

# Looking up and down: Strong collaboration is only the first step in tackling parachute science

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## Abstract

Critiques of parachute science argue for closer collaborations among local and international scientists. Here, building on such a collaboration, we highlight further challenges when outsiders, typically working through international non-governmental organizations, fail to respect both the governance framework within which they are working and the realities on the ground. Specifically, we emphasize the importance of observing governance structures, maintaining transparency, and responding flexibly to national and regional priorities (“looking up”), as well as stressing the need to keep a close focus on local cultural context when designing interventions such as educational programs (“looking down”). Addressing the shortcomings for conservation practice contingent on parachute science interventions requires nimble, creative, and respectful actions, which at least in the context of Tanzania, we all still struggle to put into action.

## KEYWORDS

collaborative research, conservation, education, project design

## 1 | INTRODUCTION

The legacy of colonialism in the sectors of trade, development, and conservation has engaged scholars for decades. In the case of conservation, this has been studied from political (e.g., Peluso, 1992), cultural (e.g., Guha, 1989), economic (e.g., Gullison & Losos, 1993), and ideological (MacKenzie, 1988) angles. The growing awareness of colonial legacies has generated a critical literature on how applied science in the so-called “developing” world should be conducted (Escobar, 1995; Matsumoto & van de Vijver, 2011). Anthropologists, for example, directly

scrutinize the inherent problems associated with fieldworkers hailing from abroad as in “helicopter” anthropology, (Broesch et al., 2020), and conservation scientists explore the powers of citizen and community science in research and monitoring (e.g., Danielsen et al., 2008; Dillon et al., 2016; Hakkarainen et al., 2020).

With these intellectual advances, significant strides are being made toward the emancipation of applied science within former western colonies. For example, in the field of genomics, indigenous communities in southern Africa are closely managing the collection and processing of their genetic data (Callaway, 2017) and African

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scientists establish strict mechanisms whereby they can collaborate with outsiders on an equitable basis (de Vries et al., 2015). Yet despite this progress, many developing countries have inherited a battery of colonial government instruments, and specific constitutional provisions, laws, and procedures that leave a deep imprint on how science is conducted. This “colonial inheritance” of government institutions and policies not only signifies “colonial continuity” but also leaves a door open for continued western ideological influence, a dynamic that has been addressed by several authors (McAfee, 1999; Norton-Griffiths, 2010; Wallace, 2004), and well described for Tanzania by Levine (2002). With a persisting heavy financial and technological dependence on the west, developing countries continue to rely on “development” or conservation funds, increasingly channeled through international non-governmental organizations and bi-multilateral aid agencies. Typically, these programs and their budgets are drawn up in Europe or America for local implementation, and managed by international partners, thereby reinforcing existing imbalances in power and expertise between the donor and recipient nations (Banks et al., 2015; Bebbington et al., 2008).

A key element to the critique of current “development” engagements is the lack of two-way collaboration and communication among partners, often glossed as a “top-down” model. From this recognition springs the notion of “parachute science”—short visits of outside experts (typically foreign but increasingly personnel from national academic or political institutions) to conduct research, make recommendations, and even implement agendas that will (in the view of these experts) solve problems also identified largely by these outsiders. Furthermore, even the academic literature on international development is characterized by a severe lack of voices from the global south (Brass et al., 2018).

To make two specific points that might mitigate some of the problems associated with parachute science, we here build on a current collaboration (Figure 1) that has grown out of a long-term research project in western Tanzania (Borgerhoff Mulder et al., 2007). Our joint work includes a campaign against illegal lion killing (Borgerhoff Mulder et al., 2019; Genda et al., 2012), joint guidance of a community-based environmental organization (<http://www.lcmo.or.tz/>), and various experiences working with local and international conservation organizations and government officials across the country (Caro & Davenport, 2016; Milner-Gulland et al., 2020). First, we emphasize the importance of observing governance structures, maintaining transparency, and responding flexibly to national and regional priorities (“looking up”), and second, we stress the need to keep a close focus on the realities on the ground when designing



**FIGURE 1** Landscape and conservation mentors board meeting August 2017 (from left to right, Hans Cosmas Ngoteya, Jonathan Kwiyege, Monique Borgerhoff Mulder, and Peter Genda)

interventions such as educational programs (“looking down”). We take as given the need for trust and collaboration between local and foreign experts, believing (as evidenced by the contributors to this Special Issue) that this is becoming increasingly common. Rather, we focus on challenges for the future, which while discussed within the context of Tanzanian conservation, are actually a general problem within international development.

