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**Looking Up and Down:
Strong Local-Expatriate Collaboration is only the First Step
in Tackling Parachute Science**

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1 **Looking Up and Down:**

2 **Strong Local-Expatriate Collaboration is only the First Step in Tackling Parachute Science**

3

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22

23 **Abstract**

24 Critiques of parachute science argue for closer collaborations among local and expatriate
25 scientists. Here, building on such a collaboration, we highlight further challenges when
26 outsiders, typically working through international nongovernmental organizations, fail to
27 recognize that collaborators must jointly respect the governance framework within which
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35 into action.

36

37

For Review Only

38 The legacy of colonialism on the sectors of trade, development and conservation has
39 engaged scholars for decades and in the case of conservation has been studied from
40 political (e.g., Peluso 1992), cultural (e.g., Guha 1989), economic (e.g., Gullison & Losos
41 1993) and ideological (MacKenzie 1988) angles. This growing awareness has generated a
42 critical literature on how applied science in the so-called “developing” world should be
43 conducted (Escobar 1995; Matsumoto & van de Vijver 2011). Anthropologists, for example,
44 directly scrutinize the inherent problems associated with expatriate fieldworkers (as in
45 “helicopter” anthropology, Broesch et al. 2020), and conservation scientists explore the
46 powers of citizen and community science in research and monitoring (e.g., Danielsen et al.
47 2008; Dillon et al. 2016; Hakkarainen et al. 2020).

48 With these intellectual advances, significant strides are being made towards the
49 emancipation of applied science within former western colonies. For example, in the field of
50 genomics, indigenous communities such as the San closely manage the collection and
51 processing of their genetic data (Callaway 2017) and African scientists establish mechanisms
52 whereby they can collaborate with outsiders on an equitable basis (de Vries et al. 2015). Yet
53 despite this progress, many developing countries have inherited a legacy of colonial
54 government instruments, and specific constitutional provisions, laws and procedures that
55 leave a deep imprint on how science is conducted. This “colonial inheritance” of
56 government institutions and policies not only signifies “colonial continuity” but also leaves a
57 door open for continued western ideological influence, a dynamic that has been addressed
58 by several authors (McAfee 1999; Wallace 2004; Norton-Griffiths 2010), and well described
59 for Tanzania by Levine (2002). With a persisting heavy financial and technological
60 dependence on the west, developing countries continue to rely on “development” or
61 conservation funds, increasingly channeled through international non-governmental
62 organizations and bi/multilateral aid agencies. Typically these programs and their budgets
63 are drawn up in Europe or America for local implementation, and managed by international
64 partners, thereby reinforcing existing imbalances in power and expertise between the donor
65 and recipient nations (Bebbington et al. 2008; Banks et al. 2015).

66
67 A key element to the critique of current “development” engagements is the lack of two-way
68 collaboration and communication among partners, often glossed as a “top-down” model,
69 from whence springs the notion of “Parachute Science” – short visits of outside experts
70 (typically foreign but increasingly personnel from national academic or political institutions)
71 to conduct research, make recommendations and even implement agendas that will (in the
72 view of these experts) solve problems also identified largely by these outsiders.
73 Furthermore, even the academic literature on international development is characterized by
74 a severe lack of voices from the global south (Brass et al. 2018).

75 To make two specific points that might mitigate some of the problems associated with
76 parachute science, we here use a collaboration (Figure 1) that has grown out of a long-term
77 research project in western Tanzania (Borgerhoff Mulder et al. 2007), a campaign against
78 illegal lion killing (Genda et al. 2012; Borgerhoff Mulder et al. 2019), joint guidance of a
79 community-based environmental organization at the study site (<http://www.lcmo.or.tz/>),
80 and various experiences working with local and international conservation organizations
81 and government officials across the country (Caro & Davenport 2016; Milner-Gulland et al.

