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Perspective

Attracting investment for Africa's protected areas by creating enabling environments for collaborative management partnerships

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ABSTRACT

Africa's Protected Area (PA) estate includes some of the world's most iconic wildlife and wildlands and preserves ecosystem services upon which people depend. However, Africa's PAs are facing a growing array of threats resulting in significant degradation, factors compounded by chronic funding shortages. In this opinion piece, drawing from the available literature and collective experience of the author group, we look at the potential for collaborative management partnerships (CMPs) between state wildlife agencies and Non-Governmental Organisations (NGOs) to attract investment and technical capacity to improve PA performance. The three main CMP models—financial and technical support, co-management, and delegated management—yield median funding that is 1.5, 2.6 and 14.6 times greater than baseline state budgets for PA management. However, several factors limit the scaling of CMPs in Africa. Significant barriers include concerns from African governments, such as reluctance to engage in co-management and delegated CMPs due to perceptions that such partnerships may represent an admission of failure, result in a loss of revenues for government, or undermine sovereignty. There are also constraints associated with NGOs and donors that limit scaling of CMPs. We discuss how these issues might be addressed and propose a reframing of the discourse around CMPs. Specifically, we recommend that governments view CMPs as strategic, proactive tools that will enable them to unlock funding, investment and expertise for conservation and make recommendations to attract such investment. Preliminary evidence and the experience of the author group suggests that expanding CMPs for PAs could; improve PA management; share the costs of protecting Africa's PAs with the global community; build local capacity; help protect the ecosystem services upon which Africa's economies depend; stimulate rural development; and benefit local communities.

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1. The value of Africa's PAs

Africa has a vast protected area (PA) network, which includes some of the world's most iconic places and charismatic species. Some African countries, particularly those in southern and eastern Africa, have set aside proportions of their land area as PAs that are considerably larger than the global average, and the 'burden' of PAs relative to wealth is higher in Africa than in any other continent (Lindsey et al., 2017a). Africa has an estimated 8496 protected areas, covering 4,364,594 km2 (www.protectedplanet.net, accessed February 2020), 14% of the continent's surface area. These PAs are critical assets for the host countries and the world at large.

An estimated US$70 billion is generated from wildlife-based tourism in Africa, and sub-Saharan Africa is the world's fastest growing tourism destination (Space for Giants et al., 2019; World Travel and Tourism Council, 2019). A number of African countries have made great strides in harnessing the tourism potential of their wildlife assets, and tourism as a whole now comprises 8.5% of continental GDP (www.wttc.org, accessed March 2020). Wildlife-based tourism can be an effective tool for creating quality employment in rural areas and creates 8.8 million jobs in Africa (World Travel and Tourism Council, 2019). Tourism can help diversify African economies, most of which are currently heavily reliant on agriculture and mining, and susceptible to climate change and price fluctuations (Lindsey et al., 2014; Stolton and Dudley, 2019). However, the COVID-19 pandemic has caused a severe crash in tourism revenues and has highlighted the perils of over-reliance on tourism for the funding of PAs (Lindsey et al., 2020). More robust and diversified funding streams are needed to ensure the long-term sustainability of Africa's protected area estate.

Beyond tourism, Africa's wildlife has enormous cultural value within and beyond the continent, with several African species widely used as symbols by global sports teams, companies and on national coats of arms (Stolton and Dudley, 2019). Africa's charismatic megafauna also has significant global 'existence value,' the derivation of value simply from knowing that it exists (Macdonald et al., 2015; Turpie, 2003). Africa's vast PAs provide a host of critical ecosystem services on which millions of people and African and even global economies depend (Johnson et al., 2020; Stolton and Dudley, 2019; WWF, 2020). In addition, Africa's Congo Basin supports the second largest tropical forest in the world, which is vital for global climate stabilisation and carbon sequestration. These benefits are all threatened by ongoing degradation of Africa's PAs.

2. Inadequate budgets and growing human pressures

In an ideal world, the ecological, social, and economic value of PAs would be recognised as a global public good and funded accordingly. At present, however, many of the values of nature are poorly captured by traditional markets and routinely under-valued as a result (Balmford et al., 2002; Diaz et al., 2019; European Commission, 2015). Consequently, Africa's conservation agencies face critical funding shortages and PAs in the savannah biome alone face annual budget deficits of US$1–2 billion (Lindsey et al., 2018). Declining budgets reduce management effectiveness, sometimes to zero, and undermine staff morale (European Commission, 2015; IUCN ESARO, 2020). Under-funding increases the risk of PAs becoming overwhelmed by anthropogenic pressures, encroached by people and livestock and ultimately downsized or even degazetted if they become viewed as having insufficient political, ecological, social or economic significance to the host nation. For example, in 2019, the President of Tanzania ordered 'responsible ministries to identify wildlife and forests protected areas which had no wildlife and forests and allocate them to farmers and livestock keepers' (Xuxin, 2019).

Africa's wildlife resources are under massive pressure from anthropogenic threats. Fast-growing human populations, persistent poverty and food-insecurity, rapid unplanned development and growing local and global demand for wildlife products are placing unprecedented pressure on wildlife and wilderness areas (Bradshaw and Di Minin, 2019; Lindsey et al., 2017b; Watson et al., 2016). This scenario is resulting in dramatic declines in wildlife populations in some countries, and many African countries risk losing their wildlife before ever having sufficiently benefited from it (Bouché et al., 2012; Chase et al., 2016; Lindsey et al., 2017b). Even in countries deriving significant revenues from wildlife-based tourism, the long-term security of those benefits and future growth is jeopardised by degradation of the asset-base (Lindsey et al., 2014; Naidoo et al., 2016).

Revenues from tourism are skewed both within and among African countries, and relatively few PAs enjoy substantial revenues from tourism. In some countries, trophy hunting generates a significant portion of tourism revenue (Lindsey et al., 2007), but this industry is waning (Chardonnet, 2019), and neither traditional photo-tourism nor trophy hunting typically generate enough funding at the PA-level to allow for a high standard of PA management (Lindsey et al., 2016). Ongoing subsidies are required for PA management across much of the world (European Commission, 2015), and the presumption that Africa's PAs can pay for themselves is generally flawed. However, PA networks can yield strong net-positive economic benefits at the national level, and the value of the ecosystem services they provide exceeds the costs of effective protection by as much as 100:1 (Balmford et al., 2002; McCarthy et al., 2012; Naidoo et al., 2016). These wider economic benefits are often not appreciated, and many African governments, because of lack of adequate data, appear to view PAs as money-sinks rather than assets that require investment to yield returns and fulfil their economic, ecological and social potential (European Commission, 2015; Lindsey et al., 2014; Turpie et al., 2005; van Zyl, 2016).

3. Collaborative management partnerships for Africa's PAs

Countries facing major budget deficits for PAs are faced with a choice:

(1) continue the status quo with under-performing PAs and risk continued degradation; or
(2) dramatically increase the level of funding for their PA networks through increased state budget allocations and/or through innovative funding mechanisms such as conservation trust funds, payments for ecosystem services, debt for nature swaps and performance payment models involving local communities, and/or:
(3) enter into strategic partnerships to leverage long-term financial and technical support for PA management.

These choices become even more stark if international benchmarks for PA-coverage continue to increase (Campaign for Nature, 2020; Roberts et al., 2020). Here, we discuss the third option, while stressing that both options (2) and (3) should be explored simultaneously and are not mutually exclusive. In this opinion piece, we focus on partnerships between state wildlife authorities and NGOs. The private sector also has a significant role to play in contributing to the management of some state PAs, for example through the leasing of tourism or hunting concessions, and through the leasing or custodianship of land by philanthropists for conservation purposes. The latter arrangement tends to approximate management by NGOs as private philanthropy is often undertaken through not-for-profit vehicles, such as the Carr Foundation in Gorongosa National Park or the Friedkin Conservation Fund and Grumeti Fund in Tanzania (Pringle, 2017). In this paper we focus on the not-for-profit sector.

