State of protected and conserved areas in Eastern and Southern Africa

STATE OF PROTECTED AND CONSERVED AREAS REPORT SERIES NO.1

BIOPAMA

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10 Protected area management effectiveness

10.1 What is effective management?

Management effectiveness relates to how well protected areas are being managed – primarily the extent to which management is effective at conserving values and achieving goals and objectives, such as protecting biodiversity (Hockings et al., 2006; Leverington et al., 2010). Specific components of good management vary with the context and the characteristics of each protected area: for example, a remote community-based protected area with few visitors needs fewer staff and recreational facilities than an iconic tourist destination.

Not all protected areas are managed effectively to protect the values that they were designed to conserve, and the quality of management of most protected areas is poorly understood (Geldmann et al., 2015). There is strong evidence to suggest that there are positive correlations between certain aspects of protected area management (such as staffing and budgets) and species conservation outcomes (Edgar et al., 2014; Geldmann et al., 2013). There has been a lot of work over the last 30 years to define general characteristics of well-managed protected areas, and then to measure how well individual areas match these standards. These desirable characteristics have been incorporated as indicators in methodologies, such as the management effectiveness tracking tool, and formed the basis of the 'common reporting format' for the global compilation of management effectiveness data (Leverington et al., 2010). More recently, the Green List process has undertaken a detailed and robust exercise to develop global standards for protected areas, which can be tailored and interpreted for different countries.

Some studies have been undertaken on particular types of protected area. For example, a study on the performance of protected areas for lion showed that protected areas tended to be more effective for conserving lions and/or their prey where management budgets were higher, where photographic tourism was the primary land use, and, for prey, where fencing was present. Lions and prey fared less well relative to their estimated potential carrying capacities in poorer countries, where people were settled within protected areas and where protected areas were used for neither photographic tourism nor trophy hunting (Lindsey et al., 2017).

10.2 Assessing management effectiveness

The evaluation of management effectiveness has been a growing theme in protected area management and global biodiversity conservation for many years (see Box 10.1). It provides a lens through which to look at important themes in protected area management, in particular:

1) Design issues relating to individual sites as well as protected area systems;
2) Adequacy and appropriateness of management systems and processes; and
3) Delivery of protected area objectives including conservation of values (Hockings et al., 2006).

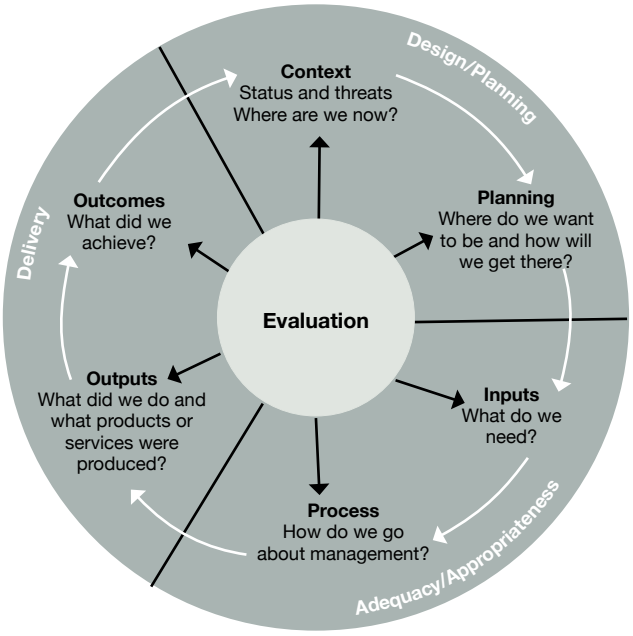
Broadly speaking, management effectiveness evaluation can:

- Enable and support an adaptive approach to management of protected areas;
- Assist in effective resource allocation between and within sites;
- Promote accountability and transparency by reporting on effectiveness of management to interested stakeholders and the public; and
- Help involve the broader community of stakeholders, including government agencies, NGOs and local communities, build constituency and promote protected area values (Hockings et al., 2006).

As the global conservation community paid greater attention to the issue of management effectiveness and the need for tools to help assess it, it became clear that with such a variety of systems and contexts, designing a single assessment tool would not be practical. Management effectiveness assessment should be tailored to the particular demands of the site, given that each protected area has a variety of biological and social characteristics, pressures and uses.

In 2000, IUCN WCPA developed a framework to guide the development of assessment systems for evaluating management effectiveness. This framework was updated in 2006, and continues to be the framework to which most PAME approaches relate conceptually (Coad et al., 2015). The framework identifies six core components, each associated with different aspects of management effectiveness: context, planning, inputs, process, outputs, and outcomes (see Figure 10.1) (Hockings et al., 2006).

Figure 10.1 The management cycle and evaluation of protected area management



Source: Hockings et al. (2006, p. 12).

10.3 International commitments to management effectiveness evaluation

Aichi Target 11 recognises that increases in coverage alone will not halt the loss of biodiversity, and highlights the need for effective management:

> *Target 11: By 2020, at least 17 per cent of terrestrial and inland water areas and 10% of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscape and seascape (CBD, 2010a, p. 9).*

PAME is included in multiple places in the CBD's PoWPA. For example, Goal 4.2 is *"To evaluate and improve the effectiveness of protected areas management*" (CBD, 2004, p. 20).

CBD COP 10 Decision X/31 calls for Parties to

> *… expand and institutionalise management effectiveness assessments to work towards assessing 60 per cent of the total area of protected areas by 2015 using various national and regional tools, and report the results into the global database on management effectiveness (CBD, 2010b, p. 5).*

IUCN Resolution WCC-2012-Res-076 calls for the implementation of management effectiveness assessment systems for marine protected areas (IUCN, 2012), while IUCN Resolution WCC-2016-Res-036-EN calls for greater evaluation of the effectiveness of privately protected areas in conserving biodiversity, natural heritage and ecosystem services (IUCN, 2016b).

10.4 Global Database on Protected Area Management Effectiveness (GD-PAME)

The GD-PAME was developed though a collaboration of universities, IUCN and non-government organisations, and is now maintained by UNEP-WCMC in collaboration with governments, non-governmental organisations, academia and industry (UNEP-WCMC & IUCN, 2019aa).

It comprises records of many thousands of assessments of PAME collated from around the world, showing which methodologies have been applied where and when.). As of 2019, over 240,000 protected areas were in the WDPA, with information on management effectiveness assessments available for 21,743 (9%) of them. This equates to 20% of the area of all protected areas in the WDPA. A lack of systematic reporting, duplicate assessments of the same site, use of multiple assessment tools, and sometimes a lack of political will makes this element of Aichi Target 11 difficult to track (UNEP-WCMC et al., 2019). While each methodology collects different information, a 'common reporting format' has been developed, allowing the cross analysis of PAME information from a range of different assessment methodologies (Leverington et al., 2010). This can be used, in conjunction with qualitative analysis of management effectiveness reports and other literature, to generate detailed analyses and reports of management effectiveness, including key issues, strengths and weaknesses and threats, across regions of the world (Leverington et al., 2010; Nolte et al., 2010) (see Box 10.1). Unfortunately, the analysis has not been conducted since 2010.

Box 10.1 Why report on protected area management effectiveness?

There are a number of reasons why countries might choose to report on assessments of management effectiveness:

- Meet country obligations under the CBD (PAME is an official indicator under Aichi Target 11).
- Inventory of national data stored in a systematic way provides a clear picture of the management effectiveness of the national protected area estate and can contribute to adaptive management.
- GD-PAME allows identification of areas of strengths and weakness in protected area management, providing information to assist countries to prioritise resource allocation and target capacity development. It also provides data on threats.
- Information in the GD-PAME can be analysed for the region, continent and world to understand better the relationship between management effectiveness and biodiversity outcomes.

To view the data and download the GD-PAME User Manual, please visit: **https://pame.protectedplanet.net/**.

To submit data or for more information, please contact: **protectedareas@unep-wcmc.org** or **rcmrd@rcmrd.org**.

10.5 Tools to assess management effectiveness

The IUCN WCPA Framework (see Figure 10.1) has informed the development of a wide variety of PAME assessment methodologies. These range from detailed site-level studies to broad system-level assessments using many different processes, including questionnaires and workshops, among others (Hockings et al., 2015; Leverington et al., 2010).

Methodologies have been developed for different types of protected areas, from those designated at national level to those designated under the scope of regional and international conventions and agreements, such as World Heritage Sites (see Table 10.1).