## 2 | LOOKING UP: RESPECT FOR NATIONAL GOVERNANCE INSTITUTIONS

Tanzania experienced a mushrooming of nongovernmental organizations (NGOs), both local and international (iNGO), during the 1990s (Levine, 2002). As was occurring globally at this time, NGOs were becoming increasingly important agents of development and conservation in countries of the South, often complementing

the role of both the state and bilateral–multilateral bodies like United States Agency for International Development (USAID) and the World Bank (Atack, 1999; Edwards & Hulme, 1996; Levine, 2002; Wallace, 2004). For example, the partnerships between the nation-state, foreign aid agencies (such as USAID and Frankfurt Zoological Society [German aid]) and iNGOs operating in Tanzania (e.g., Worldwide Fund for Nature, Frankfurt Zoological Society, Wildlife Conservation Society, PAMS Foundation, and The Nature Conservancy) boosted effective management of forests and wildlife reserves, resulting in some cases in local livelihood improvements (Newmark & Hough, 2000; Salerno et al., 2015) although fair distributions of benefits are rarely achieved (Snyder & Sulle, 2011). Collaboration of this kind was extended into partnerships between these iNGOs and government agencies such as Tanzania National Parks Authority and the Tanzania Wildlife Association into which considerable investments were provided for protection, infrastructure, and monitoring efforts in national parks and game reserves (Caro & Davenport, 2016). In parallel, effective research collaborations emerged when Tanzanian research bodies such as the Tanzania Wildlife Research Institute, Tanzania Forest Research Institute, and the Commission for Science and Technology partnered with international universities (and sometimes iNGOs) to conduct joint research, providing excellent opportunities for Tanzanians to gain research skills through field work, scholarships, and participation in international scientific conferences. In short, international cooperation is a key element in funding and guiding the science that underlies the improvements that developing nations can make in the natural and social environment. This is the case whether or not the resulting strategic shifts among conservation NGOs that are in line with international development priorities are viewed locally as desirable or not (Edwards & Hulme, 1996).

Fostering collaborations between iNGOs and government has never been easy, however, given the inherent donor–recipient relationship (Banks et al., 2015) and the history of colonialism (Manji & O’Coill, 2002), something we might gloss as “aid with strings attached.” Under these circumstances, and paralleling other countries, Tanzania’s response to the influx of international organizations, foreign experts, and funding has coincided with, and most likely precipitated, amendments to the laws governing iNGO activities. The government has also become more closely involved in collaborations among researchers and iNGOs (and indeed with local NGOs and civil society institutions more generally, Human Rights Watch, 2019).<sup>1</sup> Examples of such oversight (and subsequent clashes) sometimes emerge in the popular media (as with reporting the precipitous decline in Tanzania’s elephant numbers <https://www.rainforest-rescue.org/>

[petitions/997/dead-elephants-tanzanias-censors-hush-up-the-massacre#](https://www.rainforest-rescue.org/petitions/997/dead-elephants-tanzanias-censors-hush-up-the-massacre#)). While the Tanzanian government, again like many others, has always been vigilant regarding iNGO activities, this scrutiny is particularly acute in the natural resources sector. This is in part because of the importance of forests, wildlife tourism, expatriate hunting, and other commodities to the Tanzanian economy. Public debates have emerged when scientists and iNGOs report issues that do not meet government approval, or publish results (Packer et al., 2011) or controversies (Dobson et al., 2010) without necessarily giving the government an opportunity to provide clarifications in advance. Media-heated debates around lion hunting and trophy hunting, in general, have been another such flash-point. In such cases, disciplinary actions were taken against iNGOs and individuals, including visa–work–resident permit withdrawal, following verbal and written warnings (e.g., Packer, 2015). The lesson we derive from such cases is that in striving to achieve their objectives, local conservationists must maintain a delicate balance between their mission, their funders (increasingly bilateral and multilateral organizations), and their overseers (the state).