We refer to partnerships between not-for profit entities and state wildlife authorities as 'Collaborative Management Partnerships' (CMPs'), following (Baghai et al., 2018b), which is a more precise and accurate descriptor than 'Public Private Partnership' (PPP), which is also commonly used. We hypothesise that CMPs can be used in African countries to attract both investment and expertise to their PAs and increase the efficiency with which funding is utilised and thus improve

management effectiveness. This paper draws on the broad geographic experience of the author group, which includes members of state wildlife authorities, independent conservation professionals and representatives from relevant NGOs and donors, building on theoretical foundations laid by (Lindsey et al., 2018, 2017b) and (Baghai et al., 2018b, 2018a): papers that involved 165 interviews with relevant NGO and government staff.

3.1. PPPs and CMPs in Africa

PPPs are deployed worldwide to attract private sector expertise and funding for infrastructure and increasingly, public services (Dykes and Jones, 2016; Iossa and Martimort, 2012). PPPs are growing in prominence in Africa, primarily in the realm of large-scale infrastructure development, but also in tourism development and agricultural value chains (Dykes and Jones, 2016). PPPs in PAs are becoming more common in some other parts of the world. For example, there are PPPs for tourism management in PAs in Australia, and NGOs are involved in the management of some PAs within the 'Natura 2000' network of PAs in Europe (Manolache et al., 2018; Wilson et al., 2009). In Africa, there has been a growth in the development of CMPs for PA management in recent years (Baghai et al., 2018b; European Commission, 2015; Hatchwell, 2014; Saporiti, 2006) involving a range of NGO and private sector partners. These models have emerged from a growing realisation that critically under-funded and under-capacitated state wildlife authorities are not able to tackle intensifying threats to conservation without systematic support (Baghai et al., 2018b, 2018a; Saporiti, 2006). The NGO and private sector partners that enter into CMPs often bring a suite of expertise that complements the skill set of the PA authority (Baghai et al., 2018a, 2018b). A key difference between CMPs for conservation and traditional PPPs is that the former, unlike the latter, are usually not-for-profit arrangements. This in principle should make them attractive to governments because they attract skills and investment for the delivery of public services at no cost. Indeed, some NGOs even pay governments through the purchase of leases for concessions (e.g. NGOs in Niassa National Reserve, Mozambique).

3.2. Three primary CMP models

There are three primary partnership variants (with much variation within models in practise (Baghai et al., 2018b)): a) financial and technical support – where the government retains authority over both the governance and management of the PA, but the partner provides financial and technical support for management, as is the case with Frankfurt Zoological Society in North Luangwa National Park and surrounds in Zambia; b) co-management – where responsibility for governance and management of the PA is shared between government and the partner; and c) delegated management – where responsibility for governance is shared, but responsibility for management is delegated to the partner (e.g. the parks managed by African Parks, Fig. 1). (Baghai

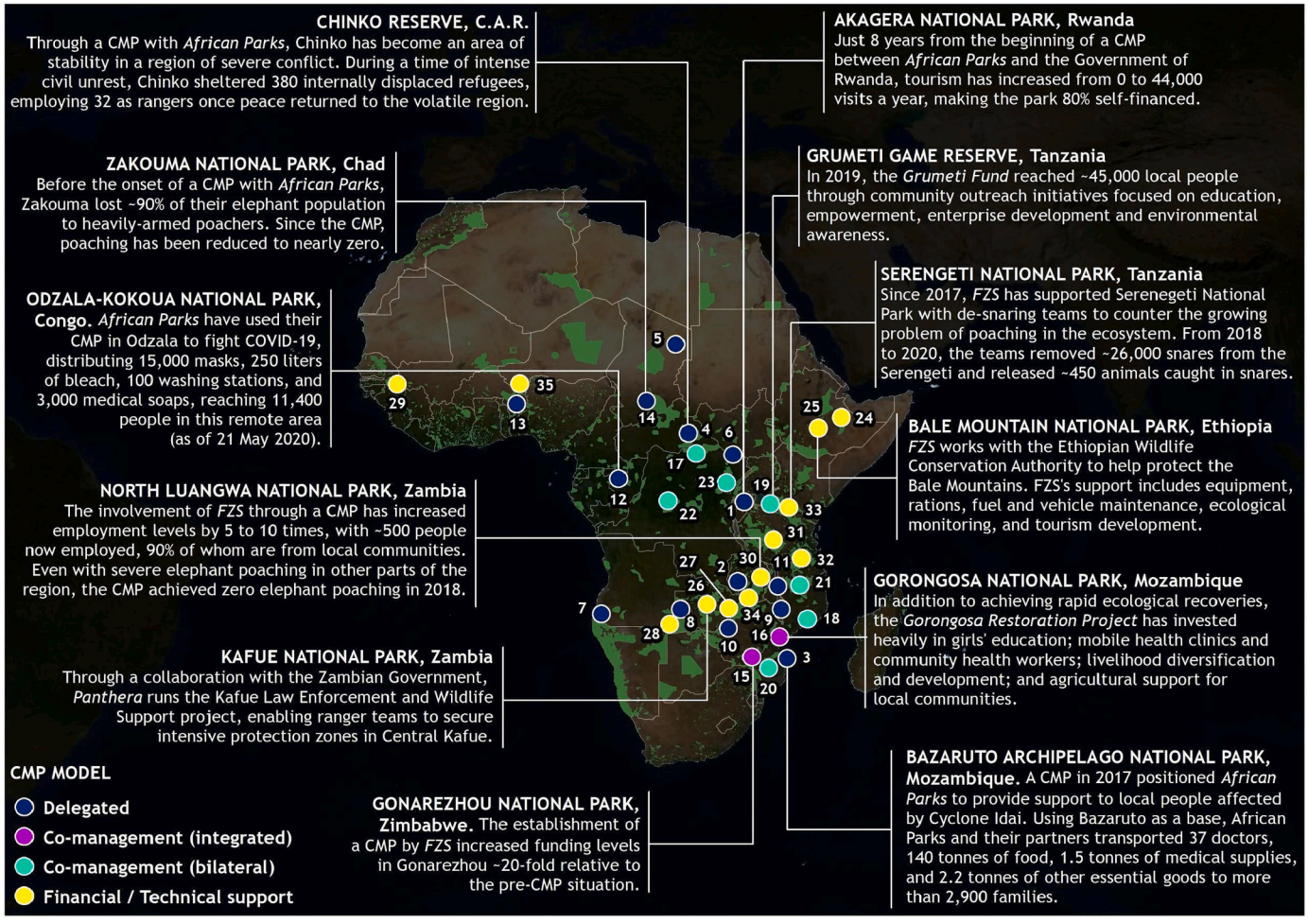

Fig. 1. Collaborative Management Partnerships (CMPs) from across Africa, with examples of ecological, economic, security, and disaster relief benefits shown for select CMPs. It should be noted that this is not an exhaustive list of CMPs, and the intention of this figure is to provide a broad scale understanding of the extent and benefits of different CMP models. Green polygons are terrestrial protected areas (UNEP-WCMC and IUCN, 2019) and numbers relate to Table S3 which gives further details on each CMP. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

et al., 2018b) refined the definition of 'co-management' to distinguish among 'bilateral' co-management (where the partner and state operate as separate entities - e.g. WCS in Niassa National Reserve in Mozambique) - and 'integrated co-management' where a special purpose vehicle is formed, which combines the state and partner entities into a single unit, and which has a high degree of autonomy to manage the PA outside the traditional government bureaucracy (e.g. Gorongosa Restoration Project in Gorongosa National Park, Mozambique).

