THEORY AND PRACTICE OF CONSERVANCIES: EVIDENCE FROM WILDLIFE MANAGEMENT AREAS IN TANZANIA

FIDELCASTOR F. KIMARIO, NINA BOTHA, ALEX KISINGO and HUBERT JOB

Summary: The integrity of Protected Areas depends on the surrounding communities and their land as they provide crucial ecological functions as wildlife corridors. Hence, the paper analyses the performance of Tanzanian Wildlife Management Areas (WMAs) to better understand their relevance for safeguarding biodiversity outside of traditional protected areas, e.g. national parks. The article assesses the potential of WMAs, which have complex social and ecological processes and interactions, to achieve their environmental and socio-economic goals from a governance perspective. Therefore, a combination of two theoretical approaches – the Social-Ecological Systems Framework (SESF) and the Sustainable Livelihoods Approach (SLA) – was employed to provide a thorough and methodical evaluation of their system dynamics. This research mainly presents data gathered in 2017 in eight fully authorised WMAs of different ages, and which represent a tourist activity gradient from no nature-based to well-developed. Qualitative empirical research included focus group discussions, field observations and semi-structured interviews with key persons and representatives of different organisations. These include local managers and members of WMAs, regional District Councils officials from the areas where the WMAs have been established, and international stakeholders. The study shows that local governance of wildlife resources in most WMAs is still plagued by understaffing, inadequate funding, insufficient skills and knowledge, and investment issues. As a result, it takes time for the tourist industry to find confidence in the WMA concept, but recent figures show that WMA related tourism facilities which are increasingly sponsored by private investors, show higher revenues. Therefore, for WMAs to be sustainable, it is imperative to address the concerns mentioned above. Community-based conservation is part of development and the improvement of the overall well-being of people. However, in practice, everything is still only valued in terms of direct cash benefits. Where the analysed WMAs are failing it is mostly because unsustainable revenue sources cannot provide in their daily operational needs or adequately fund community development projects. Hence, because conservation is expensive, the key to the long-term sustainability of WMAs remains impeccable governance and financial stability.

Zusammenfassung: Die Funktionsfähigkeit von Schutzgebieten hängt von den umgebenden Gemeinden und deren Territorien ab, da diese als Korridore für Wildtiere entscheidende ökologische Funktionen erfüllen. Vor diesem Hintergrund analysiert der Artikel die Leistung der tansanischen Wildlife Management Areas (WMAs), um ihre Bedeutung für den Schutz der Biodiversität außerhalb traditioneller Schutzgebiete, z.B. Nationalparks, besser zu verstehen. Der Artikel bewertet das Potenzial von WMAs, die komplexe soziale und ökologische Prozesse und Wechselwirkungen aufweisen, um ihre ökologischen sowie sozioökonomischen Ziele auf politischer Ebene zu erreichen. Dazu wurde eine Kombination von zwei theoretischen Ansätzen - dem Social-Ecological Systems Framework (SESF) und dem Sustainable Livelihoods Approach (SLA) - herangezogen, um eine umfassende und methodisch begründete Evaluation ihrer Systemdynamik zu ermöglichen. Die Forschungsarbeiten stützen sich hauptsächlich auf Daten, die im Jahr 2017 in acht vollständig autorisierten WMAs unterschiedlichen Alters gesammelt wurden und die ein naturtouristisches Aktivitätsgefälle von (sehr) gut entwickelt bis nicht vorhanden darstellen. Die qualitative empirische Forschung umfasste Fokusgruppendiskussionen, Feldbeobachtungen und leitfadengestützte Interviews mit Schlüsselpersonen und Vertretern verschiedener Organisationen. Dazu gehörten lokale Manager und Mitglieder von WMAs, regionale Distriktratsvertreter aus den Gebieten, in denen die WMAs eingerichtet wurden, und internationale Interessenvertreter. Die Untersuchung zeigt, dass die lokale Verwaltung der Wildtierressourcen in den meisten WMAs nach wie vor unter Personalmangel, zu geringer Finanzierung, unzureichenden Fähigkeiten und Kenntnissen sowie unter Investitionsfragen leidet. Infolgedessen dauert es seine Zeit, bis die Tourismuswirtschaft Vertrauen in das WMA-Konzept findet, doch jüngste Zahlen zeigen, dass WMA-bezogene Tourismuseinrichtungen, die zunehmend von privaten Investoren getragen werden, höhere Einnahmen aufweisen. Für die Nachhaltigkeit von WMAs ist es daher unerlässlich, die oben genannten Unzulänglichkeiten zu berücksichtigen. Gemeindebasierter Naturschutz ist ein Teil der allgemeinen Entwicklung und dient der Verbesserung des Wohlbefindens der Menschen. In der Praxis wird jedoch nach wie vor alles nur in Form von direkten Geldleistungen bewertet. Wenn die analysierten WMAs scheitern, liegt das meist daran, dass Finanzierungsquellen für die Umsetzung der täglichen Arbeiten zumeist nicht dauerhaft zur Verfügung stehen oder Entwicklungsprojekte in der Gemeinde nicht ausreichend finanzieren können. Da Naturschutz teuer ist, bleibt der Schlüssel für die nachhaltige Entwicklung von WMAs daher eine vorbildliche regionale Governance und langfristige finanzielle Stabilität.