82 2020). First we emphasize the importance of observing governance structures, maintaining
83 transparency and responding flexibly to national and regional priorities (“looking up”), and
84 second we stress the need to keep a close focus on the realities on the ground when
85 designing interventions such as educational programs (“looking down”). We take as given
86 the need for trust and collaboration between local and foreign experts, believing (as
87 evidenced by the contributors to this Special Issue) that this is becoming increasingly
88 common, and focus more on challenges for the future which, while discussed within the
89 context of Tanzanian conservation, are actually a general problem within international
90 development.

91

92 **Looking Up: Respect for National Governance Institutions**

93 Tanzania experienced a mushrooming of nongovernmental organizations (NGOs), both local
94 and international (iNGO), during the 1990’s (Levine 2002). As was occurring globally at this
95 time, NGOs were becoming increasingly important agents of development and
96 conservation in countries of the South, often complementing the role of both the state and
97 bilateral/multilateral bodies like USAID and the World Bank (Edwards & Hulme 1996; Atack
98 1999; Levine 2002; Wallace 2004). For example, the partnerships between the nation state,
99 foreign aid agencies (such as USAID and KFW (German aid)) and iNGOs operating in Tanzania
100 (e.g., WorldWide Fund for Nature (WWF), Frankfurt Zoological Society (FZS), Wildlife
101 Conservation Society (WCS), PAMS Foundation and The Nature Conservancy (TNC) boosted
102 effective management of forests and wildlife reserves and this resulted in local livelihood
103 improvements (Newmark & Hough 2000). Collaboration of this kind was extended into
104 partnerships between iNGOs and government agencies such as Tanzania National Parks
105 Authority (TANAPA) and the Tanzania Wildlife Association (TAWA) into which huge sums of
106 money were provided for protection, infrastructure and monitoring efforts in national parks
107 and game reserves (Caro & Davenport 2016). In parallel, effective research collaborations
108 emerged when Tanzanian research bodies such as the Tanzania Wildlife Research Institute
109 (TAWIRI), Tanzania Forest Research Institute (TAFORI) and the Commission for Science and
110 Technology (COSTECH) partnered with international universities (and sometimes iNGOs) to
111 conduct joint research, providing excellent opportunities for Tanzanians to gain research
112 skills through field work, scholarships and participation in international scientific
113 conferences. In short, international cooperation is a key element in funding and guiding the
114 science that underlies the improvements that developing nations can make in the natural
115 and social environment; this is the case whether or not the resulting strategic shifts among
116 conservation NGOs in line with international development priorities are viewed as desirable
117 or not (Edwards & Hulme 1996).

118

119 Fostering collaborations between iNGOs and government has never been easy, however,
120 given the inherent donor-recipient relationship (Banks et al. 2015) and the history of
121 colonialism (Manji & O’Coill 2002), something we might gloss as “aid with strings attached”.
122 Under these circumstances, and paralleling other countries, Tanzania’s response to the
123 influx of international organizations, foreign experts, and funding has coincided with, and
124 most likely precipitated, amendments to the laws governing iNGO activities, as well as
125 prompting closer governmental involvement in collaborations among researchers and
126 iNGOs (and indeed local NGOs and civil society institutions more generally, Human Rights

127 Watch 2019); examples are often reported in the popular media (as with the precipitous
128 decline in elephant numbers [https://www.rainforest-rescue.org/petitions/997/dead-
129 elephants-tanzanias-censors-hush-up-the-massacre#](https://www.rainforest-rescue.org/petitions/997/dead-
129 elephants-tanzanias-censors-hush-up-the-massacre#)). While the Tanzanian government,
130 again like many others, has always been vigilant regarding iNGO activities, this scrutiny has
131 been particularly acute in the natural resources sector, in part because of the importance of
132 forests, wildlife tourism, expatriate hunting and other commodities to the Tanzanian
133 economy. Flash points emerge when iNGOs report issues that do not meet government
134 approval, or publish results (Packer et al. 2011) or controversies (Dobson et al. 2010)
135 without necessarily giving the government an opportunity to provide clarifications in
136 advance. This was exemplified when reports and photos of elephant poaching went into
137 international media without government consent ([https://eia-
138 international.org/blog/botswanas-elephant-crisis-no-time-for-pride-and-arrogance-with-
139 such-a-pressing-need-for-action/](https://eia-
138 international.org/blog/botswanas-elephant-crisis-no-time-for-pride-and-arrogance-with-
139 such-a-pressing-need-for-action/)), and also in media-heated debates around lion hunting
140 and trophy hunting in general. Disciplinary actions were taken against iNGOs and
141 individuals, including visa/work/resident permit withdrawal, verbal and written warnings
142 etc. (e.g., Packer 2015). In short, in striving to achieve their objectives, local conservationists
143 must maintain a delicate balance between their mission, their funders (increasingly bilateral
144 and multilateral organizations) and their overseers (the state).