10.6 Principles for PAME assessments

There are many benefits to assessing protected and conserved area management effectiveness, but there are also challenges and

Table 10.1 PAME methodologies used most commonly in Eastern and Southern Africa

Acronym	Tool
Birdlife IBA	Birdlife - Important Bird and Biodiversity Area Assessments
EoH	Enhancing our Heritage (primarily for natural World Heritage sites)
IEG	(World Bank) Independent Evaluation Group Assessments
METT	Management Effectiveness Tracking Tool
PAMETT	METT adaptation for Madagascar
RAPPAM	Rapid Assessment and Prioritisation of Protected Area Management
SAPM	Management Effectiveness Assessment for Madagascar's Protected Areas System
SGBD / SMART	SMART variation specific to Madagascar
SMART	Spatial Monitoring and Reporting Tool
West Indian Ocean MPA	West Indian Ocean Marine Protected Area Assessment
WH Outlook Report	World Heritage Outlook Report

limitations, and it is imperative that assessments are undertaken appropriately to mitigate these risks (Hockings et al., 2006). In order to support the selection and application of methodologies, eight principles for good management effectiveness assessments have been developed (Hockings et al., 2015).

Evaluations of management effectiveness of protected areas should be:

1) Part of an effective management cycle, linked to defined values, objectives and policies and part of strategic planning, park planning and business and financial cycles;
2) Practical to implement with available resources, giving a good balance between measuring, reporting and managing;
3) Useful and relevant for improving protected area management, for yielding explanations and showing patterns and for improving communication, relationships and awareness;
4) Logical and systematic, working in a logical and accepted framework with a balanced approach;
5) Based on good indicators, which are holistic, balanced and useful;
6) Accurate - providing true, objective, consistent and up-to-date information;
7) Cooperative and participatory with good communication, teamwork and participation of protected area managers and stakeholders throughout all stages of the project wherever possible; and
8) Focused on positive and timely communication and application of results.

Assessments, while highly technical, are also political and social processes. It is critical to examine who participates in the process, and whose perspectives are included in the results: there is a risk that people who are not included may dispute the findings, and their viewpoints may be very different. A comprehension of the underlying reasons for conducting assessments is also important to ensure buy-in and support. They must not be seen as a performance review of staff, as this will impact on the accuracy of the assessment.

It is also important to consider carefully the communication of assessment results. Without effective communication, results may be misinterpreted or used in inappropriate ways, such as making unwarranted comparisons (Campese & Sulle, 2019). Assessment results can also be limited by the availability and quality of baseline data. Once results have been communicated, it is also important that the areas identified for improvement are acted upon and that there is sufficient funding and capacity available to ensure effective change to meet the threats/issues/challenges identified in the assessments. If this is not the case and nothing changes, it can lead to complacency and despondency from the protected area managers and reduced interest in conducting future assessments. Assessments, and the processes to conduct them, should lead to positive adaptive management which results in more effectively managed protected areas.

10.7 Integrating management effectiveness with governance and social assessments

Most PAME assessment methodologies do not address governance or social equity issues in detail. There is, however, substantial synergy between the different assessments and a lot to potentially be gained by doing them concurrently. All PAME methodologies do look at the extent of stakeholder involvement, the threats to protected areas, and some also explore benefits and related aspects of social aspects of management. A greater exploration of protected area governance and equity is available in Chapter 4.

Some standards and methodologies have been developed that integrate substantial elements of management effectiveness with governance and/or social assessment (Campese & Sulle, 2019), such as the Green List of Protected and Conserved Areas (see section 9.2).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10.8 PAME in Eastern and Southern Africa

Analysis of the percentage of protected areas assessed by PAME in the GD-PAME (Figure 10.2) shows that Africa has done significant work in this area. Initially many assessments were related to donor funding requirements but over the years many countries in the region have institutionalised assessments and some, including Madagascar, South Africa and Zambia, have adapted the METT tool to their specific purposes. South Africa has been conducting METT assessments over a number of years, using METT targets to improve management and as a real way to address issues.

Unfortunately, there have been few analyses of the outcomes of these assessments to understand what the outcomes were at a region-wide level.

Since 1990, there has been a change globally in terms of who is leading PAME assessments. Initially most assessments were NGO-led, but from 2010 to 2014 there has been an increase in being agency-led efforts (Coad et al., 2015).

In the GD-PAME, there are 681 protected areas with at least one PAME assessment in Eastern and Southern Africa (Table 10.2). This represents only 13% of the region's protected areas. Many of the protected areas have been assessed more than once, bringing the total number of assessments to 1,510. Figure 10.3 shows the number of protected areas with PAME assessments in GD-PAME for Eastern and Southern Africa, while Figure 10.4 shows the percentage of protected area with PAME assessments in the GD-PAME.

10.8.1 Inventory of PAME assessments in Eastern and Southern Africa

This section of the report draws heavily on the analysis completed by Jessica Campese and Emmanuel Sulle in their report, *Management Effectiveness, Governance, and Social Assessments of Protected and Conserved Areas in Eastern and Southern Africa: A rapid inventory and analysis to support the BIOPAMA programme and partners*, prepared for the BIOPAMA programme (Campese & Sulle, 2019). The report considered management effectiveness, governance, and social assessments in terrestrial and/or marine protected or conserved areas in Eastern and Southern Africa. The primary focus was on methodologies developed specifically to assess one or a combination of these issues and intended for replicated use.

The inventory included the GD-PAME, as well as academic studies and full or partial assessments contained within broader reports. It also included assessments that were reported in survey and interview responses, but were not reported in the GD-PAME. In particular, the analysis included 294 METT assessments in South Africa for 2015, 2017 and 2019 based on survey responses (and published documents) coupled with confirmations in follow up interviews that South Africa does SA-METT assessments at least every two years (in some sites annually) in all government governed terrestrial protected areas. Project-specific impact assessments and screening reports were not included. While the inventory is large, it is not exhaustive. Not all of the inventoried assessments were included in the detailed analyses because they did not constitute complete assessments using readily replicable methodologies. These are categorized as 'Other'.

In addition to the assessment types described below [or above, depending on where inventory graphs are in relation to this text], the inventory included governance and social assessments conducted in landscapes that host protected and conserved areas as well as broader, innovative processes involving elements of governance and social assessment.[109] Biocultural Community Protocols (BCPs), for example, "articulate community-determined values, procedures and priorities" including (where relevant) in relation to protected and conserved areas. The process can include describing, reflecting on and enabling recognition of indigenous peoples' and local communities' territory governance systems and related rights and responsibilities. BCPs have been developed in several countries in the region, including Kenya, Madagascar, Namibia, and South Africa. (see Natural Justice website)

The full report is available **online**.[110]

109 There are also many related experiences and resources not included in the inventory because, while relevant to the topic, they do not involve assessment per se. This includes case studies from Eastern and Southern Africa included in the ICCA Registry.

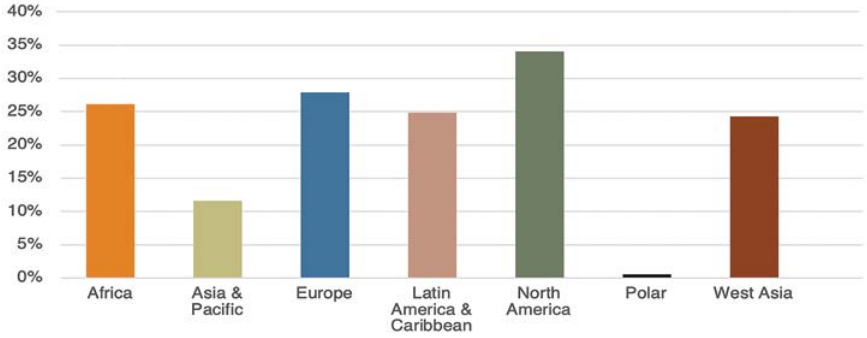
110 https://biopama.org/node/349

Table 10.2 PAME assessments in Eastern and Southern Africa

Country	Number of protected areas (WDPA)	Number of protected areas with PAME assessment records (GD-PAME)	Number of PAME assessment records (GD-PAME)	Number of PAME assessments inventoried by Campese & Sulle (2019)	Number of protected areas with more than one assessment
Angola	14	4	4	4	0
Botswana	22	6	8	9	2
Comoros	8	0	0	0	No assessments on GD-PAME
Djibouti	7	1	1	1	0
Eritrea	4	0	0	0	No assessments on GD-PAME
Eswatini	14	0	0	6	No assessments on GD-PAME
Ethiopia	104	17	20	27	3
Kenya	411	41	70	112	18
Lesotho	4	2	1	1	0
Madagascar	157	78	79	476	1
Malawi	133	19	23	29	4
Mauritius	44	13	19	13	4
Mozambique	44	10	44	45	11
Namibia	148	18	40	44	10
Rwanda	10	4	6	5	2
Seychelles	40	6	10	12	2
Somalia	21	0	0	0	No assessments on GD-PAME
South Africa	1 580	205	722	1 606	173
South Sudan	27	4	4	4	No assessments on GD-PAME
Sudan	23	2	2	2	0
Tanzania	840	183	329	340	80
Uganda	712	37	54	53	10
Zambia	635	22	65	70	12
Zimbabwe	232	9	9	14	1

Source: Campese & Sulle (2019); UNEP-WCMC & IUCN (2019a)