3.3. Benefits of CMPs

A CMP can succeed or fail along several key aspects of PA management. Here, we define success as delivering positive outcomes ecologically (improving the status of key wildlife populations and effectively countering threats), economically (in terms of securing tourism investment and increasing revenue generation, which in turn have knock-on effects for rural communities), and socially (increased direct and indirect employment, engagement with PA governance, human-wildlife conflict mitigation or compensation, and other livelihood and social benefits, including access to health and education support).

CMPs enable host governments to share the burden and risk of managing PAs with partners (Baghai et al., 2018b, 2018a; Musakwa et al., 2020; Pringle, 2017). Similarly, they can help bridge budget deficits, reduce the risk of PAs becoming degraded and degazetted, help governments fulfil their obligations to international conventions, including the Aichi targets, and maximise opportunities for the attainment of the Sustainable Development Goals (SDGs) (Baghai et al., 2018b, 2018a; Pringle, 2017). In addition, they can help bring in technical expertise, skills such as conservation enterprise development and various forms of expertise related to development support for communities, that a wildlife authority may not have (Baghai et al., 2018b, 2018a; Nyirenda and Nkhata, 2013; Pringle, 2017). Ultimately, engaging in partnerships through CMPs has potential to position PAs as a productive and competitive form of land use that conserves a wide range of economic, ecological and human-centric benefits in the long-term.

Some CMPs have attracted substantial foreign investment in the conservation sector (Baghai et al., 2018b; Musakwa et al., 2020; Pringle, 2017) (Fig. 2). Median funding associated with CMPs is 1.5, 2.6 and 14.6 times greater than baseline state funding for PA management, for financial and technical support, co-management, and delegated management models, respectively (Fig. 2, data from Lindsey et al., 2018). This investment cannot simply be ascribed to NGOs assuming

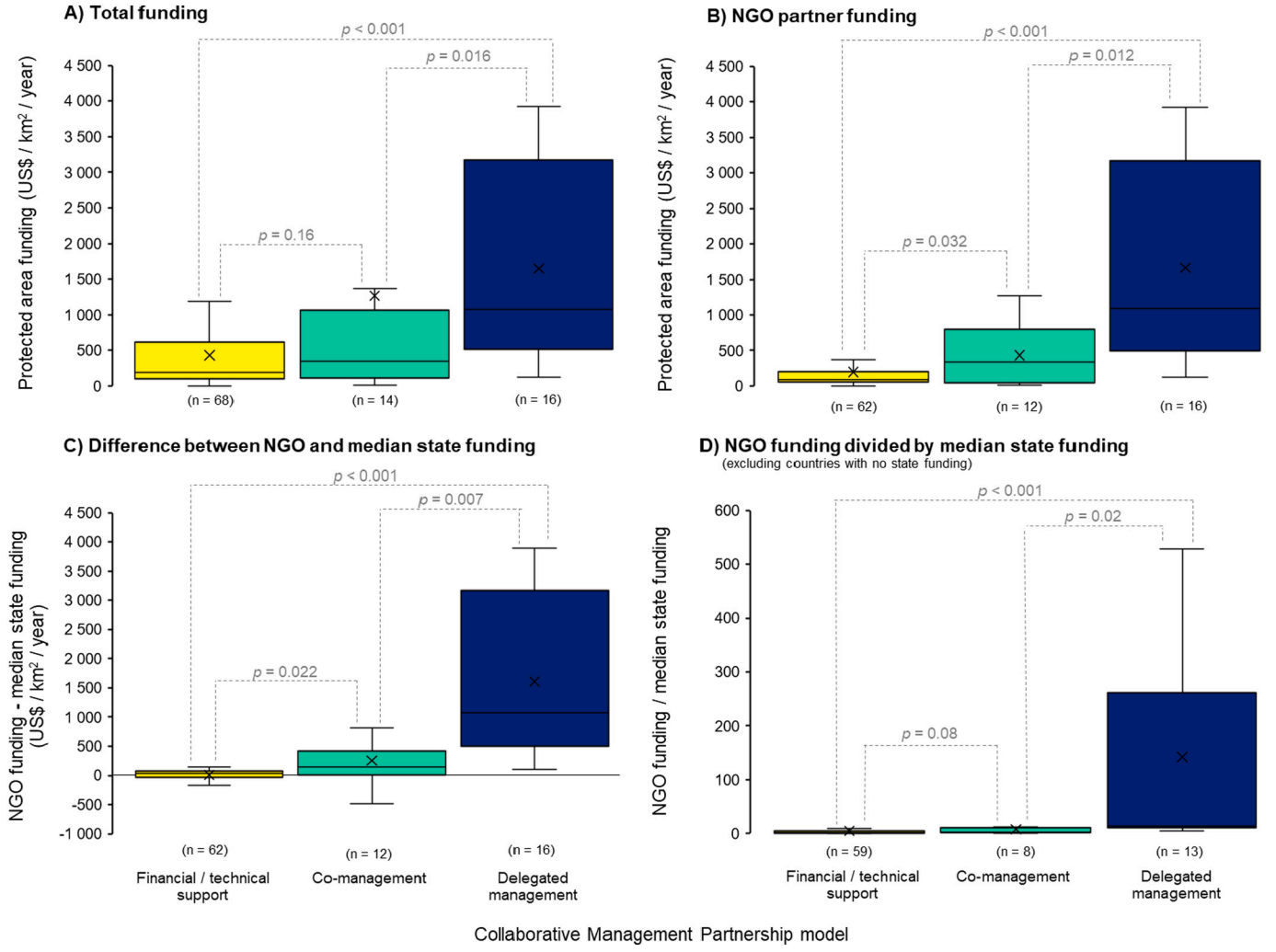

Fig. 2. Box-and-whisker plots comparing Collaborative Management Partnership (CMP) models in the African lion range in terms of A) total protected area funding, B) protected area funding from the NGO partner, C) the difference between protected area funding from the NGO partner and median country-wide state funding for protected areas, and D) protected area funding from the NGO partner divided by median country-wide state funding for protected areas. The plots show minimum, lower quartile, median, upper quartile, maximum, and mean (x's) values. For (D), CMPs in countries with zero state funding for protected areas were excluded. Descriptive statistics are the results of post hoc Dunn's Multiple Comparison Tests using a Benjamini-Hochberg adjustment. All data were extracted from (Lindsey et al., 2018) with recent updates and additions from a survey using the same methodology.

management of the parks that are most attractive to donors, as (Scholte et al., 2018) suggested is the case in Central Africa, because of the wide range of contexts in which CMPs occur in Africa (ranging from national parks such as Akagera in Rwanda and Gorongosa in Mozambique, to PAs with a lower protection status such as Chinko in Central African Republic, Grumeti Game Reserve in Tanzania and Bangweulu Game Management Area in Zambia. Moreover, even in Central Africa, an analysis of investment in the same PAs prior to and after the engagement of a CMP also typically shows a marked increase in funding (Baghai et al. in prep).