Keywords: Conservancies, governance, protected areas, sustainability, Tanzania, Wildlife Management Areas

1 Introduction

Globally, conservation has changed dramatically since the establishment of the first-ever national park (NP), namely Yellowstone, in the United States of America in 1872, when the landscape was still intact, and species were able to roam freely (Newsome et al. 2013; Trombulak and Baldwin 2010). Since then, protected areas (PAs) following this traditional top-down model has spread across the globe (Andrade and Rhodes 2012). By the late 20th century, the human population had quadrupled, dramatically changing the landscape: natural vegetation was replaced by industrialised agriculture and widespread urbanised areas, with tarred roads and fences cutting through the landscape (Job et al. 2017). These changes caused severe biodiversity loss and destabilised ecosystem services vital to local communities. NPs, however, were still able to support natural biodiversity, but due to the restrictive 'fences-and-fines' model, they struggled to maintain wildlife population numbers. Hence, they were forced to readjust their management strategy from an exclusive protection philosophy to an inclusive participatory approach (Lama and Job 2014). Environmental managers gradually broadened their focus from only the situation within the parks to the wider landscape matrix, which includes the impact of human activities (Hutton et al. 2005; Stoll-Kleemann and Job 2007).

The limitations of the Yellowstone model prompted a move towards decentralisation, shifting from government to governance (Borrini-Feyerabend et al. 2013; Constantino et al. 2012). Community-Based Natural Resource Management (CBNRM), which encourages the involvement of local communities in the management of PAs, became a promising approach to ecosystem conservation (Stone 2006; Brooks et al. 2013; Cetas and Yasue 2016; Becken and Job 2014). This win-win conservation strategy promotes both conservation and sustainable development and was therefore adopted in national policies and legal frameworks around the world. While some countries saw it as an opportunity to expand their national conservation network and support their rural citizens, others saw it as a possibility to gain international investments from donor agencies (Noe and Kangalawe 2015).

These conservation initiatives are shaped by different stakeholders (government agencies, funders, investors, NGOs, and communities) who exert differing degrees of influence on the CBNRM area's decision-making processes. This is based on their capabilities: for example, rich investors usually have more decision-making power than poor villagers (Ponte et al. 2020). As a result, the CBNRMs' social and environmental outcomes differ from country to country and from region to region (Wells 2015). On local level the implementation has especially been a challenge, as communities needed to be convinced to buy into this conservation initiative (Brenner and Job 2011). In many of these areas, conservation has historically taken a top-down approach, excluding communities, and often displacing them in the name of conservation. This has affected their perception of conservation and consequently their willingness to participate in CBNRMs (Kipkeu et al. 2014; Bluwstein and Lund 2018). It is therefore imperative that environmental authorities respect the customary rights and needs of these communities, as they might withdraw their support for conservation, resulting in the degradation of PAs (Kimario and Job 2020).

PAs are often established on land that is sustainably used by residents and may still have significant biodiversity that must be protected. However, the cost of human-wildlife conflicts (losing crops or livestock to raiding animals or risking their own welfare) to these communities is disproportionately high, with restrictions on their use of natural resources posing a further threat to their livelihood. Conservationists aim to offset these costs and build support for PAs by "making informed and fair trade-offs between social, economic and ecological costs and benefits within and between stakeholder groups, and between stakeholders and the natural environment, in a way that is satisfactory to most parties" (Swemmer et al. 2015, 7). While this idea is noble, the reality of the way in which some of these initiatives are managed, especially in the Global South, often results in community exploitation through government corruption and rent-seeking agendas (Noe and Kangalawe 2015).