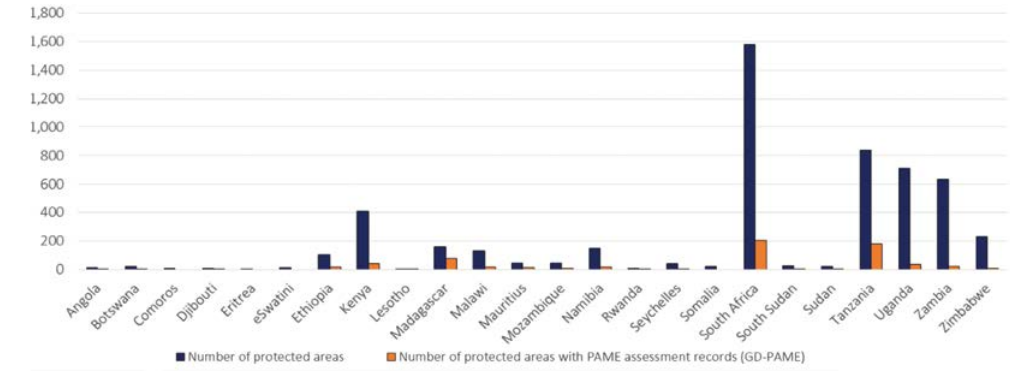
Figure 10.2 Percentage coverage of management effectiveness assessments per region



Source: UNEP-WCMC & IUCN (2019a).

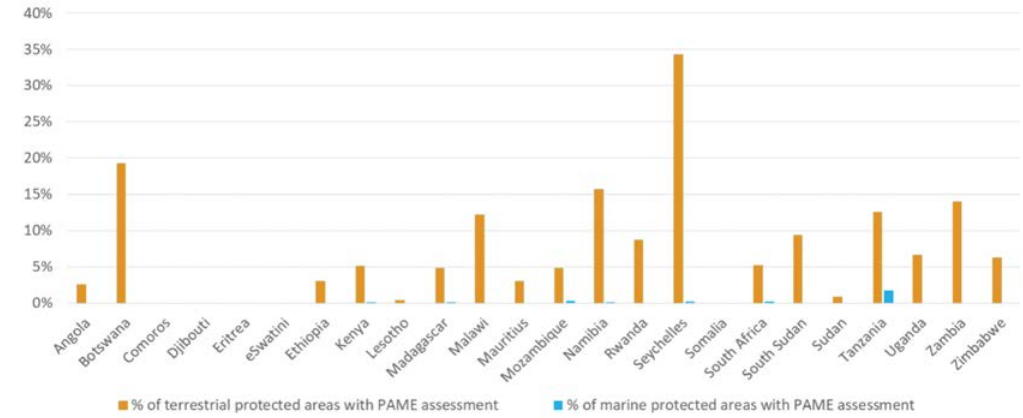
Note: Percentage coverage of all protected areas per region assessed for management effectiveness using different Protected Area Management Effectiveness (PAME) tools

Figure 10.3 Number of protected areas with PAME assessments in GD-PAME for Eastern and Southern Africa



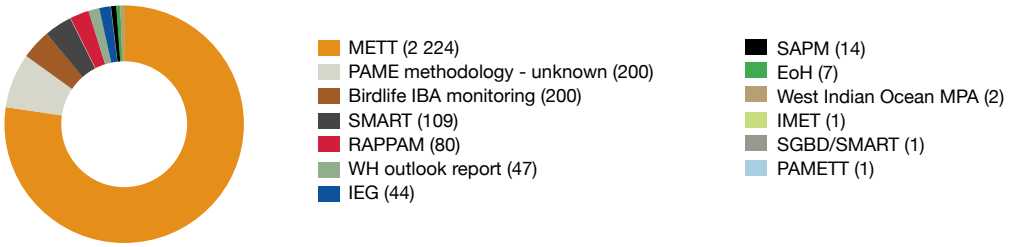
Source: UNEP-WCMC & IUCN (2019a).

Figure 10.4 Percentage of protected area with PAME assessments in the GD-PAME



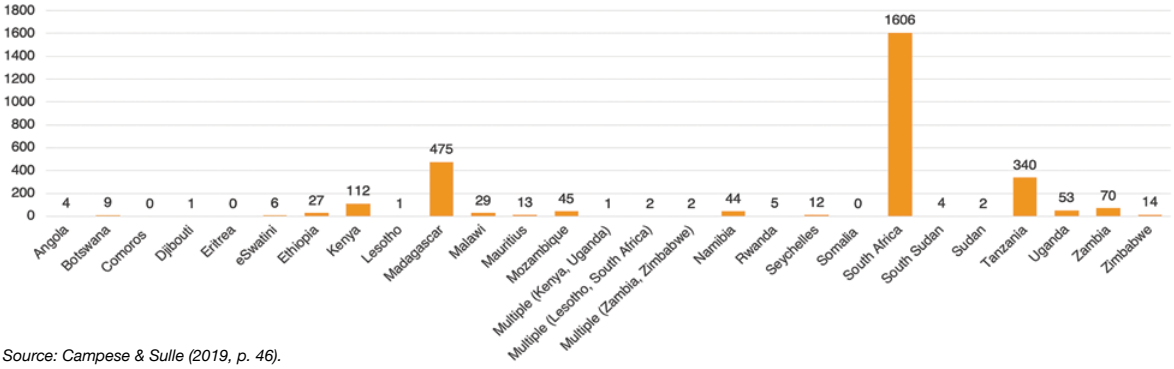
Source: UNEP-WCMC & IUCN (2019a)

Figure 10.5 Inventoried PAME assessments in Eastern and Southern Africa by methodology/tool (total 2 878)



Source: Campese & Sulle (2019, p. 44).

Figure 10.6 Distribution of inventoried PAME assessments by country



Source: Campese & Sulle (2019, p. 46).

A total of 2,686 management effectiveness assessments were inventoried in the analysis of PAME by Campese and Sulle (2019). Eighty of these were part of system-level RAPPAM assessments. METT assessments, including country-adapted versions of METT, comprise the large majority – 2,035 (over 75%) – of the inventoried PAME assessments (Figure 10.5).

PAME assessments have often been repeated in the same sites, in part because many donors, including the GEF and the World Bank require multiple assessments over time as a condition of their funding. METT assessments, in particular, have been repeated in many sites and, in more recent years, have been completed annually or bi-annually in state-governed protected areas in South Africa, Madagascar, and Zambia. World Heritage Outlook Reports were completed across 24 sites in 2014 and repeated in 2017.

Information about governance types was available for 2,046 of the PAME assessments. Over 95% were conducted in government-governed protected areas, followed by community governance (2%), private governance (2%) and shared governance (less than 1%).

The majority of PAME assessments in the analysis were in South Africa (53%), a country that has adopted METT at the national level for monitoring management effectiveness and has repeated assessments for multiple sites. Madagascar represents 18% of the assessments and Tanzania 13% (see Figure 10.6). Only Comoros, Eritrea and Somalia have no reported assessments.

The number of PAME assessments completed annually in the region has been increasing over time (See Figure 10.7), with METT assessments in particular increasingly annually (See Figure 10.8).

10.8.2 Inventory of combined assessments in Eastern and Southern Africa

The inventory included an analysis of social and governance assessments for protected areas as well as for those methodologies that combine two or more elements – i.e. management effectiveness, social impact, and/or governance – in ways that make it difficult to place them in a single category. Figure 10.9 shows the inventoried 'combined' assessments by methodology/tool.

Of the 31 assessments in the combined category, 20 used the Forest Stewardship Council (FSC) Risk Assessment approach, with five sites using the IUCN Green List (see section 9.2). The Green List includes explicit consideration of management effectiveness, governance and social assessment. FSC Risk Assessments, while not commonly cited among protected and conserved area assessments, were included in the inventory because the FSC-US Forest Management Standard includes questions on both forest management and governance, as well as some aspects of social impact, and these assessments have been relatively widely done in conserved forests in the region. This includes 17 village land forest reserves in Tanzania, assessed under a group FSC certificate with the Mpingo Conservation and Development Initiative (MCDI, 2019).