Investment associated with CMPs can increase the resilience of PAs to shocks such as the COVID-19 crisis, which has left state wildlife authorities critically exposed due to loss of tourism income (Lindsey et al., 2020). Indeed, the pursuit of CMPs has been identified by the Zimbabwe Parks and Wildlife Management Authority as a strategy for diversifying funding streams for PAs (ZPWMA, 2019). CMPs have also attracted strong technical capacity and innovation to some countries ((Baghai et al., 2018b, 2018a), Figs. 1, 2). Some CMPs have resulted in notable ecological successes and dramatic turnarounds of depleted PAs that would have been unlikely in their absence (Table 1). CMPs can also create significant benefits for local people and economies (e.g. (Baghai et al., 2018a; Musakwa et al., 2020; Pringle, 2017), Fig. 1, Table 1), as has also been seen in certain other parts of the world (Plummer et al., 2017). Though there is firm evidence of improved financing and emerging evidence of ecological and social impacts of CMPs (Baghai et al., 2018b) (Fig. 1, Table 1), we acknowledge the critical need for systematic research to assess the impact and effectiveness of CMPs.

4. The particular value of delegated CMPs

The delegated management and integrated co-management models have delivered the most unambiguous examples of positive conservation outcomes, while bilateral co-management and financial and technical support have generally yielded more mixed outcomes (Baghai et al., 2018b, 2018a) (Figs. 1, 2). One indicator of success of the delegated CMP models is that African Parks has been approached by four different African countries with proposals to assume management of their entire PA networks (African Parks pers. comm 2020). Delegated models have also generally attracted higher levels of investment (Fig. 2), due in part to the level of control and clarity of roles (Baghai et al., 2018b, 2018a). Hereafter, this paper generally focusses on delegated management and integrated co-management (which we collectively refer to as 'delegated models'). That said, we acknowledge that financial and technical support can confer significant benefits in cases where wildlife authorities are well-capacitated but under-resourced.

Key reasons for the impact of delegated models include (Baghai et al., 2018b, 2018a), and based on the experiences of this author group):

(i) Improved governance and strategic oversight of the PA;
(ii) The ability of an independent entity to hire skilled and motivated staff via transparent selection procedures, and to discipline and fire underperforming staff. This allows for highly capacitated field teams unencumbered by staff lacking the skills, motivation or integrity to be effective;
(iii) Autonomy outside traditional bureaucratic structures, allowing for innovation, quick decision-making, efficiency, flexibility, and accountability;
(iv) Insulation from political interference and corruption pressures that delegation to private partners and special purpose entities provide;
(v) Long term commitments that allow for long-term strategic planning, attract greater private sector and donor investment, and avoid gaps in project funding; and.
(vi) Increased accountability, as delegated CMP partners assume responsibility for management of a PA and therefore become accountable to the government for the PA's success or failure

Table 1
Examples of successful CMPs.

Protected area	Examples of success
Akagera National Park, Rwanda Partner: African Parks	Since 2010: • Once home to 30,000 cattle, the partnership erected a 130 km solar fence and successfully reintroduced lion and black rhino, making Akagera Rwanda's only Big 5 park. • Virtually eliminated poaching (only 12 animals poached in 2019, no elephants or rhinos killed). • Increase in large mammal numbers from 4000 to 13,500, including a five-fold increase in lions. • Increase in asset value from US$446,000 to over US$2,280,000. • Increase in employment from 18 to 273 people (only 2 expats). • Increase in tourism revenue of 1150%, with half of tourists being Rwandan. • Increase in annual revenue from US$200,000 to US$2.5 M, making the park 90% self-financing. • Increase in taxes paid to government from zero to >US$500,000. • Sustainable fishing project generated US $213,000 and Community Freelance Guides Cooperative earned US$130,000 in 2019. • Local communities receive 10% of revenues.
Gonarezhou National Park, Zimbabwe Partner: Frankfurt Zoological Society	Since 2017: • In the first year of the CMP, investment increased by 50%, 129 new guards were trained and employed (from a base of 40), and tourism increased 40%. • Increase in donor funding from near-zero pre-CMP to US$5 M in 2021. • Record tourism income of ~US$525,000 in 2019. • Dramatic decline in elephant poaching to near-zero in 2019. • 90% of staff are employed from the local community directly surrounding the park. • New dialogue groups with communities in 5 main areas surrounding the park.
Gorongosa National Park, Mozambique Partner: Gorongosa Restoration Project	Since 2008: • Large animals increased from 15,000 to over 96,000. • Growing populations of elephants and lions, successful reintroduction of wild dogs. • Ecotourism revenues of US$730,000 in 2019. • Investment in human development of ~US$2 M/year. • State of the art E.O. Wilson Biodiversity Laboratory hosts international scientists alongside local researchers and is home to the only Masters in Conservation Biology in Mozambique, with 12 Mozambicans recently graduated from the 2-year programme. • Emergency response to Cyclone Idai launched prior to the arrival of international aid, delivering 220 t of food and water to communities. The park's intact vegetation also reduced flooding by absorbing enormous amounts of water.
Grumeti Game Reserve, Tanzania Partner: Singita Grumeti Fund, Paul Tudor Jones	Since 2003: • Illegal grazing effectively controlled. • Wildlife populations have rebounded dramatically, growing on average by 4×. • Translocated 9 black rhinoceros to Tanzania in 2019, adding 10% to the national population. • Zero elephants and rhino poached in 2019. • 45,000+ people reached across 30+ educational initiatives.

(*continued on next page*)

Table 1 (*continued*)

Protected area	Examples of success
	• Launched Research and Innovation for the Serengeti Ecosystem (RISE), an applied research program and facility, collaborating with the University of Minnesota, Colorado State University, the Tanzanian Wildlife Research Institute, and Stanford & Princeton.
Liuwa Plains National Park, Zambia Partner: African Parks	Since 2003: • Lion population augmented with reintroductions to prevent local extinction. • Wildebeest increased from 15,000 to 30,000. Zebra doubled. Buffalo reintroduced in 2008, with numbers growing from 37 to 120. • Opening of a new luxury camp in 2019 by Time + Tide, in addition to 5 income-generating community campsites. • Liuwa Plain named in *The New York Times* "Top 52 Places to Visit" in 2018; *Time Magazine's* "2018 100 Greatest Places"; and *Travel & Leisure's* 2018 "It List". • Responding to a record-breaking drought, the park delivered 3000 bags of maize to 3600 people over 5 months. • Educational initiatives in 2019 included: 114 full scholarships, stipends for 12 teachers, food rations for 200 students, and ~1900 free student visits to the park.
Majete Wildlife Reserve, Malawi Partner: African Parks	Since 2003: • Increase in wildlife from <100 animals counted to >12,000 • Malawi's only Big Five PA, with historic reintroductions of elephants, black rhino, lion, leopard, buffalo, giraffe and cheetah. • Zero elephant and rhino poaching since reintroduction. • Construction of boundary fence to reduce human-wildlife conflict. • Construction of five-star lodge and community campsites, generating >US$500,000 in 2019. (Pre-CMP, there were no tourists and no revenue.)
Noubale-Ndoki National Park, Republic of Congo Partner: Wildlife Conservation Society	Since 2014: • The annual budget has quadrupled since the CMP was signed in 2014, from under US$1 M in 2013 to over US$5 M in 2020. • In the first year of the CMP, patrol coverage increased 85%, resulting in no poached elephants in 2015. • Populations of flagship species are stable (e.g., elephant, gorilla, chimpanzee), despite increases in poaching pressures. • New luxury tourism offering planned by a private investor. • Increase in employment from 83 to 169 full-time staff (2014–2019). • 80% of heads of households in Bomassa, and 40% in Makao, the two nearest villages, are employed by the park.
Virunga National Park, Democratic Republic of the Congo Partner: Virunga Foundation	Since 2008: • Annual budgets for the park have grown to US $11 M, and total investment—including Virunga Energy's sustainable development activities in the park's periphery—has reached US$160 M over the course of the partnership. • In 2007 (pre-CMP), top park officials were implicated in the killings of 9 mountain gorillas. Post-CMP, the mountain gorilla population has doubled (from ~145 in 2007 to ~290 in 2016). • Prior to the CMP, the military was implicated in the massacre of several hundred hippos, reducing the largest population of hippos in the world to one of just several hundred. Today, the hippo population has increased to ~1500, though it remains under severe poaching pressure. • Since 2015, tourism has generated US $11,000,000 for the park, ICCN, and communities. (By comparison, in 2006, gorilla tourism brought in <US$300,000.) • 3000 full-time equivalent staff • Hydroelectric power stimulated SME growth from 90 to over 900, creating 3400 direct jobs and 13,000 indirect jobs. Approx. 10–12% of employees are former members of armed groups. • The CMP has offered 22,000 microloans to 10,000 small businesses. • In terms of electricity generation, there are currently 4 plants in operation, generating 15 MW, with 6400 clients, and 314,000 people who benefit from 18 public infrastructures (schools, hospitals) and street lighting for 20 villages with free electricity.
Zakouma National Park, Chad Partner: African Parks	• Prior to the CMP (2002−2010), Zakouma's elephant population was in free fall, with 4000 elephants poached (90% of the population), leaving only ~450 remaining. Since 2010, under the CMP with African Parks, only 24 elephants were poached (representing a 99.4% reduction in elephant poaching), and the population is now growing. • Other ungulates are considered to be increasing and approaching carrying capacity. (E.g., buffalo increased from 6000 in 2009 to 12,000 in 2018.) There is a significant and stable lion population. Zakouma hosts 50% of the remaining wild population of 2000 Kordofan giraffe, which has more than doubled its size in Zakouma since 2010 (from 537 to 1233). • Over 25,000 tourists since 2010, 50% of whom were Chadian. Tourism generated over US $1000,000 in 2019. • Three camps were constructed: a luxury safari camp, a mid-range offering, and a free camp for local Chadians. • Zakouma is now world-renowned as a wildlife tourism destination—named in TIME Magazine's '2019 100 Greatest Places', 'Frommer's 'Best Places to Go in 2020' and National Geographic's 'The Best Trips in 2020'. • With 295 staff, Zakouma National Park is the largest employer in the region. • The Park built and funded 17 schools (2013–2018), 6646 children received an education, and US$64,000 in 20 teacher salaries were paid in 2018 alone. Camp Salamat hosts local visitors, free of charge, on weekends to help build a constituency for conservation, welcoming 3300 locals in 2019. • Effective law enforcement has created a transformational "peace dividend" for local peoples, eliminating the threat from Janjaweed coming in through Sudan.