Many PAs in sub-Saharan-Africa are located in regions where the cost of restricting land use was quite low at the time of their establishment, particularly during the colonial period. With the growing population, formerly remote areas are not so remote anymore. In East Africa for example approximately 87 million people are living within 10 km from conserved land (own calculation after CIESIN 2015; see Fig. 1).

All these neighbouring communities are likely affected in one way or another by wildlife conservation. In semi-arid regions more people settle near PAs: In Uganda this is approximately 31 million people; in Tanzania, some 28.5 million and in Kenya almost 21 million people. In contrast, Rwanda and
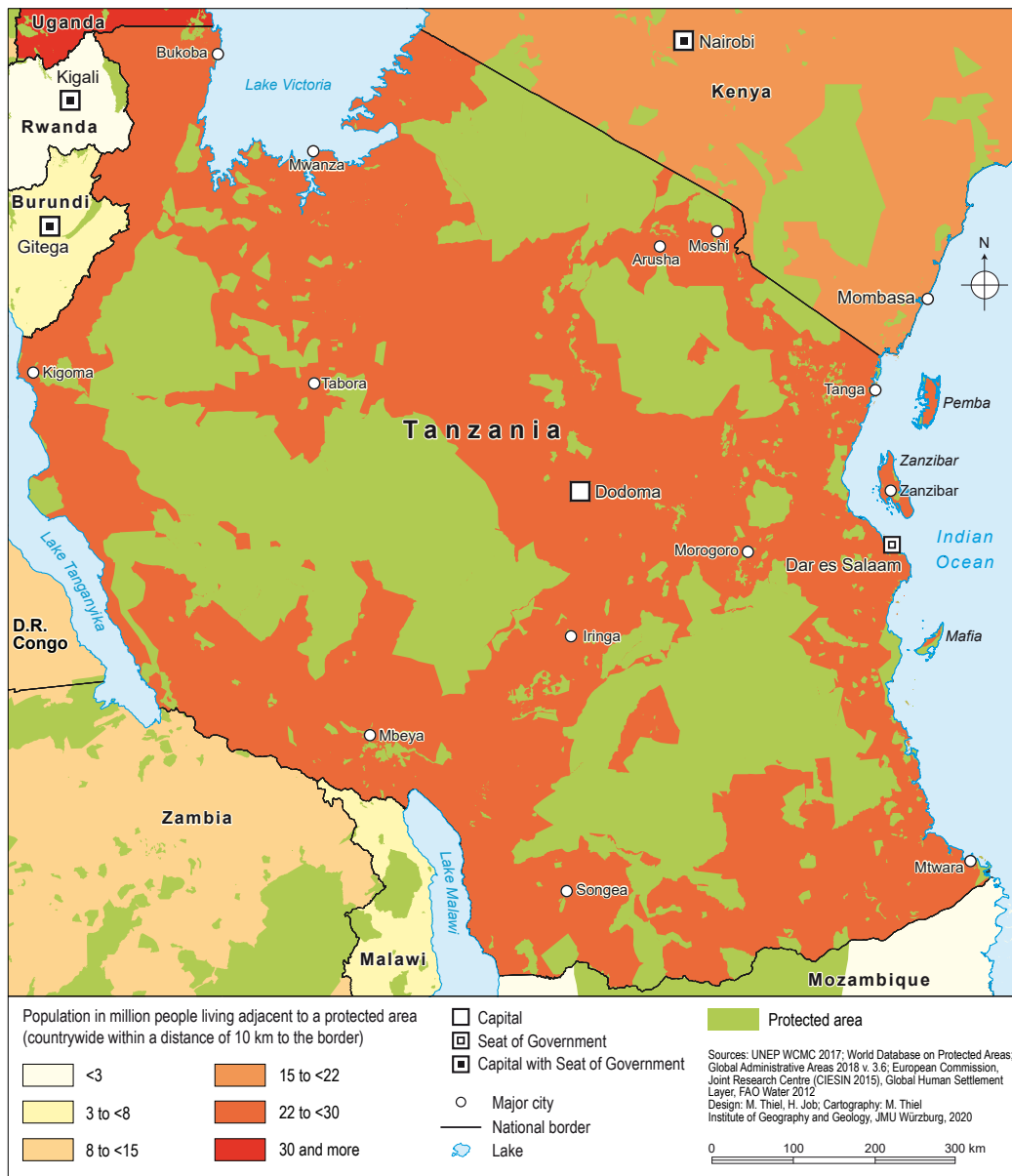
Fig. 1: East Africa – affected population within a 10 km distance to PAs. Data source: CIESIN (2015)

Burundi with their higher population density each have approximately 3 million people living close to PAs. The reason for these much lower numbers are the smaller size of these countries as well as their relatively smaller conservation areas.