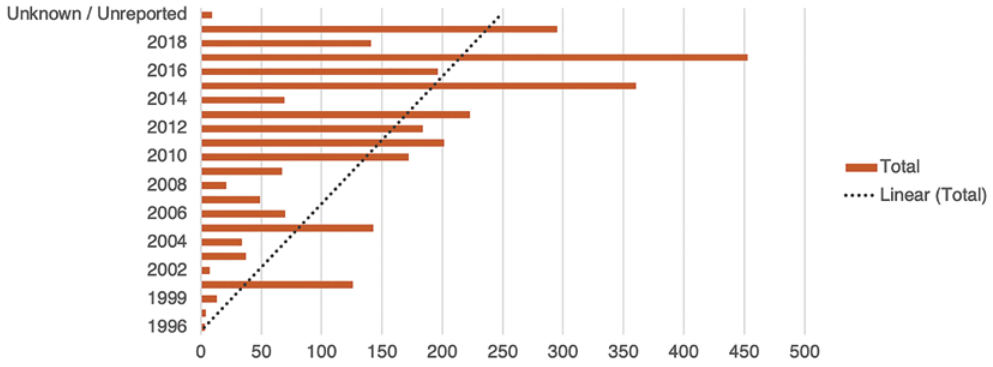
10.9 Results of PAME assessments in Eastern and Southern Africa

While there have been many PAME assessments conducted throughout Eastern and Southern Africa (see section 10.8), there has not been any recent and comprehensive attempt at the regional level to compile and analyse the outcomes of these assessments. The last global meta-analysis which included a regional analysis for Africa was conducted in 2010 (Leverington et al., 2010). In that analysis, a total of just over 960 assessments from Africa were recorded, and data was analysed for 644 sites using the most recent assessment available for each protected area. The overall mean effectiveness score (averaged across all individual indicators) was 49%, which was below the world mean (53%) and lower than any other region. Some 22% of the assessments scored in the bottom third of the scale (clearly unacceptable), while only 17% scored in the top third (sound management) (Leverington et al., 2010).

For natural and mixed (both natural and cultural) World Heritage sites, the IUCN World Heritage Outlook evaluates 14 different aspects of protection and management, including legislative framework, management system, relationship with local people, monitoring, boundaries of the site, education programmes, etc., followed by an overall assessment of protection and management effectiveness of each site. According to the most recent assessment from 2017 (Osipova et al., 2017), the conservation outlook of natural and mixed World Heritage sites in Eastern and Southern Africa, is either 'good' or 'good with some concerns' for 71% of sites, while 21% were assessed as 'significant concern' and 8% were considered 'critical'. For example, compared to the previous assessment in 2014, the results for Tsingy de Bemaraha Strict Nature Reserve in Madagascar declined from 'good' to 'good with some concerns', while Serengeti National Park in Tanzania improved form 'Significant Concern' to 'Good with some concerns'. The conservation outlook of all other sites in the region remained the same (Osipova et al. 2017). Half of the natural and mixed World Heritage sites in Eastern and Southern Africa were assessed as having 'mostly effective' or 'highly effective' protection and management, while 29% were assessed as 'some concern' and 21% as 'serious concern'. The individual ratings for the overall Conservation Outlook for each of the natural/mixed sites is given in Table 4.2.

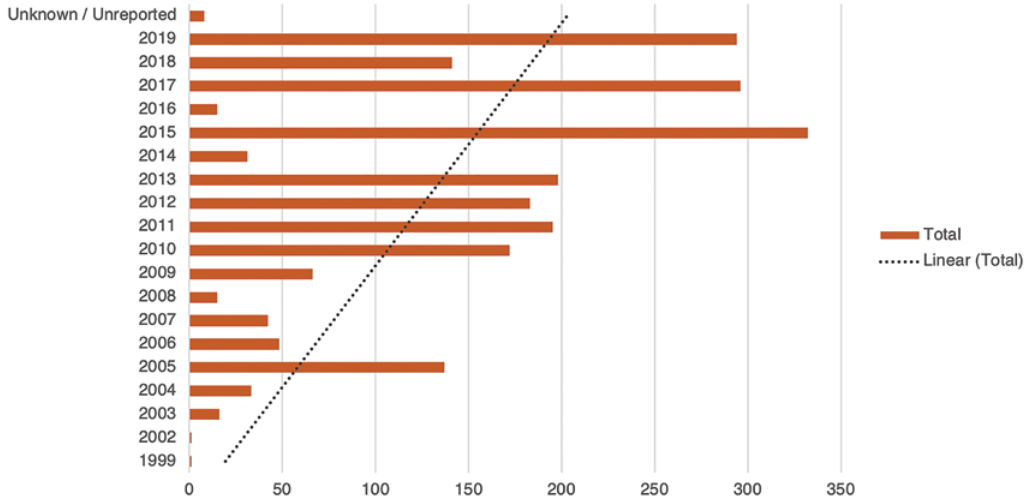
An analysis of management effectiveness for East Africa, conducted through the BIOPAMA programme in 2017, used 25 headline indicators as defined in the Leverington et al. (2014) report representing all elements of the protected area management cycle (BIOPAMA, unpublished). The results showed that 8% of the assessed protected areas have a sound level of management in place, while 34 % have basic management in place (see Figure 10.10). Almost half (40%) of the protected areas in the analysis have basic management in place but with major deficiencies. Eighteen percent of the protected areas were found to have inadequate management. Figure 10.11 shows the location of some of the protected areas in the analysis as well as their level of management effectiveness.

Figure 10.7 Inventoried management effectiveness assessments by year



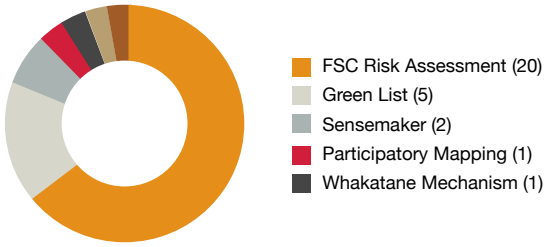
Source: Campese & Sulle (2019, p. 47).
A small error in allocation of assessments between 2014 and 2015 was discovered since Campese & Sulle (2019) was published. It has been corrected for this figure.

Figure 10.8 Inventoried METT assessments by year



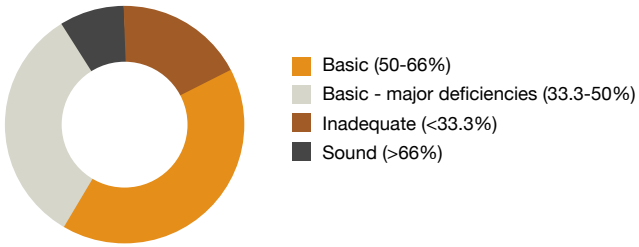
Source: Campese & Sulle (2019, p. 52).

Figure 10.9 Inventoried 'combined' assessments by methodology/tool



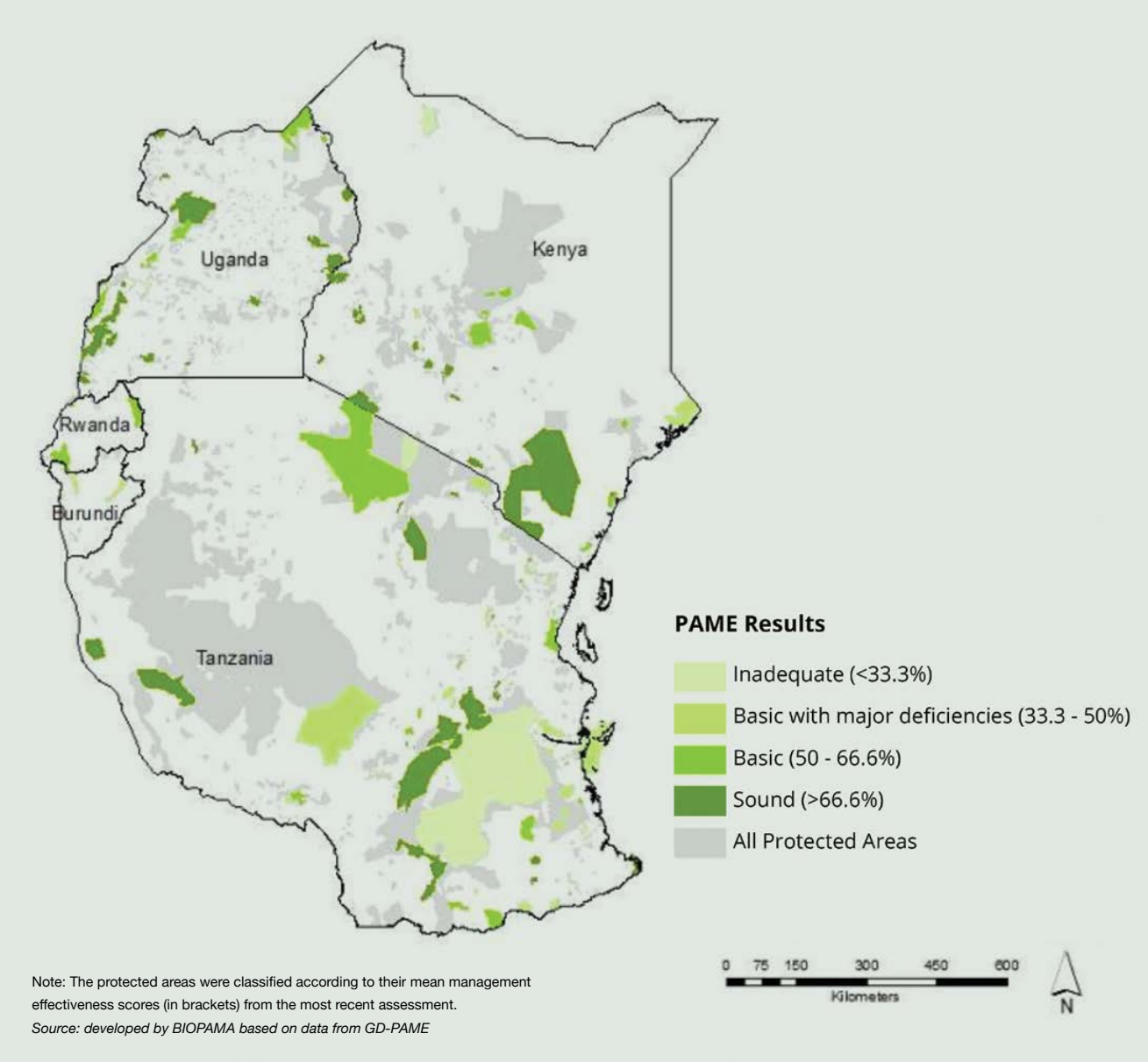
Source: Campese & Sulle (2019, p. 53).