Sources: Interviews with managers, conducted during (Baghai et al., 2018b, 2018a) and Baghai (in prep); (Apio et al., 2015; Baghai et al., 2018a, 2018b; Bello et al., 2017; Brncic et al., 2017; Clark and Poulsen, 2012; Goodman, 2016; Musakwa et al., 2020; Nyirenda and Nkhata, 2013; Pringle, 2017; Veldhuis et al., 2019).

(thus creating a clear distinction between 'player and referee' in the realm of PA management (European Commission, 2015)).

We postulate that traditional, state-run conservation models in Africa do not currently maximise the breadth and depth of potential funding that exists for PA management. Some donors are reluctant to invest directly in African governmental agencies or ministries due to

perceptions of poor governance, corruption, inadequate accountability and inefficiency. For these reasons, we suggest that transparent, accountable and effective CMPs are able to attract funding from a wider swathe of donors, including conservation funds, foundations, zoos, private philanthropists, and even some bilateral donors who preferentially fund non-governmental partners partnering with governments, rather than governments.

CMPs are a relatively new phenomenon and how (and even whether) these models should eventually transfer management back fully to the PA authority has yet to be determined. If structured property, a CMP should build systems and procedures that will be maintained post CMP and they should build the capacity of wildlife authority staff who can continue management post CMP. That said, there is a case for long-term and possibly even perpetual partnerships, noting that several of the benefits they confer, such as improved PA governance, accountability and trust will be challenging for state agencies to achieve in some countries.

5. Determinants of conservation impact for CMPs

Not all CMP partners and models have been able to deliver success, and there have been some notable examples of failure or ambiguous impact (Table 2). It is, therefore, important that both governments and prospective partners understand the determinants of success for CMPs. Early indications suggest that certain factors are critical to ensuring a successful partnership (see (Baghai et al., 2018b, 2018a)). The level of delegation of authority to CMP partners should reflect the resourcing and capacity of the wildlife authority and the needs of the PA (Saporiti, 2006) (Figs. 3 and 4). Where state wildlife authorities are severely under-funded and under-capacitated, delegating authority to CMP partners may be critical to enable them to effect change (Baghai et al., 2018a). Even where the wildlife authority is highly capacitated, resources may not be sufficient to secure all of the country's PAs, leaving a case for allowing delegated models for some areas (Baghai et al., 2018a). For example, the Rwandan government effectively manages Volcanoes National Park but correctly recognised that engaging a partner in Akagera National Park could help improve management and commercial viability of the Park.

6. Limitations to the scaling of CMPs in Africa

6.1. Limitations related to perceptions and concerns of governments

While some African countries are proactive about CMPs and actively solicit partners, others react suspiciously to approaches by would-be investors and are slow to engage in such partnerships or only willing to engage in financial and technical support models. Below we outline why this is the case, (based on insights from (Baghai et al., 2018b, 2018a) and author experiences).

(1) In some cases, reluctance by authorities to engage in CMPs may be associated with unwillingness to relinquish control over PAs. This concern is fuelled by partners operating in PAs and sometimes not doing enough to keep governments informed of their activities or to share data, which can erode trust and be contrary to a spirit of partnership. In some cases, governments may be concerned about being seen to be admitting failure or relying on foreign assistance for domestic matters. Other concerns revolve around a perception that host countries risk a loss of sovereignty over the land in question, or could become vulnerable to 'neo-colonialism', or jeopardise national security by allowing 'private armies' to emerge (Baghai et al., 2018b, 2018a). In our view, these fears can be addressed by properly structured CMPs. For example, a good CMP agreement outlines clear communication models, reporting requirements, data sharing agreements, good governance models and clear collaboration mechanisms.

Table 2
Key categories of reasons for challenges faced by CMP models (from the authors' experience and from (Baghai et al., 2018a); (Baghai et al., 2018b); Baghai in prep; (Kelboro and Stellmacher, 2015).

Category	Element	Specific reasons[a]
Agreements/ model structure	Agreements	Informal or expired agreements that do not give partners and donors confidence to make significant investments.
		Short-term agreements, which often limit the ability of the CMP to define and implement long-term visions and strategies and fail to inspire private investor confidence in the long-term prospects of the PA.
		Agreement lacks clear division of roles and responsibilities, leading to confusion, conflict, mistrust, blurred accountability and/or blame-shifting between the partners.
	Insufficient delegation of authority	Weak mandate given to or requested by the NGO partner, insufficient to address the scale of challenges facing the PA.
		Government retains (or NGO decides not to assume) authority and responsibility for critical aspects of management to which it cannot dedicate sufficient resources (e.g., law enforcement and human resources).
		Lack of sufficient authority over PA management, making decision making vulnerable to political interference and bureaucratic delays.
	Poorly designed models	Premature withdrawal of a partner before capacity is sufficiently built of the protected area authority.
		'Bilateral' co-management models often experience significant confusion, conflict, and other challenges where the NGO and government operate as separate entities with parallel authority hierarchies and separate human resources policies and pay-scales.
	Multiple partners implementing the same activities in the same PA without a clear collaboration plan	Multiple NGO partners operating in the same protected areas and focusing on similar activities, leading to confusion, duplication of effort and inefficiencies.
Government support	Insufficient government buy-in and support	Lack of support from government relating to permits and other administrative elements.
		Lack of shared vision regarding sensitive issues, such as human settlement and oil drilling and mining inside the PA.
		If CMPs are negotiated from top down, and there is not buy-in at HQ level or Park level, this can undermine the functioning of the CMP.
NGO capacity	Insufficient NGO expertise in or commitment to PA management	Lack of NGO expertise or experience in PA management, which can translate into an inability to effectively attract skilled personnel and provide necessary support to field staff.