145
146 Parachute scientists land in this complex institutional context. Accordingly they must learn
147 from their local collaborators to “look up”, by which we mean attend seriously to the
148 opportunities and constraints emerging from governance structures. While a rogue rule-
149 breaking international researcher may be valorized in the global conservation arena, she or
150 he should be aware of potentially erecting more barriers for those local conservation and
151 development workers who have to continue to work in the country. Scientists, experts and
152 advisors coming from outside need to recognize and respect the tighter monitoring of iNGO
153 and local NGO activities that some countries increasingly impose, such as the required
154 submission of annual activities and financial reports to the government, together with
155 disclosure of funding agreements. They also need to recognize that failure to comply will
156 ring alarm bells within the government, which will only escalate future scrutiny of NGOs and
157 indeed the risk of total program closure. Once these outside experts have conducted their
158 short-term visit and returned home (rolled up their parachutes), they leave their erstwhile
159 colleagues with only greater challenges, more administrative oversight, and potentially
160 dangerous personal dilemmas. Looking up, then, will serve to enhance the institutional
161 sustainability of interventions – interventions that may once have depended on external
162 finance and expertise but must now be rolled out locally¹.

¹ 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, non-expatriate conservationists motivated to achieve their goals may find that their only route lies through iNGOs. For this reason we caution parachute scientists to show respect

163 The argument we have just made about parachute science applies more generally to iNGO
164 personnel, whether local or expatriate. They should refrain from the normalized and
165 institutionalized colonial ideology that developing countries cannot solve their own
166 conservation challenges. Effective iNGO engagement in a developing country can only exist
167 if there is trust and mutual respect of the governments and local institutions. This entails
168 commitment to long term collaboration aimed at protecting nature and ecosystem services,
169 improving economic conditions, bridging skill gaps, and more generally the promotion of
170 independence rather than dependency. We also emphasize that the process of developing
171 programs, activities, budgets and indicators be participatory to ensure inclusion of the
172 target group, their needs and their existing knowledge, to which we now turn.

173

174 **Looking Down: Sensitive Building of Local Capacity**

175 Equally important, and much more commonly emphasized for several decades now, is the
176 need to consider all aspects of every intervention from the perspective of the local
177 community, and the often heterogeneous sets of people and interests that are likely to be
178 affected (Agrawal 1997; Borgerhoff Mulder & Coppolillo 2005). While grassroots initiatives
179 can to some extent circumvent this need (although only to the extent they are truly
180 democratic) the current reality is, as noted above, that most of the finance and
181 technological capacity still primarily comes from outside, often in the form of parachute
182 scientists working with national and international development partners and/or
183 government bodies. Here, rather than recant all the sound reasons for why local
184 communities should be involved at every step in prioritizing, designing and (to the extent
185 possible) implementing changes in how they manage their natural and social resources, we
186 focus on one common strand in conservation and development programs – “environmental
187 education”. Note that we use inverted commas because this widely-used phrase in itself
188 implies a one-way transfer of information, which is not desirable for a parachute scientist
189 who should not only be “looking up” but “looking down”; in many respects we prefer to
190 think of programmes designed to promote or enhance environmental engagement through
191 the provision of information and knowledge that may not be available to the local
192 community.