Figure 10.10 Management effectiveness results for assessed protected areas in East Africa



Note: The protected areas were classified according to their mean management effectiveness scores (in brackets) from the most recent assessment.
Source: BIOPAMA (2017).

Figure 10.11 Map showing management effectiveness results for assessed protected areas in East Africa



Note: The protected areas were classified according to their mean management effectiveness scores (in brackets) from the most recent assessment.
Source: developed by BIOPAMA based on data from GD-PAME

To know which aspects of protected area management are effective, further analysis of the assessments was carried out to show mean scores for individual headline indicators (see Figure 10.12).

Analysis is based on the most recent assessment for each protected area. Headline indicators with less than 20 samples were removed from the analysis.

Planning was the strongest element of management overall, especially regarding aspects of establishment of sites while management planning was somewhat weaker. Amongst Inputs, indicators reflecting availability of funding and equipment were amongst the weakest aspects of management. Some indicators showed mixed results – governance and leadership and involvement of communities and stakeholders were assessed as relatively strong, but this was not reflected in positive effects of the protected area on local communities.

There have been some country-wide assessments, for example in 2014, South Africa conducted an analysis of management effectiveness of marine protected areas (Chadwick et al., 2014). The analysis highlighted a number of improvements since the previous analysis in 2009, including monitoring programmes, enhanced enforcement capabilities and improved stakeholder engagement. It further noted continued limitations in budgets, administrative processes, inadequate regulations, availability of skilled MPA staff and development of strategic plans.

10.10 Financing and resourcing of protected areas[111]

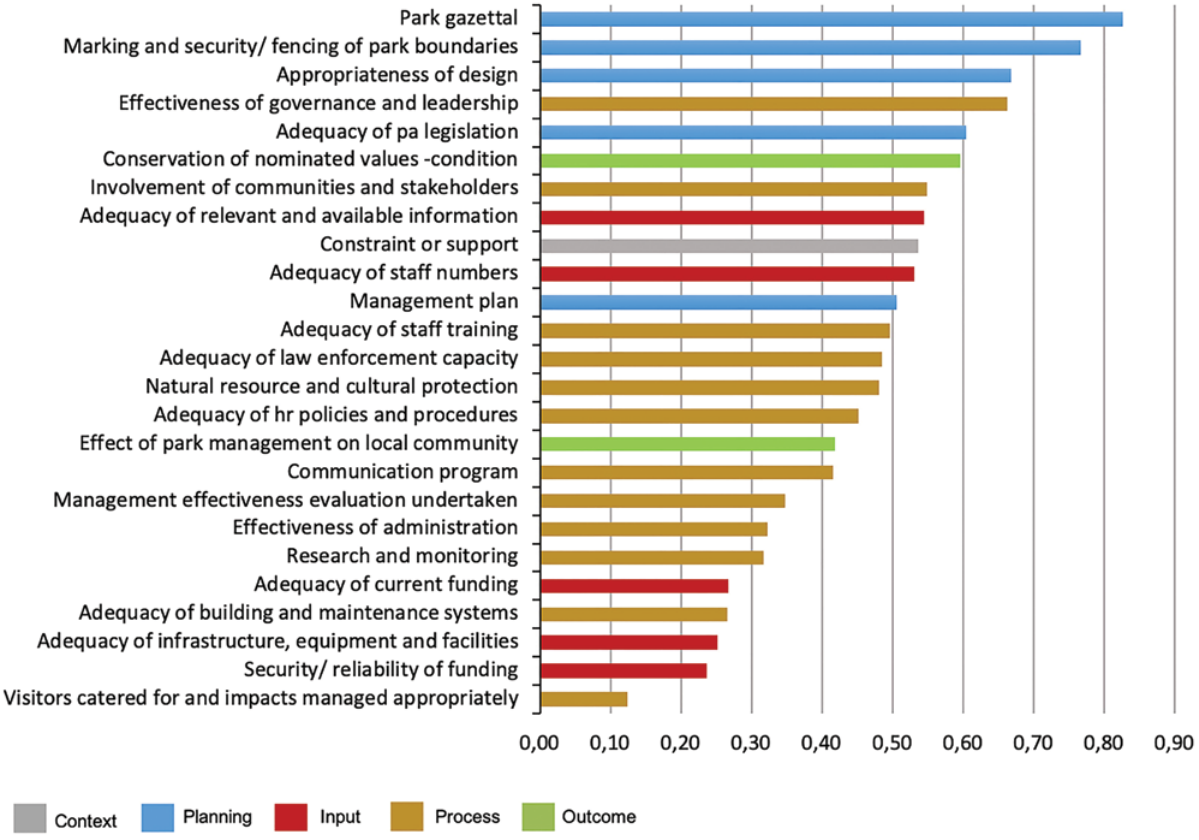
Protected and conserved areas play a key role in protecting biological diversity and ecosystem services upon which Africa's economy and people depend. These areas need reliable and sustainable sources of funding to maintain their daily management operations, meet conservation targets, provide quality visitor experiences, where appropriate, and provide benefits to communities living in proximity to the conservation areas.

Current sources of funding are, however, inadequate. A number of studies have been completed to assess the financial gap for protected area management (Credit Suisse et al., 2014; Emerton et al., 2006; Parker et al., 2012). While the exact figure may vary, there is general consensus that the current amount of funding available for the protection and management of conservation areas is wholly inadequate. A report by Credit Suisse, WWF, and McKinsey Group in 2014 estimated that US$ 300–400 billion is required annually to fund global biodiversity protection. Even if the current governmental and philanthropic conservation efforts are doubled to roughly US$ 100 billion per year, the report theorised, global biodiversity conservation is still faced with a global funding gap of US$ 200-300 billion per annum (Credit Suisse et al., 2014). The United Nations Development Programme (UNDP) Biodiversity Finance Initiative (BIOFIN) suggests a similar estimate of the global annual financing gap at US$ 150–440 billion (BIOFIN, 2019).

The exact estimate of global spending on biodiversity and ecosystems services is challenging to provide, due to considerable gaps and inconsistencies in biodiversity finance reporting and tracking (OECD, 2019). According to Parker et al. (2012), global spending on biodiversity and ecosystem services reached US$ 53 billion per year in 2010. OECD estimated the spending on biodiversity-relevant activities (based on available government budgets data) was US$ 49 billion in 2015 (by comparison, the fossil-fuel and agriculture sectors received US$ 500 billion of subsidies and government support per year (OECD, 2019). Of US$ 53 billion allocated for biodiversity conservation, 74% was spent in the developed world, only 6% in Africa (Parker et al., 2012) and 5% in Latin America.

A recent study of 2,167 protected areas, representing 23% of the global terrestrial protected area estate, found that less than 25% of the protected areas have adequate resources, staffing or budget (Coad et al., 2019). In developing countries, this protected area financing gap was estimated to be approximately US$ 0.2–0.9 billion per year in 2005 (CBD, 2005), while fewer than 6% of the

Figure 10.12 Average scores for headline indicators from the most recent assessments



Source: BIOPAMA (2017).

111 Francois Barnard and Kathleen Fitzgerald (Conservation Capital) made significant contributions to this section.

countries reporting to the CBD indicated that they had adequate resources for protected area management (Watson et al., 2014).

10.10.1 The funding gap in Eastern and Southern Africa

Eastern and Southern Africa's protected areas face a significant financing and resourcing challenge, especially those areas that protect large and wide-ranging mammals, such as rhino, elephant, lion and wild dog. A study found that the annual cost of managing protected areas that support lions is approximately US$ 2,000 per km^2 in unfenced areas and US$ 500 per km^2 in fenced areas (IUCN ESARO, 2020, p. 16). The findings were later confirmed by Lindsey et al. (2018), who estimated that effective management of protected areas with lion requires US$ 1,000 – 2,000 per km^2 (IUCN ESARO, 2020, p. 16). However, the majority of protected areas in Africa are managed with less than US$ 50 per km^2 (Fitzgerald, 2017), suggesting that these areas are grossly underfunded by approximately 90% (IUCN ESARO, 2020, p. 16).