(*continued on next page*)

Table 2 (*continued*)

Category	Element	Specific reasons[a]
Finance	Insufficient funding	Insufficient budgets relative to the size and complexity of the PA and levels of threat.
	Gaps in funding	Short-term partnerships that are periodically renewed, and partnerships that rely exclusively on large institutional funders, sometimes suffer from a lack of continuity in funding, which can lead to staff layoffs and setbacks in field management.
Context	Overly complex contexts	Severely complicated scenarios, such as intense political instability or high densities of people and livestock inside PAs can present challenges that are beyond the ability of non-governmental entities (and in some cases governments) to overcome.
Relationships/ trust	Breakdown of relationships	Breakdown of relations or trust between partners, leading to paralysis or the end of the partnership.
	Errant behaviour on the part of one or both partners	Partners not fulfilling pledges, issuing inappropriate external communications, not acting in the spirit of cooperation, acting outside the law, lack of data sharing, joint planning, joint budget development and fundraising, and real collaboration.

Notes: The identity of partners in each example is not mentioned due to associated sensitivity.

[a] Based on author knowledge.

All CMPs are subject to and guided by the laws and policies established by the government. Ownership of the land remains with the state, governments are responsible for issuing necessary permits, governments play a key role in the governance of the PA and are typically responsible for approving management plans, which guide partner implementation on the ground, and in all cases, engagement and support from government is a critical determinant of success (Baghai et al., 2018b, 2018a). Successful CMPs explicitly acknowledge that PAs are national assets. In the fully delegated model, rangers are employees of the government who are typically seconded to the management partner. This is critical because it provides rangers the rights accorded by the government, such as carrying firearms and making arrests, and confers appropriate indemnification. It also means that law enforcement authority remains vested in the state, and thus ranger forces are not private armies. Situated in this broader context, even delegated CMPs may be seen as a way to more effectively carry out the government's own laws and policies in terms of conservation of PAs.

(2) Some African countries rank poorly in the 'ease of doing business' (The World Bank, 2020) and this extends to the conservation sector in some nations. This manifests in a lack of legal frameworks or guiding policy documents for engaging partner entities in PA management (Scholte et al., 2018). The lack of such frameworks can make decisions around CMPs reliant on the discretion of individuals, who may be fearful of making the wrong decision, and opens the door for corruption, factors that undermine PPPs more broadly in Africa, not just in the conservation space (Benjaminsen et al., 2013; Dykes and Jones, 2016). In some cases, legal frameworks are limited to (often short-term) concession agreements with tourism or hunting operators, and do not make provision for long-term investment and management by an NGO. In many countries there are also no or few dedicated individuals responsible for overseeing the administration and oversight of CMPs. In some cases, there are challenges around insufficient knowledge within governments of the different CMP-models and their implications, leading to a tendency to stick with the status quo. Collectively, these issues can mean that CMPs agreements can take years to sign, making some countries unattractive to conservation investors.

(3) Revenue retention at park level is seen as a critical success factor for delegated models but is often resisted by authorities (Baghai et al., 2018b, 2018a). Such resistance persists even when the savings associated with delegating management exceeds revenues. Requests for revenue retention does pose a genuine dilemma for wildlife authorities and parastatals who rely on income from PAs for their central functionality (see Section 9). This can be addressed through macro-level business planning at agency and park level.

(4) In some countries, governments are not willing to devolve the amount of authority needed to give CMPs a reasonable chance of success, or to give CMP partners long-term mandates, which can discourage significant investment. Private investors may seek financial returns from their investments, whereas for others (notably NGOs) the return on investment is likely to be in the form of conservation and/or social outcomes. Either way, obtaining those returns is likely dependent on sufficient time to achieve ecological rehabilitation which can be a lengthy process.

(5) Some critics suggest that CMPs do not sufficiently develop local capacity for wildlife authority staff, particularly among senior staff (Baghai et al., 2018b; Scholte et al., 2018). However, in well-structured CMPs that require local hiring and capacity development, the vast majority of staff are local and the opportunity for local staff to work in a high-capacity and well-funded team, and alongside international experts, has potential to yield greater capacity-building than PAs suffering from critical skills and funding-shortages or in environments of weak governance and accountability. Some CMPs explicitly target capacity-building of government staff, such as the Gorongosa Restoration Project (The Gorongosa Project, 2019). Governments can and should build into any CMP the requirement for capacity development of its staff, so that benefits extend beyond the CMP site.

6.2. *Constraints associated with NGOs and donors*

While the area encompassed by CMPs is growing, a minority of PAs currently receive such support, and few are under delegated management (Baghai et al., 2018b). There is a shortage of NGOs with a focus on, or the necessary skills to engage in, PA management. Some of the largest NGOs are focussed primarily on other issues that do not directly support PA estates (Lindsey et al., 2018). Similarly, many donors who support biological conservation do not invest in PA management. While it is important to address issues such as HWC or the illegal wildlife trade, this work could also be combined with more of a focus on support for management of PAs, as they typically provide core refugia for wildlife. Approximately 90% of PAs in Africa are under-funded and among those, average budgets are just 10–20% of what is required (Lindsey et al., 2018). In the absence of urgent support many of those PAs will be lost to human pressures. Thus, we argue that providing support for PA management is one of the most direct ways that NGOs and donors can improve conservation prospects in Africa. This is particularly true for the vast estate of semi-protected areas (such as the vast areas of land designated as hunting blocks) that exist in Africa that typically receive less state funding than national parks and that are coming under