Conservation scientists land in this complex institutional context, often insufficiently prepared for the national political realities. Accordingly, they must learn from their local collaborators to “look up,” by which, we mean attend seriously to the opportunities and constraints emerging from governance structures. This may entail finding a fine balance between their scientific objectives (or those of their funders) and realities on the ground precipitated by policies that fail communities and natural resources. However, while a hypothetical rogue rule-breaking international researcher may be valorized in the global conservation arena, she or he should be aware of potentially erecting more barriers for those local conservation and development workers whose only option is to continue to work in country. Scientists, experts, and advisers coming from outside need to recognize and respect the tighter monitoring of iNGO and local NGO activities that some countries increasingly impose. Some of these are quite mundane and widespread, such as the required submission of annual activities and financial reports to the government, together with disclosure of funding agreements. Outside advisers and scientists must also recognize that failure to comply with other less clearly articulated state priorities may ring alarm bells within the government, warnings, which will only exacerbate future scrutiny of NGOs and possibly risk total program closure. Once these outside experts have conducted their short-term visit and returned home (rolled up their parachutes), they leave their erstwhile colleagues with only greater challenges, more



administrative oversight, and potentially dangerous personal dilemmas (Bille Larsen et al., 2020). Making the practice of “looking up” standard, then, will serve not only to ensure the safety and productivity of the whole team but also to enhance the institutional sustainability of interventions—interventions that may once have depended on external finance and expertise but must now be rolled out locally.<sup>2</sup>

The argument we have just made about parachute science applies more generally to iNGO personnel, whether local or expatriate. They should refrain from thinking that developing countries cannot contribute to solving their own conservation challenges. Effective iNGO engagement in a developing country can only exist if there is trust and mutual respect of the governments and local institutions. This entails commitment to long-term collaboration aimed at protecting nature and ecosystem services, improving economic conditions, bridging skill gaps, and more generally the promotion of independence rather than dependency.

### 3 | LOOKING DOWN: SENSITIVE BUILDING OF LOCAL CAPACITY

Equally important, and much more commonly emphasized for several decades now, is the need to consider all aspects of every intervention from the perspective of the local community, and the often heterogeneous sets of people and interests that are likely to be affected (Agrawal, 1997; Borgerhoff Mulder & Coppolillo, 2005). While grassroots initiatives can to some extent circumvent this need (although only to the extent they are truly democratic) the current reality is, as noted above, that most of the finance and technological capacity still primarily comes from outside, sometimes in the form of parachute scientists working with national and international development partners and/or government bodies. Here, rather than recant all the sound reasons for why local communities should be involved at every step in prioritizing, designing, and (to the extent possible) implementing changes in how they manage their natural and social resources, we focus on one common strand in conservation and development programs—“environmental education” (effectively efforts to change behavior by increasing environmental knowledge or awareness). Note that we use inverted commas because this widely used phrase in itself implies a one-way transfer of information, a characterization with which few parachute scientists would these days concur. In short, our parachute scientist should not only be “looking up” but “looking down.” “Environmental education” campaigns should, at minimum, be rebranded as programs designed to promote or enhance environmental

engagement through the provision of information and knowledge that may not be available to the local community, and from among which the stakeholder can chose.

Local knowledge and norms are clearly the bedrock on which environmental interventions should be built (Berkes et al., 2000). Furthermore, they play a key role in shaping responses to novel challenges (such as climate change, Hosen et al., 2020). Nevertheless, it is also true that ongoing global shifts (economic, political, climatic, and cultural) can create difficult predicaments for individuals and communities for which outside technical knowledge and forecasting may be useful, even critical, given that local (or traditional) ecological knowledge is, by definition, limited in scale. The challenge lies then in successfully integrating the strengths of traditional ecological knowledge and modern scientific understandings, still more a call for action (e.g., Kaaronen et al., 2021; Sutherland et al., 2014) than a reality, although participatory mapping provides a useful highly practical platform (as in Zanzibar, Fagerholm et al., 2013; Zahor, 2020, 2021). And indeed, with respect to forestry, in Tanzania, this may involve a rethinking of some conventional teaching regarding management (Sungusia et al., 2020). While appropriate solutions will be specific to particular locations, here we offer two general warnings to a parachute scientist involved in environmental engagement or awareness programs.

First, outside educators should obviously not assume that the communities with whom they work have little conservation knowledge (Milner-Gulland et al., 2020). Due to budget limits, personnel from abroad rarely have the opportunity of conducting baseline surveys before implementing their programs. Indeed, external educational interventions tend to assume what the community needs to know; instead, they should explore what knowledge and skills individuals in the community would like to acquire. We advocate for a far more collaborative approach. Critical is a pilot study for discussing the needs of the community, uncovering the distribution of environmental knowledge across the community (who specializes in knowing what), identifying potential threats to this knowledge, exploring the intersections of new scientific messages with local knowledge, and uncovering the will (and availability) of youth and others for acquiring new information. This work will likely require engaging males and females of different ages, school teachers, village officials, and regional educational personnel, prior to even designing the conservation education initiative let alone implementing it.