193 Local knowledge and norms are clearly the bedrock on which environmental interventions
194 should be built (Berkes et al. 2000) and continue to play a key role in responses to novel
195 challenges (such as climate change, Hosen et al. 2020). Nevertheless it is also true that
196 ongoing global shifts (economic, political, climatic and cultural) can create difficult
197 predicaments for individuals and communities for which outside technical knowledge and
198 forecasting may be useful, even critical, given that local (or traditional) ecological knowledge
199 is, by definition, limited in scale. The challenge lies then in successfully integrating the
200 strengths of traditional ecological knowledge and modern scientific understandings, still
201 more a call for action (e.g., Sutherland et al. 2014) than a reality, although participatory
202 mapping provides a useful platform (as in Zanzibar, Fagerholm et al. 2013). While
203 appropriate solutions will be specific to particular locations, here we offer two general

204 warnings to a parachute scientist involved in environmental engagement or awareness
205 programmes.

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

220 Second, education should be directed at those who can put the new knowledge to most
221 effective use. While there are always grounds for focusing on youth (e.g., Borgerhoff Mulder
222 et al. 2009) given the demographically-mediated impacts this will have on the future
223 (youngsters will be around longer than the aged), parachute experts should consult locally
224 on many other issues before targeting educational interventions, with the following
225 questions in mind. First, what are the relative benefits of targeting educational campaigns at
226 school-aged children as opposed to young adults who are currently experimenting with and
227 making decisions regarding their future economic pursuits? To the extent these individuals
228 are building their livelihoods and their families, a shift in their behaviour may be the most
229 immediately consequential for environmental outcomes. Second, what influence do the
230 elderly have in sanctioning behaviour or views of younger individuals? If they have a strong
231 punitive role, there is merit in targeting older individuals with pertinent environmental
232 messaging. This may be message-specific. For example in Mpimbwe, Katavi Region of
233 western Tanzania, we have found that the 7-35 years old age band is most effective for
234 general messaging (Milner-Gulland et al. 2020), but that the views of male household heads
235 on their sons' behaviour are particularly critical for controlling illegal lion killing (Borgerhoff
236 Mulder et al. 2019). For any age or gendered group, outside experts need to understand the
237 extent new environmental messages challenge and/or support existing knowledge and
238 practice? Only with such knowledge can the critical complementarities be built to support
239 livelihoods; we cannot expect people to adopt new knowledge and practices if they don't
240 see payoffs, short or long term. Furthermore, for age groups unwilling to change their
241 customary behavior focus should probably be exclusively on livelihood improvement rather
242 than education, if the program wants to achieve any traction across the population. Finally,
243 it is important to recognize the conflicts and synchronies between new environmental
244 knowledge and the standard national curriculum to determine whether and how to
245 integrate conservation awareness with standard school activities, as successfully achieved in
246 Laos (Johnson et al. this volume).

247 Some of these issues have been studied in various parts of the world; for example
248 quantitative studies can be used to provide insight into the role that cultural knowledge
249 plays in guiding human interactions with environmental resources (Quave & Pieroni 2015),
250 to probe tradeoffs and complementarities between traditional knowledge and modern
251 education (Reyes-García et al. 2008), and to describe how customary belief systems are
252 distributed across a population by age and experience. That said, a knowledge of the
253 literature will not substitute for looking closely at these questions at the intervention site,
254 learning from the community how best to target, frame, incentivize and evaluate the
255 conservation education programme, with the recognition that parachute experts (whether
256 national or expatriate) have as much to learn as to teach. It is in this sense we encourage
257 project implementers to look down as well as up.

258

259 **Last word**

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

271

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- 369
- 370

371 Figure 1.

372 Landscape and Conservation Mentors Board Meeting August 2017 (from left to right, Hans
373 Cosmas Ngoteya, Jonathan Kwiyege, Monique Borgerhoff Mulder and Peter Genda)

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375