While the funding, management and associated staffing requirements of individual protected areas varies according to factors such as local geographical features, shape, climate, cultural context, species living in the area, adjacent land uses and populations, there is consensus that there is a significant funding gap across Eastern and Southern Africa.

A 2019 study assessed the management costs, revenue and subsidies of 282 state-owned protected areas with lions and concluded that available funding only satisfied 10% to 20% of management needs. In total, the funding gap of these protected areas was estimated at approximately US$ 1.5 billion per annum (IUCN ESARO, 2020, p. 16).

A review of the financial data from protected areas across 15 countries in the region also showed that 12 of these countries face significant funding gaps (see Figure 10.13). Even though Eastern and Southern Africa generally have similar funding gaps (56% and 64%), some individual countries, such as South Africa, Kenya and Rwanda (see Box 10.2), appear to be better funded, suggesting that countries with enabling legislation (such as South Africa's wildlife ownership policies) and well-developed nature-based tourism are able to contribute more to the financing of their protected areas.

10.10.2 Current sources of funding

Traditional financing options for protected and conserved areas in Eastern and Southern Africa are generally limited to government funding, donor support and self-generated, market-based finance, such as for example revenue generated from nature-based tourism. While countries, protected areas and their associated funding requirements differ, there are very few protected areas that are able to generate sufficient revenue through internal means, making most dependent on some form of donor or government support. These external sources of finance however remain inadequate.

External funding

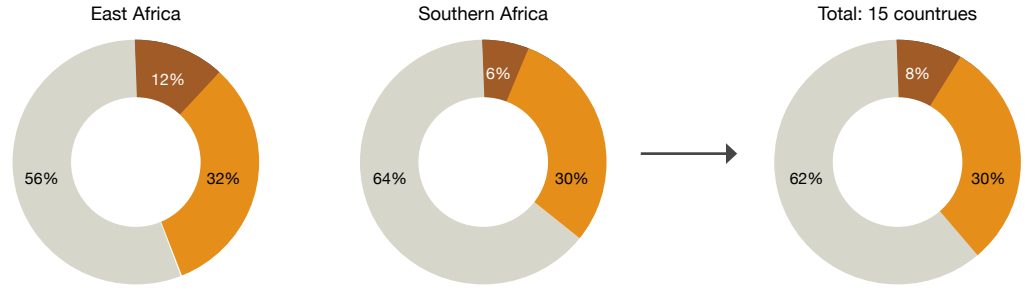
- **Government support:** Globally, approximately half of the expenses for biodiversity are covered by national government funding from the host country (Parker et al., 2012). In Eastern and Southern Africa, all protected area agencies receive some level of funding from their national governments. For example, in Kenya, 47% of the Kenya Wildlife Service 2015 budget was provided by the Government of Kenya (Kenya Wildlife Service, 2015). However, governments frequently face competing needs for infrastructure, health care, education and food security, thus diverting funding from conservation to these social needs. Diversifying revenue, while increasing revenue from self-generating means, is therefore critical to ensuring the long-term sustainability of protected area finance and management. Similarly, investment in protected area management is also necessary to ensure that the required infrastructure is in place and wildlife or nature-based product is financially secure.
- **Donor support and collaborative management:** According to the study by Emerton et al. (2006), external grants, donations and philanthropic support, together with government support, remain one of the major sources of funding for conservation and management of protected areas in Eastern and Southern Africa. In 2018, for example, more than three quarters of the operating and capital expenditures of a Kenyan organisation – Northern Rangelands Trust – that supports 30 community conservancies, were covered by donor support (The Northern Rangelands Trust, 2018). In contrast, in South Africa, 80% of the revenue for South African National Parks is self-funded and comes from tourism.

Local and international conservation organisations also play an important role in supporting, financing and resourcing Africa's protected areas. For example, the Frankfurt Zoological Society (FZS), in partnership with Department of National Parks and Wildlife of Zambia, has supported conservation in the North Luangwa National Park and surrounding GMAs for more than 30 years (FZS, 2019). There are a number of different models for non-governmental support to the management of protected areas (see section 11.1). Financial data from 15 countries in Eastern and Southern Africa show that donor support represents more than 50% of funding (Lindsey et al., 2018).

Given its compatibility with conservation as a land use, nature-based tourism is often the major (and in many cases the only) source of income generated by protected areas. Nature-based tourism refers to tourism where the main purpose is viewing or enjoyment of the natural environment, which includes, amongst other activities, hiking, birdwatching, or wildlife drives. An analysis of the seven protected area authorities in Eswatini, Ethiopia, Kenya, Namibia, Tanzania, South Africa and Uganda (totalling more than 240 protected areas and 40 million hectares under management), shows that tourism generates approximately 80% of all internally generated revenue (see Figure 10.14).

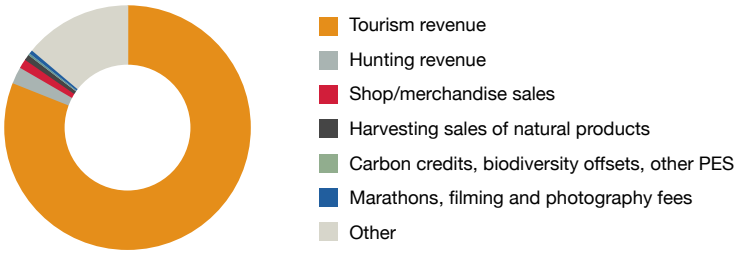
There is a significant opportunity in a number of countries in Eastern and Southern Africa to increase revenue from existing tourism and to develop new forms of revenue generation through wildlife-based tourism.

Figure 10.13 Funding gap and available financing resources in 15 countries in Eastern and Southern Africa



Source: IUCN ESARO (2020, fig. 5, p. 16).

Figure 10.14 Breakdown of internally generated revenue in seven countries: Eswatini, Ethiopia, Kenya, Namibia, South Africa, Tanzania, and Uganda



Source: Developed by Conservation Capital (2019)[112]

112 This graphic was developed by Conservation Capital using the following data sources: Financial and annual reports of Kenya Wildlife Service, Tanzania National Parks, South African National Parks, Eswatini National Trust Commission, Ethiopian Wildlife Conservation Authority, Uganda Wildlife Authority and Namibian Association of Community-Based Natural Resource Management. Category "Other" includes when specified: equipment and facilities lease, interest and royalties received, park fines, garage and labour fees, rescue fees, research and other income.

Box 10.2 Rwanda's robust tourism economy

Rwanda has a strong and growing leisure travel market, with most of its 1.4 million visitors coming from neighbouring countries (43% came from the East African Community (EAC) and 45% from other parts of Africa) (RDB, 2017), and 80,000 visitors coming from abroad (most notably Europe and India).

Business and conference tourism are becoming ever more important and generate the highest revenue share (RDB, 2017). For example, among air arrivals (excluding transit, returning residents and visit of friends and family), more than 50% came for business and conferences, with holidays accounting for 35% (National Institute of Statistics of Rwanda, 2017).

Tourism is Rwanda's top foreign exchange earner and is mainly driven by ecotourism, which has been prioritised by the Government of Rwanda as it recognises the social and economic benefits tourism provides. Total leisure travel revenues increased from US$ 390 million in 2016 to US$ 438 million in 2017, representing 14% of the country's gross domestic product (GDP) (KNOEMA, 2018).

Tourism in Rwanda supports 98,000 direct employees (or 5% of total off-farm jobs), with a total (direct and indirect) employment of 250,000 (14% of all off-farm jobs. Visitation to National Parks has increased by 54% since 2012 from 61,000 to almost 94,000 visits in 2017). The increase has resulted in a significant increase in revenues – US$ 18.6 million in 2017, an increase of almost 50% from 2012 (IUCN ESARO, 2020, p. 28).

The majority of Rwanda's ecotourism income is generated through gorilla trekking permits, which currently cost US$ 1,500 per permit. Rwanda also has the highest community revenue share model in Africa, providing 10% of all park revenue to communities and an additional 5% to a Human-Wildlife Conflict (HWC) fund for communities. Given the over-reliance on mountain gorilla revenue, which generated US$ 18.3 million in 2017 (RDB, 2017), Rwanda has started to broaden and diversify its nature-based tourism through developing and attracting investments into its other protected areas, such as the Akagera National Park in the eastern part of the country, which offers a different tourism product, a savannah landscape. By diversifying the product, the government aims to keep people in-country longer, thereby increasing revenue generation (RDB, pers. comm., 2019). Akagera National Park is co-managed with African Parks, a non-profit organisation headquartered in South Africa (see section 11.1).

Contributed by Conservation Capital.

Other key trends in protected area finance in East and Southern Africa are outlined below.

