemented?

Similarly, Joppa and Pfaff (2011) used rigorous matching methods to show that the expected effect of PAs on loss of natural land cover, while positive and significant, is much weaker than thought. Their results identify key criteria that can be used to steer conservation investments to where they will have the greatest effect. Other studies using similar matching approaches show that PAs are associated with reductions, not increases, in poverty, challenging long-standing views that PAs are poverty traps (Andam et al. 2010; Sims 2010; Canavire-Bacarreza & Hanauer 2013). Nelson and Chomitz (2011) challenge a long held assumption by showing that there are fewer forest fires in forests subjected to sustainable human use than in strictly protected forests.

## Coordinated Efforts

We need to build this robust evidence base in a deliberate way. Isolated cases of rigorous impact evaluation will not be enough to transform practice and emphasize approaches to agree on at Rio+30.

Ostrom and colleagues have spent 3 decades examining the conditions under which communities manage their common property in sustainable ways (Ostrom et al. 1999; Ostrom et al. 2007). The International Forestry Resources and Institutions network coordinates efforts by researchers separated by continents to understand the conditions under which collective action can conserve important natural resources. The Centre for International Forestry Research’s Poverty Environment Network (PEN) and the International Institute for Environment and Development’s Poverty and Conservation Learning Group (PCLG) fill similar roles by attempting to link thematically related research findings, exchange lessons, and disseminate results.

Outside the conservation and development field, the Jameel Poverty Action Lab (J-PAL) has a coordination-dissemination role (e.g., PEN, PCLG) and is founded upon robust evaluation. It is a network of researchers who are using randomized trials to explore key questions regarding the effectiveness of development interventions in, for example, public health. In addition to the level of rigor it applies to measuring effectiveness, J-PAL also emphasizes coordination, which allows for insightful and sometimes counterintuitive learning. For example, de-worming programs for school children are 20 times more cost effective at improving education outcomes in poor countries than more conventional interventions, such as decreasing student-to-teacher ratios (Banerjee & Duflo 2009). This

insight is the result of several randomized trials undertaken by J-PAL. The coordination here is across disciplines and among scientists and program implementers. For example, banks and scholars collaborate to test various microfinance innovations. We need coordinated efforts similar to J-PAL to create a global learning agenda for the development and conservation nexus.

Such evaluations are not needed everywhere because such knowledge creation is expensive, difficult, and sometimes not culturally appropriate (Ferraro 2012). Our call here is not new. However, we are also calling for coordinated efforts to collect data across ecological and socioeconomic contexts, from which can be inferred impacts of popular interventions, and cooperation so that linked studies in key research areas (e.g., PAs, product certification) across different contexts can be undertaken before Rio+30.

Winston Churchill is alleged to have said, “However beautiful the strategy, you should occasionally look at the results.” We have not followed this advice enough. If and when we do, we will still need to overcome the gulf between research and dissemination of results. We will still need to continually question our results and interventions in relation to constantly changing social contexts. But such things—learning experiences, communication, flexibility—while difficult, are foundational for any working marriage. In our favor is donors who are increasingly demanding such outcome-based assessments (e.g., USAID 2011). When this becomes more commonplace, we hope it will increase the uptake of lessons learned.

Rio+30, like its predecessors, will likely be highly politicized, with science playing only a bit part. However, we believe this part (i.e., building a coordinated and rigorous evidence base around the social and ecological impacts of the interventions we undertake) is critical. Despite the challenges it does not seem overly optimistic to hope that when the conservation-development marriage is celebrating its 30th anniversary in 2022, we will at least be standing on a decade of coordinated evaluation that can tell us what’s working, what’s not, for whom, and why.

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