To convince the communities neighbouring the PAs to participate in conservation they must receive some form of benefit because of opportunity costs (CLARY et al. 1998; RYDIN and PENNINGTON 2000). Tangible benefits such as financial compensation and tax relief are rare in the Global South. Therefore nature-based tourism often plays an important role

in generating income for locals (LEUNG et al. 2018; JOB and PAESLER 2013). Hence, the Secretariat of the Convention on Biological Diversity (CBD) encouraged governments to channel "part of total tourism revenues towards supporting the conservation and sustainable use of biodiversity, such as conservation of protected areas" (CBD 2004, 12). A number of international tourism guidelines furthermore recommend the participation of local communities through the provision of benefits such as revenue sharing (AMER et al. 2015; LEUNG et al. 2015; SPENCELEY et al. 2017). However, these guidelines mostly do not

give detailed instructions on how to implement these schemes (Carius and Job 2019). This may result in minimal community participation, especially in tourism development initiatives sponsored by outside investors. While communities are encouraged to share their views on the tourism development and benefit-sharing schemes, as well as give permission to use their land, they are unable to ensure that developers honour the agreements (Kihima and Musila 2019). Sometimes broken agreements rob communities from promised financial gain through tourism, which is often the main source of income in rural areas dominated by conservation landscapes, leaving them disempowered, vulnerable and without a sustainable livelihood (Noe and Kangalawe 2015; Kihima and Musila 2019).

In order for CBNRMs to function properly the benefits of participation must be clear, and outweigh the cost (Rydin and Pennington 2000; Barrett et al. 2001). Consequently, effective management must have defined goals and consider practicalities such as human-environmental interactions to encourage long-term involvement (Trombulak and Baldwin 2010). Regular performance evaluations of CBNRM's regarding community participation, governance, and environmental outcomes are therefore necessary to ensure that these initiatives are fulfilling their objectives and if not, identify obstacles that must be addressed (Walker and Salt 2006; McGinnis and Ostrom 2014). CBNRMs have complex social and ecological processes and interactions which require the use of research frameworks such as the social-ecological systems framework (SESF) or the Sustainable Livelihoods Approach (SLA) to provide a thorough and methodical evaluation of their system dynamics (Binder et al. 2013).

In Tanzania, the flagship CBNRM is the Wildlife Management Areas (WMAs) initiative, where villages set aside a part of their land for wildlife protection (Moyo et al. 2016). Land uses such as agriculture and livestock grazing within these WMAs are either heavily restricted or banned, in turn villages are promised revenue from tourism investors who are invited to operate in the WMAs (Bluwstein et al. 2018). The goals of this initiative are twofold: to enable the government to expand conservation onto community land, and to establish PA corridors for a better biological connectivity (Ramutsindela and Noe 2015).

In 2013, USAID (United States Agency for International Development) evaluated Tanzania's WMAs, identifying several performance challenges. The aim of this paper is to revisit these challenges and discuss their underlying social and environmental dynamics. The supporting objectives of this study is firstly, to identify eight out of the 22 fully authorised WMAs that were established before 2013. These WMAs will be used as case studies, representing a variety of nature-based tourism activity levels and different destinations. Secondly, the 2013 USAID WMA evaluation's identified challenges will be used as a basis for the creation of research and data collection tools. Thirdly, the underlying dynamics of these challenges with a combination of the SES and SLA frameworks will be determined and discussed. Lastly, a contribution will be made to the debate of WMAs in Tanzania by providing comprehensive lists of shortcomings and recommendations to improve Tanzania's WMAs in the future.

The article is divided into seven sections: after the introduction the theoretical framework of this study is discussed; later, a short introduction on CBNRM's in sub-Saharan Africa follows; then, the study areas and methodology of this paper are presented; in the main section the findings are stated and the results are discussed and compared to findings of the 2013 USAID analysis; in conclusion, the WMAs shortcomings are stated and recommendations are made.