- **There are significant revenue-earning differentials between protected areas and countries**. For example, of 14 parks in Tanzania more than 75% of revenue in 2012/2013 was generated by only two parks, Mount Kilimanjaro (42%) and Serengeti (33%) National Parks. In Rwanda, Volcanoes National Park accounts for 38% of all visits and generates over 90% of all revenues (RDB, 2017).
- **Revenue expenditure and retention is a key aspect of ensuring effective conservation management.** Business plans for protected areas (individual and system) help ensure that any increase in funding is managed properly, driving enhanced conservation performance. Most protected area agencies in the region are required to remit their revenue to central treasury and then apply for their yearly budget, where some receive less than what had been generated. Therefore, even if one park is able to generate sufficient revenue to support its operations, these profits are used to subsidise less profitable parks. For example, in Tanzania, TANAPA manages 506 protected areas yet only two National Parks, Kilimanjaro and Serengeti, generate 74% of revenue in 2013 (Tanzania National Parks, 2013). In South Africa, out of the 19 national parks, Table Mountain and Kruger National Parks hosted 77% of all visitors in 2017–2018 generating significant revenue from conservation and concession fees (SANParks, 2018). In Rwanda, Volcanoes National Park accounts for 38% of all visits and generates over 90% of all revenues for the Rwanda Development Board, the department in charge of managing Rwanda's protected areas and wildlife (RDB, 2017).
- **Dependence on the potential of revenue generation of the flagship species.** Most funding is directed towards flagship areas, leaving many protected areas effectively non-functional. For example, a majority of Kenya Wildlife Service's budget is directed towards Amboseli, Tsavo and Mount Kenya National Parks, leaving other parks underfunded and non-operational due to a dearth in finance (BIOPAMA, unpublished). In Uganda, 58% of the Uganda Wildlife Authority's revenue were generated by mountain gorilla permits in 2015 (UWA, unpublished) while in Rwanda, 76% of tourists visiting the Volcans National Park participated in gorilla watching, accounting for US$ 15.4 million or 86% of all revenues (IUCN ESARO, 2020, p. 27). While these flagship species and parks are an excellent draw to the respective countries, the long-term viability of the protected area system is reliant on these places and species, which presents a key risk. For example, if Ebola impacts a great ape population upon which a country's revenue depends, this not only impacts the species but the economics of the whole system.

In addition to generating revenue for protected areas, the tourism industry, if designed appropriately and sustainably, can be a deterrent to poaching and other illegal natural resource extraction activities. Worldwide, nature-based tourism was growing at 10% to 12% per annum in 2004 (Space For Giants et al., 2019). An earlier study (Balmford et al., 2009) showed that visits to protected areas were growing in three quarters of the countries where data was available.

Eastern and Southern Africa is particularly well suited for wildlife-based tourism development given its unique natural and cultural assets, ease of access and spectacular wildlife. The region's land use is also compatible with wildlife-based tourism: 16.54% of the land is protected across Eastern and Southern Africa (see section 4), which means that there are 2.1 million km^2 of land with a potential for wildlife-based tourism. This is more than some other major tourist destinations in the world having very diverse landscapes, such as the USA.

In Eastern and Southern Africa, travel and tourism contributed 9.5% of GDP (or US$ 75 billion) in 2018 (WTTO, 2019). Tourism spending in the region accounted for US$ 50 billion, of which leisure was approximately US$ 35 billion and spending by international visitors was around US$ 25 billion (WTTO, 2019).

Tourism in the region is already playing an important role in generating revenue for the countries, providing employment, both directly and indirectly, and supporting vital social services.

Some highlights of its role are mentioned below:

- In South Africa, National Parks welcomed more than 7 million tourists and generated US$ 109 million in tourism income for year ending 31 March 2018 (SANParks, 2017).
- An estimated 2.9 million visited Kenya's protected areas in 2018 (KNBS, 2019).
- Approximately 46% (590,000) of international visitors to Tanzania visited a protected area (Spenceley et al., 2017; The World Bank Group, n.d.).
- There were 305,000 visitors to Uganda's protected areas in the year ending June 2018, generating revenue of US$ 28 million for the Uganda Wildlife Authority (UWA, 2018).
- Approximately 80% of tourists buying holidays to Africa come for wildlife-watching, according to a survey of 48 governmental institutions from 31 sub-Saharan African countries and 145 tour operators selling trips to Africa (WTO, 2014).
- Africa's protected areas attract an estimated 69 million recreational visitors annually, mainly international tourists (EC JRC, 2018).

Extrapolating the South African and Ugandan statistics and allowing for a significant margin of error, it is estimated that protected area authorities across the region could generate between US$ 300 million and US$ 1 billion in annual revenue through 30 to 50 million visits a year.

While wildlife-based tourism may not be appropriate in a number of places, there are still significant opportunities in Eastern and Southern Africa to develop sustainable tourism in a way that increases revenue for protected area management. The same enabling environment needed for wildlife-based tourism is also required for some of the creative financing mechanisms mentioned in the next section. A diversified approach is the best methodology for increasing finance and sustainability of protected area finance. For example, Ol Pejeta Conservancy, a 90,000-acre conservancy in Kenya that serves as one of the most important black rhino refuges in Eastern Africa, generates revenue from tourism, wildlife compatible livestock and zoned agriculture (Ol Pejeta

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Conservancy, n.d.). This diversified approach enables them to withstand drought and the natural cyclical nature of tourism visitation. While these land uses may not be allowed in all protected areas, it shows the importance and potential of a diversified approach.

10.10.3 New and emerging sources of finance for protected areas

There is broad recognition that donor funding cannot and will not be able to fill the funding gap for protected areas due to the unstable nature of donor finance and competing challenges of host countries and donor priorities. A number of innovative financing mechanisms have been developed globally, such as:

- **Debt-for-nature swaps**. A debt-for-nature swap is an agreement that reduces a developing country's debt stock or service in exchange for a commitment to protect nature from the debtor government. These are voluntary transactions whereby the donor(s) cancels part or all of the debt owned by a developing country's government. In exchange, the debtor government commits to invest the accrued savings in biodiversity conservation, climate mitigation and landscape conservation. One such is the Seychelles Blue Bond (The World Bank Group, 2018).
- **Taxation incentives**, where landowners get a tax deduction for their conservation commitment when declaring nature reserves on privately owned land, such as in South Africa (Swart, 2019), see Box 10.3.
- **Biodiversity offsets** compensate for the net impacts of a development project after other mitigation measures have been implemented. Offsets should aim to achieve no net loss and preferably a net gain of biodiversity. Offsets can, for example, deliver biodiversity benefits (e.g. reforestation) through a transaction, where offset sellers (e.g. a conservation NGO or government) sell offsets to developers (e.g. a mining company or property developer) who seek to compensate the net biodiversity loss resulting from their activities (e.g. mining).
- **Carbon offset programmes**, such as the Wildlife Works Kasigau REDD+ Project in Kenya (Wildlife Works, n.d.). While carbon offsets can generate finance for conservation, it can only do so if there is a buyer willing to offset their carbon emissions by purchasing carbon credits from a protected area or conservation project. Carbon laws can overcome this hurdle by compelling polluters to purchase carbon credits.
- **Conservation Trust Funds**, such as in Uganda, the Biodiversity Conservation Trust Fund (Uganda Biodiversity Fund, n.d.). Conservation Trust Funds, sometimes called environmental funds, are defined as *"private, legally independent grant-making institutions that provide sustainable financing for biodiversity conservation and often finance part of the long-term management costs of a country's protected area (PA) system"* (CFA, 2008, p. 1) or a specific protected area.
- **Species impact bonds**, such as the Rhino Impact Bond (UNDP Ecosystems & Biodiversity, 2018).
- **Payment for Ecosystem Services**, such as the Kilombero Plantation Limited PES project (Athanas, 2018).
- **Outcomes-based financing mechanisms** are innovative financing instruments that attract investment capital to address issues traditionally funded by the public sector. Species bonds or protected area bonds are an example of such mechanisms. They are investment instruments with a set maturity, whose aim is to grow a sample of the population of a selected species at key sites. Investors in the bond receive a financial return only on the completion of the objective, with that return being funded by outcome payers.
- **Green bonds** can be used to fund a broad range of projects, which includes renewable energy, energy efficiency, sustainable waste management, sustainable land use, biodiversity conservation, clean transportation, and clean water (DuPont et al., 2016). However, green bonds have not yet been used to fund conservation at scale. In 2017, it was estimated that only 2% of bond proceeds went to land conservation and 4% to biodiversity conservation.
- **Blue bonds**. When a country's government commits to protect part of their near-shore ocean areas and engage in conservation work (e.g. improving fisheries management and reducing pollution), the cost of such a transition is often high, especially for Small Island States. Blue bonds help finance this transition: a government issues a bond, often with the assistance/guarantee of an NGO and/or an agency such as the World Bank, leading to potentially lower interest rates and longer repayment periods. A portion of those savings fund the new marine protected areas and the conservation activities to which the country has committed.
- **Project Finance for Permanence** uses a project finance technique to facilitate full and upfront funding of large-scale conservation projects or areas by bringing together funders in one closing. Examples of such deals include a US$ 57 million deal to protect 2 million hectares in Costa Rica and a US$ 215 million project to conserve 60 million hectares of the Brazilian Amazon (Seol, 2016). By addressing piecemeal or insufficient funding upfront, it ensures that conservation interventions are properly planned and permanent and fully funded. To be successful, these projects need political commitment, a strong investment strategy and rigorous financial plans, and collaboration between governments, NGOs, and public and private funders.
- **Lotteries** are popular in most countries and can generate substantial income, often for socially beneficial purposes such as nature conservation (WWF, 2009). For example, in South Africa, the National Lotteries Commission distributes funds to a series of causes, including environmental charities (NLCSA, 2019).
- **Branding**. The Lion's Share (2020) is a conservation finance initiative launched in September 2018 where a small levy is charged on the use of animals in ad campaigns and distributed to conservation NGOs via The Lion's Share fund, with co-funding from the UNDP. The Lion's Share targets raising more than US$ 100 million per year. Examples of private enterprises who have signed up include Mars Inc, Nielsen, International Airline Group, JCDecaux, The Economist and Batten, Barton, Durstine & Osborn. In Eastern and Southern Africa, the Lion's Share is funding an African Elephant Economics Study to catalyse government investment in elephant conservation and the promotion of the nature-based economy. In Mozambique,