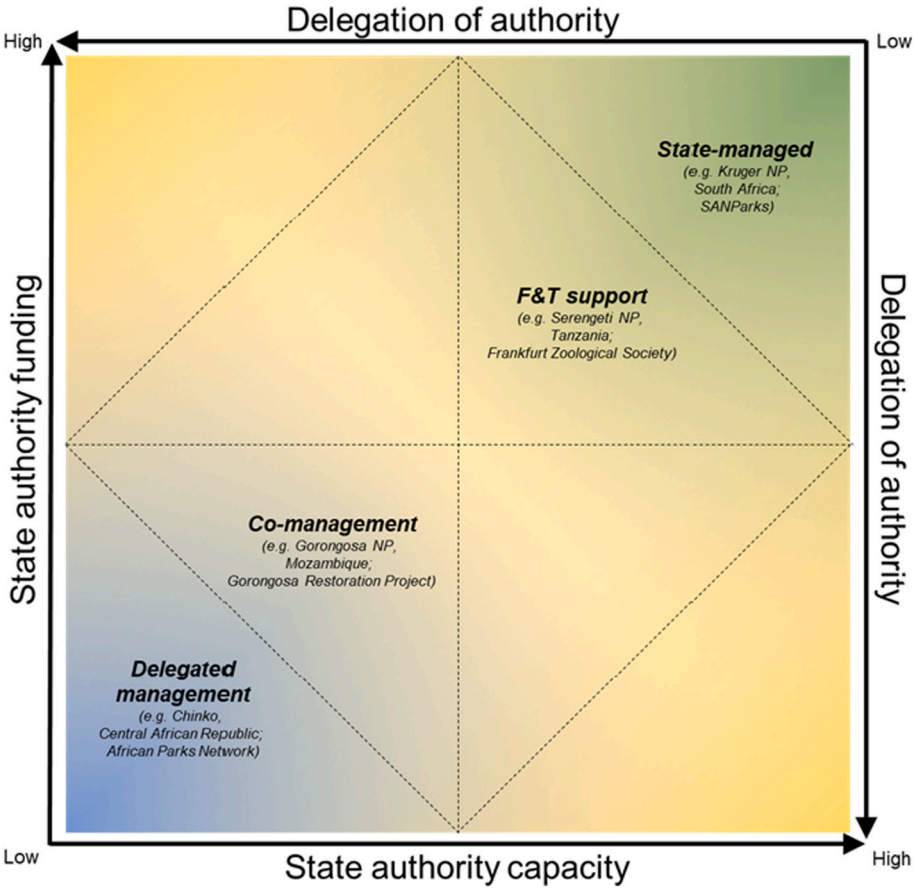

Fig. 3. Suggestions of appropriate CMP models (with examples) applicable to varying scenarios of capacity (proficiency and experience [current or historic] of effective PA management) and funding of state wildlife authorities. Also shown is the level of management responsibility delegated by the state to CMPs for different scenarios.

increasing human pressure (Lindsey et al., 2016).

Not all NGOs involved in CMPs are effective (Table 2). In some cases, under-performance appears to be due to inadequate CMP agreements or lack of sufficient governmental support, but in other cases due to inexperience, inefficiency or incompetence on the part of partners (Baghai et al., 2018a). There is also a critical shortage of quality PA-managers and particularly ones willing to live and work in the remotest parts of Africa. In some cases, CMP partners have pulled out too early and without having built sufficient state capacity, resulting in the reversal of conservation gains (e.g. Quirimbas, Mozambique) (Baghai et al., 2018a).

7. Reframing the discourse around CMPs

We urge a reframing of discourse around CMPs based on a clear understanding of the nature of these partnerships and how they are implemented. Rather than viewing the adoption of a CMP as a sign of failure, we encourage African governments to recognise and harness the potential associated with CMPs as a tool for attracting foreign investment, stimulating the economy, supporting community development and, of course, enhancing conservation management effectiveness. African wildlife authorities may have dynamic, committed and skilled staff, but without the resources required to manage large PA estates, they cannot succeed. State-run conservation models are unable to fulfil their potential in Africa in the absence of significant elevations in funding from host governments, which we see as unlikely in the near- to medium-term, and/or a rapid adoption of innovative financial models (Lindsey et al., 2020, 2018). There is no shame in this: some countries in Africa have proportions of land under protection that are much higher than the global average and much higher than that in many rich nations, have PAs facing severe threats, and host megafauna that is extremely challenging to manage, all against a backdrop of huge human and economic development needs and rapidly growing human population (Lindsey et al., 2017b).

8. Recommendations for NGOs and donors

We urge donors, the NGO community and private foundations and philanthropists to consider a greater focus on supporting the management of PAs in Africa with a view to systematically increasing the proportion of PAs with support via CMPs. This requires significant resources over a long period of time. Donors should pay close attention to the structure of CMP models and only support those that are transparent, clear, and well-designed. However, at the same time, NGOs need long term secure funding from the donors. In addition, donors should require clearly defined outcomes, outputs and a monitoring and evaluation plan to measure progress and ensure that CMPs comply with global standards and effectively engage local communities.

NGOs who are new entrants to PA management will face the challenge of raising funding without having first developed a proven track-record in PA management and support. In such cases, we recommend starting with the financial and technical support model, gradually building up financial resources and technical expertise, developing understanding of the pros and cons of various CMP models and working towards a more delegated model over time. This model also enables the authority to work with the partner, build trust and collectively design a plan to address the needs of the PA. Alternatively, inexperienced NGOs

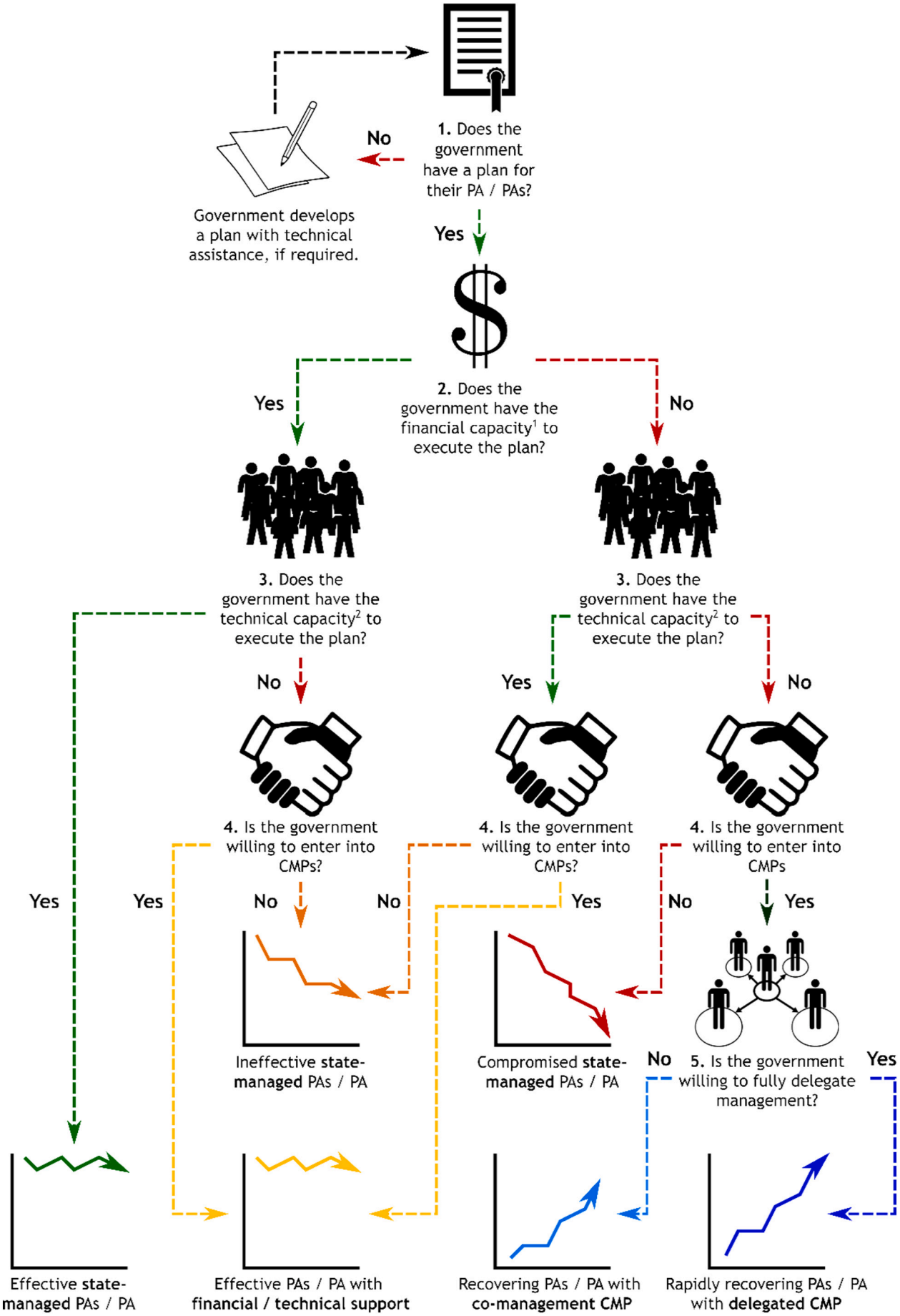

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Fig. 4. A decision-tree to assist African wildlife authorities in considering appropriate Collaborative Management Partnership (CMP) models given their financial and technical capacities. Also shown are the likely PA outcomes under the different capacity and CMP scenarios. Notes: 1Generally, African PAs require approximately US $ 1000 per km2 per annum to be effectively managed (Lindsey et al., 2018). This value can, however, vary depending on specific threat burdens and management efficiency. Regarding technical capacity, PAs require full complements of sufficiently skilled staff including, for example, managers; administrative personnel; monitoring and evaluation specialists; veterinary services; law enforcement officials; and support staff. If governments are unable to recruit or effectively train PA staff, they should consider CMPs.

could partner with more experienced ones – thus minimising the risk of making mistakes and reducing the faith of governments in CMPs. African Parks, recognising limits to their ability to expand, have started to partner with other organisations to transfer their experience and knowledge in the realm of delegated management of PAs (African Parks, 2019).