2　Theory

CBNRMs are typical examples of how the day-to-day relationship between nature and society (eco-centric approach) can change and how this new relationship can create a social structure (anthropocentric approach) which can further form a network of conservation (Burns and Weaver 2008; Cloke et al. 2013). CBNRMs can therefore be classified as Social-Ecological Systems (SES), as they are single, complex, integrated, and interlinked systems of social and ecological processes consisting of various natural and social factors that change over time and space (Walker and Salt 2006; Burns and Weaver et al. 2008).

The study of SES became popular in the 1970s as scholars from various fields started to realise the importance of interdisciplinary research to understand complex systems and find workable solutions to global problems (Burns and Weaver 2008). Two fields have become prominent in SES research: political ecology and resilience thinking. Political ecology, originating from social sciences, has been working with SES since the 1980s and resilience thinking, with its roots in ecology, since the 1990s (Quandt 2016). Each field has its own approach to

SES. Political ecology investigates systems to better understand the political aspects of environmental change, including political sources, conditions, consequences, and power inequalities (Nepal and Saarinen 2016; Quandt 2016; Becken and Job 2014). Resilience thinkers do research on SES to determine how the dynamics of a system can be managed in the face of disturbances and uncertainties (Walker and Salt 2006).

One of the key issues with interdisciplinary research is that researchers from various fields need a framework to establish common scientific assumptions, values, concepts, and practices, to structure research and share information in a meaningful and comparable way. Numerous frameworks have consequently been created to analyse SES, with origins in various fields, including ecology, physics, development studies, psychology, and political science (Binder et al. 2013; Anfara and Mertz 2014). The sustainable livelihood approach (SLA), originating in developmental studies, is used by political ecologists to analyse which livelihood assets enable which livelihood strategies, and cause sustainable outcomes within local communities (Scoones 1998; Taylor 2014; Carr 2015). According to Binder et al. (2013) the version of the SLA framework best suited in SES studies is the one described by Scoones (1998) and Ashley and Carney (1999) (see Fig. 2).

This framework has five system components namely: context, conditions and trends; livelihood resources; transforming process and structures; livelihood strategies; and sustainable livelihood outcomes. In this framework the social, economic and environmental contexts, conditions and trends affect livelihood resources, which consist of natural, physical, economic, human and social-cultural capital. This both influences and is influenced by livelihood strategies (including agriculture, hunting and tourism), which are managed and governed by transforming processes and structures such as laws, cultures, institutions, organisations, and government.

These strategies regulate the sustainable livelihood outcome which can include poverty reduction, empowerment, natural resource issues and economic sustainability. The outcomes of this process are then introduced back into the systems in the contexts, conditions, and trends category, as well as in the livelihood resources category through feedback loops (Scoones 2015).

Another major SES framework, which is used by resilience thinkers, is the social-ecological systems framework (SESF). Originally designed by Ostrom (2009) this framework aimed to explain how communities organize and manage their resources, by analysing the interactions of key variables within a system to determine which variables drive the systems' dynamics, and results in its sustainability. The SESF has six main components, also known as first-tier factors (see Fig. 3): social, economic and political settings, related ecosystems, actors, resource units, resource systems and governance systems. Additionally, each first-tier factor has its unique second-, third-, or even fourth tier factors which provide more detail about the components of a system (Ostrom 2009). The way the SES works is that actors extract resource units from a resource system. These resource users also maintain the resource system according to the rules and procedures of the governing system in the context of the broader social, economic and political settings (Ostrom 2009; McGinnis and Ostrom 2014). The context of the SES is further influenced by the condition of its ecosystem (ECO), for example, the climate. The core of the framework is the 'focal action situation', where interactions between various factors create certain outcomes. The lessons learned from these outcomes are fed back into the first-tier categories through feedback loops, to create the unique characteristics of a specific social-ecological system (McGinnis and Ostrom 2014).