the upgrade of the digital radio communication system of the Niassa National Reserve was also completed using funds from the Lion's Share.

- **Other financial instruments**: BIOFIN worked with nine countries in the region to identify the priority conservation finance instruments for each respective country (IUCN ESARO, 2020, p. 60).

While these innovative financing models exist, they have not yet been adopted or used at scale in Eastern and Southern Africa due to limited technical support, resources and enabling environments. Moreover, while these models do have potential for application and replication across the region, more traditional and proven sources of finance, such as nature-based tourism, although widely used in Eastern and Southern Africa, has yet to be developed to its full potential. However, the situation has worsened by the COVID-19 pandemic that has resulted in the shutdown of the tourism industry and therefore, a significant decrease in conservation-related funding for the protected areas whose main revenue is tourism-based (see Box 10.4). Across Africa, collaborative agreements are becoming increasingly popular tools to increase financial and capacity support for protected areas given that many of them are severely underfunded. In addition, some donors require collaborative agreements for financing. Collaborative management occurs when a non-profit organisation or a private sector entity partners with a state wildlife authority, where the authority either outsources aspects of management or specific conservation activities (e.g. ecological monitoring, education, community engagement, ecosystem restoration) to the partner organisation or enters into an agreement with the private partner that covers the full spectrum of management. This is increasingly taking the form of a public-private partnership (PPP) (see Section 11.1 for further information).

10.11 Conclusions

The frequency of management effectiveness assessments has been increasing across Eastern and Southern Africa over time. However, there is room for expansion of management effectiveness evaluation across more countries in the region and in areas under shared or non-state governance (Campese & Sulle, 2019). In particular, PAME assessments should be included as part of the regular management cycle of protected areas, with the necessary follow up to implement measures to enhance management effectiveness.

METT is the most common methodology used at the site level and it is important to ensure that it is used in line with best practice (Stolton & Dudley, 2016). A number of METT assessments are completed as part of donor requirements, and often contain no comments or 'next steps' which limits its usefulness. Nevertheless, a number of countries have adapted METT for use at the country level, particularly for state protected areas. RAPPAM is the methodology most commonly used at the system-level and also has many advantages. The use of integrated methodologies that take into account management effectiveness as well as issues of governance and social equity could be helpful in ensuring that protected and conserved areas are assessed adequately across the different aspects of Aichi Target 11, so that improvements can be made for biodiversity and people.

Additionally, other methods, such as a new tool developed under BIOPAMA, the Integrated Management Effectiveness Tool (IMET), have been designed to support protected area agencies and managers in planning, management and monitoring at the site level. IMET is a software which collects and organises data and information on protected area management, with internal statistical analysis, giving score-based estimations of the quality of management, as well as visual components to provide a decision support system. IMET is based on an IUCN framework for measuring the effectiveness of protected area management, and inspired by other tools, such as METT, Enhancing our Heritage toolkit, and others.

Donor requirements have resulted in greater attention to the issue of management effectiveness and an increase in the number of PAME assessments being completed. This is to be welcomed, but it is also critical to ensure that assessments are serving a substantive learning function, as well as improved management, and not just a box ticking exercise.

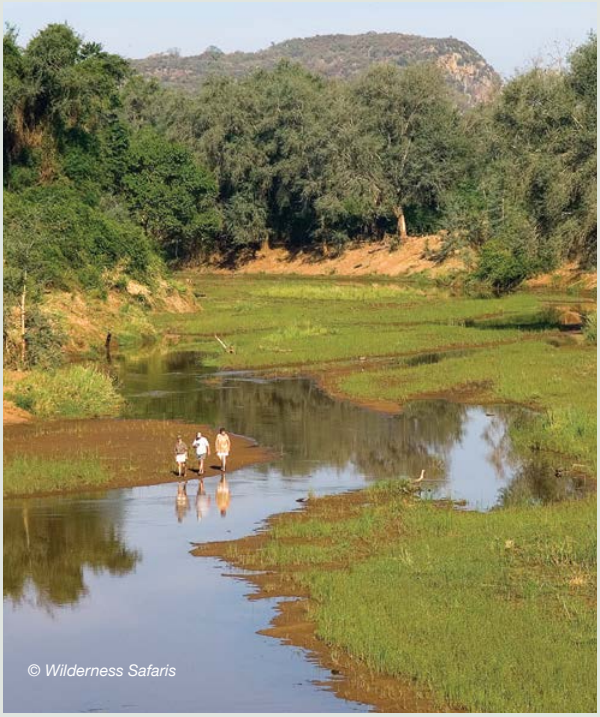
Box 10.3 South Africa's first effective biodiversity tax incentive

South Africa's Income Tax Act (No. 58 of 1962) makes reference to a specific biodiversity tax incentive, section 37D, which is geared towards creating financial sustainability for protected areas on private or communal land as well as motivating and rewarding landowner commitment. Section 37D allows the value of land declared as a Nature Reserve or National Park to be deducted from taxable income, reducing the tax owed by a landowner. This ensures greater liquidity for the conservation management and economic sustainability of the site. The tax incentive is both globally unique and a national first. This biodiversity finance success story was awarded the inaugural Pathfinder Award Special Commendation presented to Ms Candice Stevens and the Government of South Africa.

The two primary benefits of this specific biodiversity tax incentive include:

1) **Support for the creation of robust privately and communally owned protected areas.**
   The requirements of the Income Tax Act correlate specifically to the requirements of South Africa's Protected Areas Act (NEMPAA No.57 of 2003) ensuring that the areas qualifying for this tax deduction are declared protected areas that boast legal certainty, permanence, management and long-term intent.
2) **The creation of an innovative tool for the financial sustainability of landscapes.**
   Section 37D creates a substantial and tangible financial benefit that aids landowners in meeting management responsibilities, bolsters landowner motivation over the medium to long term, and facilitates tax efficiency essential to the sustained success of economic activities compatible with protected areas.

Contributed by Candice Stevens (Wilderness Foundation Africa).



Box 10.4 Impact of COVID-19 pandemic on protected areas in Eastern and Southern Africa

The COVID-19 pandemic has created an urgent crisis for management of protected areas across Eastern and Southern Africa.

The pandemic has already resulted in a cascade of immediate impacts on protected areas:

- Closure of protected areas to people for tourism and recreation;
- Park staff being required to isolate, resulting in lower staffing levels;
- Reduction of ranger patrols due to reduced staffing, potentially leading to the increase of environmentally-damaging activities;
- Possible direct impacts on some charismatic threatened species, such as the Great Apes; and
- Suspension of routine management and restoration programmes.

The pandemic is associated with a global economic crisis. As this crisis takes hold, poverty levels are likely to rise, particularly in sub-Saharan Africa. There is a threat of increased and unsustainable use of natural resources, as well as the possibility of an increase in commercial poaching. These threats are growing at the same time that the financial inputs underpinning conservation and protected area management are dramatically declining. Financial support is likely to be reduced from all current sources, including bilateral and multilateral funders, private and high-net-worth donors, as well as the close to complete shut-down of the tourism industry.

While there may be some benefits associated with the tourism shut-down, such as the reduction of overcrowding on delicate ecosystems, the financial crisis facing protected areas, under all forms of governance, cannot be overstated. The recommendations outlined in this report regarding the diversification of revenue streams for protected area management are ever more urgent in the context of this global crisis.

Contributed by Leo Niskanen (IUCN, ESARO).