NGOs and donors involved in CMPs should consider taking steps to ensure the training of a steady stream of competent PA managers, with an emphasis on host-country nationals. Real focus is needed to identify nationals that show early potential and provide support for their career development via in-service training, mentorship. NGOs might also consider partnering with educational institutions such as Mweka and Garua to create vocational training courses for would-be PA managers. Such capacity building will tackle both the shortage of expertise, increase their political acceptability, and allay concerns about insufficient capacity building. Indeed, maximising the capacity building associated with CMPs will help to bolster their social and political sustainability (Scholte et al., 2018). NGOs engaged in delegated models need to develop mechanisms to keep host countries and relevant stakeholders fully abreast of their activities to maximise transparency and trust and allay concerns about loss of control. NGOs and wildlife authorities involved in CMPs must also develop the highest possible standards of conduct and full awareness of and compliance with international human rights standards.

To maximise the value of PAs to the host country, to increase their social and political sustainability and to access funding from a wider group of donors, we offer three key recommendations.

a) Building on the successes achieved at some CMP sites, we urge partners to help highlight the critical contributions of PAs to rural, national and even global economies. This means effectively engaging communities in the development and governance of the CMP. Partnering with development organisations to deliver services to local people, maximising economic linkages with local communities, seeking opportunities for providing economic stake-holdings in tourism ventures, maximising local employment, hiring communities for the delivery of conservation services, developing joint ventures for agriculture and other businesses in adjacent areas, improving local security, and providing support for disaster-relief, etc. (Lindsey et al., 2020). These kinds of approaches will help tackle the potential mismatch between the local people that bear the actual and opportunity costs of conservation and the world at large that reaps the benefits of their presence (Green et al., 2018). Such approaches will help build strong relationships with neighbouring communities and render CMPs eligible for development- as well as conservation funding.
b) Concurrently, it is critical that NGOs involved in CMPs try to document as closely as possible the financial, economic and social value of the PA and the CMP, as such data are critically scarce and are essential to demonstrate the value of PAs to economies and host countries.
c) We recommend efforts to diversify funding streams via efforts to capture the value of ecosystem services provided by PAs (Lindsey et al., 2020; Malhi et al., 2020). Other possibilities include attracting funding via biodiversity off-sets, endowments, impact investment funds, and debt-for-nature schemes (Convergence, 2017; Edwards et al., 2014; Lindsey et al., 2018). Harnessing these additional funding streams would increase the resilience of CMPs.

9. Recommendations for African governments

We recommend that African governments interested in attracting foreign investment in the conservation sector undertake a set of steps to ready their countries for CMPs. African countries might consider developing a long-term vision for their PA networks through a participatory process involving relevant stakeholders. Several African countries have done this, and these can be used as a model for others. This will require reflection on where the country's wildlife authority sits on the spectrum of capacity and financial resourcing to help identify the most suitable CMP models for their situation ((Saporiti, 2006), Fig. 4). There exists a potential spectrum that wildlife authorities could position themselves on from - 'full implementing agency', at one end where highly funded and capacitated wildlife agencies are able to manage PAs with comparatively lower levels of assistance to 'regulating agency' - where low levels of funding or capacity preclude an effective implementation role (Baghai et al., 2018b). 'Regulator' wildlife authorities would play a critical role in supporting, facilitating, and participating in the management of PAs via CMPs and establish monitoring-and-evaluation frameworks linked to outputs agreed upon in CMP agreements. Such authorities would play a critical enabling role for CMPs, while ensuring that partners are accountable and produce results. Effective regulation requires dedicated staff, and wildlife authorities interested in scaling CMPs might consider developing a specialized CMP unit to oversee partnerships in the country's PA network. 'Regulator' authorities should be funded centrally and not expected to derive running costs from the PA network; thus, removing the constraint that discourages the allowance of revenue-retention at the PA-level.

The decision regarding which models to engage in for a country's PA estate is the government's. We recommend that African governments take the time to understand the different CMP models that are available and assess the pros and cons of different approaches. To this end, clear national governmental guidelines outlining the pros and cons of the various models and their suitability to different circumstances would be useful. Decisions could then be taken regarding which models are acceptable for which PAs. This framework, coupled with clarity on expectations from and requirements of partners (see below), would then allow for quick decision-making. We also urge governments to discuss with their counterparts in other countries their experience with CMPs. Also develop associated templates to provide a starting point for discussions with NGOs/or standard agreements, thereby removing time wasting in agreement development.

Additionally, African governments could produce prospectuses for the PAs for which investment is most needed, as was done in Mozambique, for example, ahead of the 2018 investment forum (Wright, 2018). Such prospectuses could include an outline of the biological significance of the area, the primary threats, access and infrastructure, the kind of assistance that would be needed and the kind of partnership model(s) that would be considered. Once these elements are in place, an African government could identify mechanisms for attracting prospective investors to the country, such as via direct solicitation, or via investor conferences.

Selecting the right partner is critical for PPPs in general (Hurlbert and Gupta, 2015) and for CMPs for PA management specifically. Thus, clear criteria for identifying whether a partner is qualified is essential (Table S2) as well as a clear and transparent process for selecting the partner. Once a partner is vetted and engaged via a contract, monitoring performance relative to agreed-upon objectives is critical, and we

recommend the designing of standardised monitoring and evaluation frameworks. The ability of host governments to recognise and act when a partner is not fulfilling its promises or objectives is critical. At the same time, agreements must be legally binding such that partners that are fulfilling their commitments are secure in their position.

Critical to attracting investment in the conservation sector is the creation of enabling environments with minimal bureaucracy and clear legal foundations for CMPs. Governments might consider creating 'one-stop-shops' to facilitate foreign investment – where all the necessary permits (such as immigration permits, approvals for CMPs, tourism licences etc.) can be obtained through one administrative point of contact in an expedited manner.

10. Conclusions

In summary, CMPs offer African governments potentially effective vehicles for harnessing international willingness to pay for conservation, and additional skills that complement that of the PA agency. CMPs can help give donors confidence to invest in countries with high levels of corruption, low credit-ratings and poor track records of managing donor finance. In addition, successful CMPs have potential to unlock secondary foreign direct investments via tourism and other innovative financial models, and through engagement of development-oriented donors. To attract significant investment in the conservation sector, African governments must create enabling environments that are attractive to conservation investors and that maximise the prospects of CMPs succeeding. By doing so governments have the opportunity to achieve dramatic improvements in their PA networks. CMPs can help rebalance the global costs and benefits of African PAs, improve outcomes for local people and wildlife, and start to unlock the financial, ecological, and social potential offered by Africa's PA network. Many of the recommendations outlined in this paper have potential application in other parts of the world suffering from recurrent budget deficits and skills shortages for the management of PAs.

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Declaration of competing interest

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Appendix A. Supplementary data

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