These frameworks, while each having a different focus and aim, have many comparable components: context, conditions and trends (SLA), and social, eco-
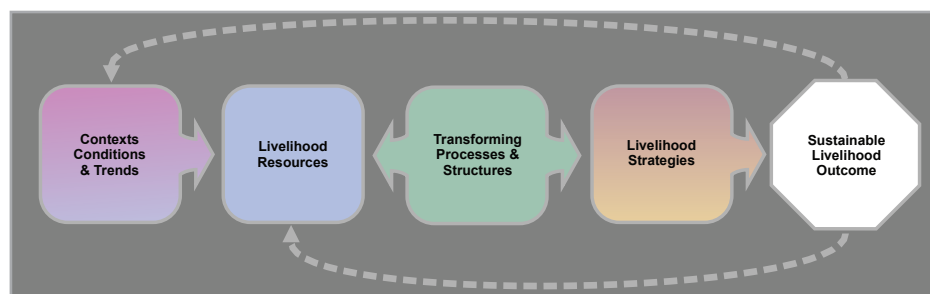

Fig. 2: Sustainable Livelihoods Approach. Data source: Own draft adapted from Scoones (1998)
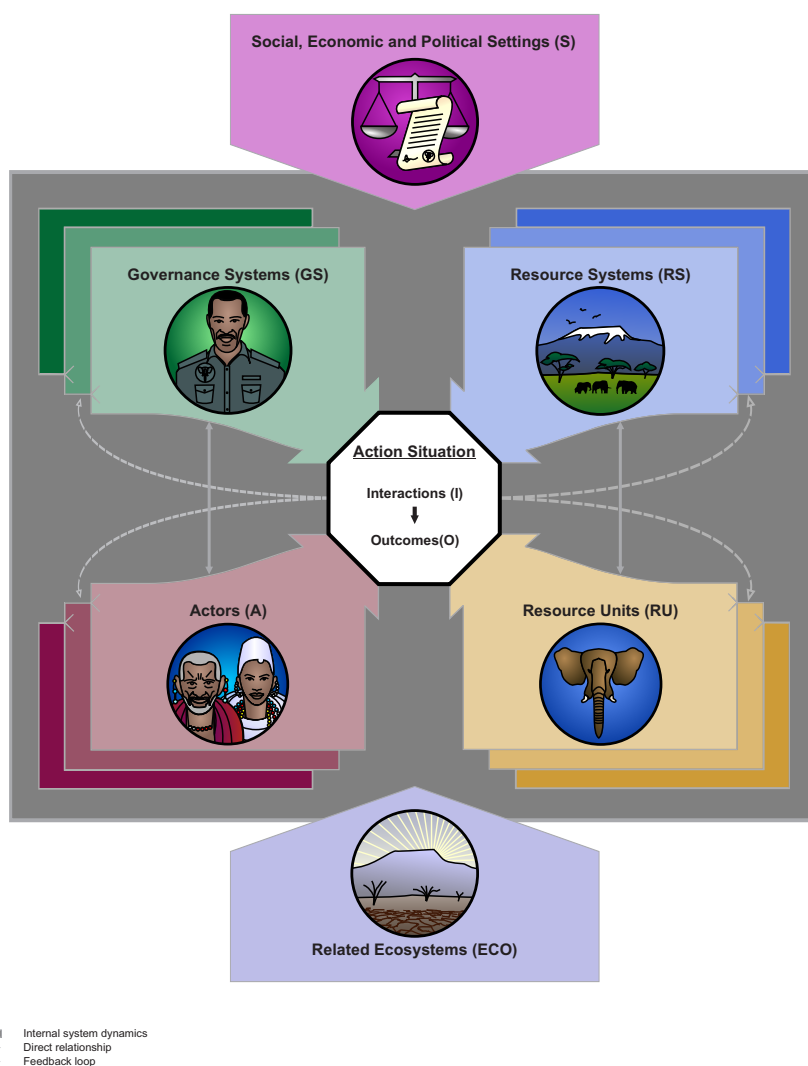
Fig. 3: SES framework. Data source: Own draft adapted from McGinnis and Ostrom (2014)

nomic and political settings, and related ecosystems (SESF); livelihood resources (SLA), and resources systems (SESF); institutional processes, and organisational structures (SLA), and governance systems (SESF); livelihood strategies (SLA), and resource units and actors (SESF); sustainable livelihood outcomes (SLA), and the action situation (SESF); and lastly the use of feedback loops.

Each of these frameworks has however received criticism. The SLA, with its sole focus on local communities, has been criticised for not considering broader spatial scales and their influences on its system (Morse et al. 2009). Another area of critique is that SLA does not consider ecological processes and its interaction with society, while the framework itself has not adequately conceptualised social dynam-

ics (Binder et al. 2013). SESF on the other hand, have mainly been criticised for not adequately addressing how governance strategies affect power inequality, societal differences, and livelihood generation (Fabinyi 2014). It has therefore been suggested that to address the SESF shortcomings, political ecology principles (such as SLA) should be included in the analysis (Beymer-Farris et al. 2012).