Second, education should be directed at those who can put the new knowledge to most effective use. While there are always grounds for focusing on youth (e.g., Borgerhoff Mulder et al., 2009) given the demographically mediated impacts this will have on the future (youngsters will be around longer than the aged and



there are many more of them), parachute experts should consult locally on many other issues before targeting educational interventions, with the following questions in mind. First, what are the relative benefits of targeting educational campaigns at school-aged children as opposed to young adults who are currently experimenting with and making decisions regarding their future economic pursuits? To the extent these individuals are building their livelihoods and their families, a shift in their behavior may be the most immediately consequential for environmental outcomes. Second, what influence do the elderly have in sanctioning behavior or views of younger individuals? If they have a strong punitive role, there is merit in targeting older individuals with pertinent environmental messaging. This may be message-specific. For example, in Mpimbwe, Katavi Region of western Tanzania, we have found that the 7–35 years old age band is most effective for general messaging (Milner-Gulland et al., 2020), but that the views of male household heads on their sons' behavior are particularly critical for controlling illegal lion killing (Borgerhoff Mulder et al., 2019). For any age or gendered group, outside experts need to understand the extent to which new environmental messages challenge and/or support existing knowledge and practice. Only with such knowledge can the critical complementarities be built to support livelihoods; people are not likely to adopt new knowledge and practices if they do not see payoffs, short- or long-term. Furthermore, for age groups unwilling to change their customary behavior, focus should probably be exclusively on livelihood improvement rather than education if the program wants to achieve any traction across the population. Finally, it is important to recognize the conflicts and synchronies between new environmental knowledge and the standard national curriculum to determine whether and how to integrate conservation awareness with standard school activities, as successfully achieved in Laos (Johnson et al., 2020).

Some of these issues have been studied in various parts of the world. For example, quantitative studies can be used to provide insight into the role that cultural knowledge plays in guiding human interactions with environmental resources (Quave & Pieroni, 2015), to probe tradeoffs and complementarities between traditional knowledge and modern education (Reyes-García et al., 2008), and to describe how customary belief systems are distributed across a population by age and experience. That said, a knowledge of the literature will not substitute for looking closely at these questions at the intervention site, learning from the community how best to target, frame, incentivize and evaluate the conservation education program, with the recognition that parachute experts (whether national or expatriate) have

as much to learn as to teach. It is in this sense we encourage project implementers to look down as well as up.

## 4 | LAST WORD

We finish by noting that the challenges inherent in parachute science are not unique to the field of conservation. They reflect broader tensions within the politics of international aid that have engaged academics for well over a decade (Bebbington et al., 2008). Proposals that foreign aid partners should move from a role of control to facilitation, and from being donors and decision-makers to co-creators and translators (e.g., Banks et al., 2015), are still largely unrealized in the practice of international development. Similarly, most outside experts working on conservation problems in the developing world are still paying insufficient attention to the power structures under which they work, and the on-the-ground realities of the communities whose natural resources they hope to help manage. They too, like foreign aid partners more generally, need to become partners in designing a new future.

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## CONFLICT OF INTEREST

We report no conflicts of interest.

## AUTHOR CONTRIBUTIONS

Early discussions between Peter Ami Genda and Monique Borgerhoff Mulder; Monique Borgerhoff Mulder wrote the first draft, with input from Peter Ami Genda; Peter Ami Genda, Tim Caro, and Hans Cosmas Ngoteya commented and added further text.

## DATA AVAILABILITY STATEMENT

There are no data reported in this paper.

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## ENDNOTES

<sup>1</sup> Tanzania's recent changes in leadership may change some of these policies.

<sup>2</sup> We appreciate that in many instances iNGOs can themselves create barriers toward effective natural resource governance reform and other interventions (Nelson, 2009). Nevertheless, given the imbalances in global wealth and technical knowledge, and the fact that a big portion of funds for conservation research come from the west, nonexpatriate conservationists motivated to achieve their goals may find that their only route lies through iNGOs.

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