The factors that will be analysed in this study have been identified by the 2013 USAID WMA evaluation and will be organised according to an adapted SESF that includes the SLA's community centred approach. Because the SESF covers a broader range of influences and factors than the SLA, we consider it more appropriate for this analysis. However, an SLA lens will be included to determine how these broad-

er spheres influence impact community dynamics and especially their participation in conservation (SCOONES 1998).

Firstly, the social, economic and political setting and related ecosystems of Tanzania WMAs will be established before data analysis commences, as these were not originally part of the 2013 USAID WMA evaluation. The governance system will then be analysed by examining governance functions, governance connections to village councils, government involvement in decision-making, transparency and accountability and devolution of responsibilities. Next the actors and resource unit will be investigated together, as they are socio-economic factors and difficult to separate in context with the 2013 USAID evaluation. This section will discuss the cost of conservation, the cost of establishing and running a WMA, and revenue streams and investment for WMAs. Lastly, the resource system will be discussed in context of protection and monitoring of wildlife sources and anti-poaching measures.

By combining the SLA and SESF in this way it becomes possible to not only see whether previously identified challenges have been addressed, but also gain a better understanding of the social, economic and environmental mechanisms that are responsible for these challenges. Based on this analysis, recommendations will be made which might contribute to improved WMA management strategies.

3   Dispersion of conservancies as postmodern PAs

A prominent example of CBNRM is the conservancy initiative which has been implemented to various degrees of success in Sub-Saharan Africa. In 1975, a South African nature conservationist, supported by the KwaZulu-Natal Parks Board, initiated a cooperative game management approach for ranchers, now known as conservancies (WELLS 2015; BARENDSE et al. 2016). In this early form of CBNRM, ranchers resolved overgrazing and wildlife mobility issues, and increased security against poachers, by removing fences between their properties and erecting perimeter fences around the conservation area (BARRETT ET AL. 2015). This idea spread to the rest of firstly Southern and later Eastern Africa where countries adapted it according to their own environmental and social contexts, resulting in different types of conservancies with different focuses and management strategies, but based on the same basic principles (WELLS 2015; BOTHA 2019).

By adopting the conservancy model as a CBNRM approach, environmental authorities gain benefits such as the extension of wildlife habitats from PAs onto surrounding private land (STOLL-KLEEMANN and WELP 2008). This provides a wider range of habitats to support ecosystem services but also diversifies and increases the tourism market by offering novel experiences in these areas. Ideally, landowners and communities will benefit from conservation, making it an attractive land use (AWF 2016; WUERTHNER et al. 2015; MAYER and JOB 2014). For example, game ranchers experience growth in nature-based and wildlife tourism, lower environmental management costs and an increase in property value when participating in a conservancy initiative (BLANCO AND LOZANO 2012; LINDSEY et al. 2009).

The collective bargaining power of this CBNRM structure eases financial and environmental dealings with the government (LINDSEY et al. 2009). This, however, is only possible when legislation allows land and wildlife user rights to landowners. Communal conservancies established in Namibia since 1996 adopted game strategies similar to South African conservancies but retained some cattle fences. These conservancies were created to provide local communities access to wildlife resources to improve their livelihood (VORLAUFER 2007). This was achieved by allowing and supporting tourism income generation, joint venture agreements with the private sector, conservation hunting concessions, small and medium enterprises, indigenous plant product harvesters and craft producers. In 2017 these ventures totalled an estimated USD 10 million which benefitted approximately 218,000 community members within the conservancies (MET and NASCO 2018). These conservancies' success as tools for conservation and empowerment can be attributed to Namibia's progressive legislation which allows them to manage their own natural resources and keep the income they generate (JONES 1999). In contrast, Zimbabwe's CBNRMs, first established in 1991 by CAMPFIRE (Communal Areas Management Programme for Indigenous Resources), were initially successful but failed with the implementation of the 2000 land reform legislation which threatened private landownership (VORLAUFER 2002; SCOONES et al. 2010; BLANCO and LOZANO 2012).

In Tanzania, before it became independent in 1961, conservation was limited to three NPs, nine game reserves, and the Ngorongoro conservation area (see Fig. 4). These NPs followed a classic top-down centralised conservation approach (KIWANGO
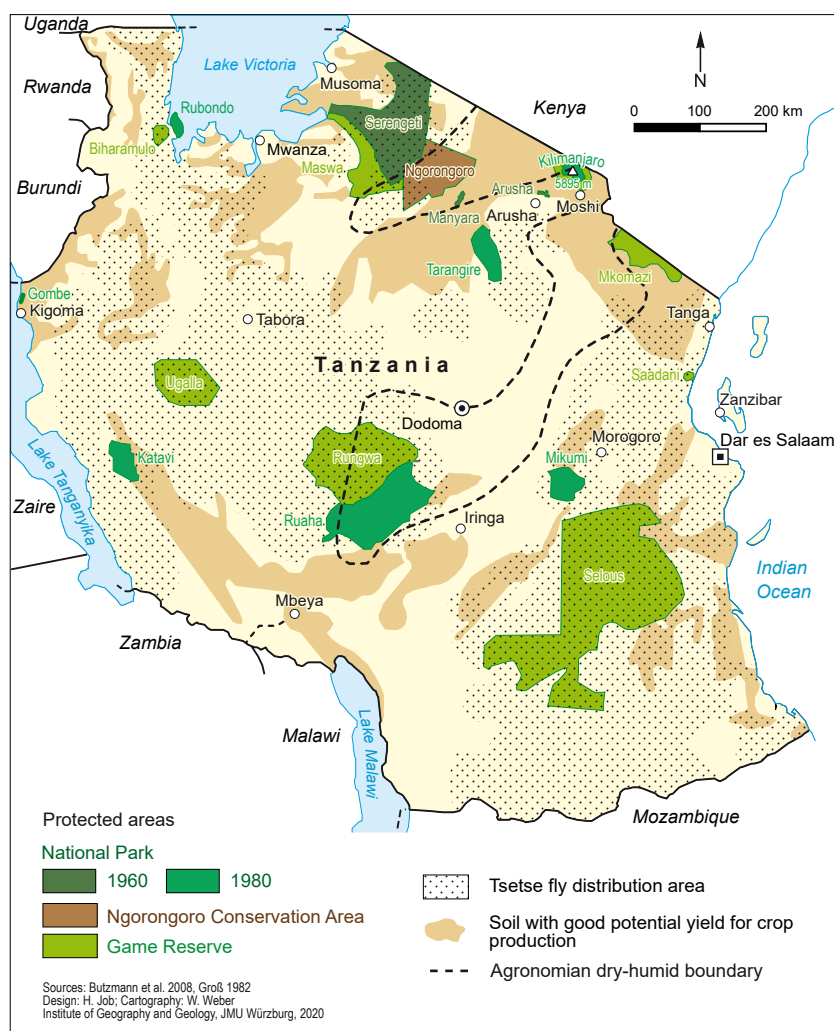
Fig. 4: Tanzania's system of PAs, 1960 – 1980

et al. 2015). Since the government's declaration in September 1961 to commit itself to wildlife conservation, and because of its socialist policies, more PAs were created and the land area dedicated to wildlife conservation has increased markedly, despite the growing population from 10 (1960) to 55 million inhabitants for the year 2018 (The World Bank Group 2019). This population is concentrated in Tanzania's Northern Highlands and along their coast, leaving the country's interior sparsely populated. The densely populated areas correlate to land that was deemed suitable for farming by the colonial agriculture economy, as it had favourable rainfall and soil types, as well as fewer infectious diseases. The agriculturally unsuitable interior was, therefore, left intact and is where most of Tanzania's PAs are now located (Butzmann et al. 2008).

Since the 1980s, income generation through inbound tourism became the main motivation behind the creation of PAs (Nelson 2007; Kiwango et al. 2015; Job and Metzler 2003). The Yellowstone conservation model, which mainly focused on law enforcement, partly failed in Tanzania, and poaching increased, more human-wildlife conflicts occurred and land encroachment took place. This prompted the government to review its conservation strategy (USAID 2013; Kiwango et al. 2015). In the 1980s the CBNRM concept was implemented around the globe as the ultimate solution to conservation and developmental problems. The Tanzanian Government was subsequently encouraged by donor agencies to follow this trend of decentralisation of control over its natural resources to its citizens (Benjaminsen et al. 2013). This was

met with difficulty, because since colonial times all land in Tanzania was considered public land and is either categorised as reserved land (conservation and tourism), general land (urban and areas of investment), or village land (land use is managed by village councils) (Bluwstein et al. 2018).

In 1998, with the support of USAID, Tanzania adopted the CBNRM approach with the demarcation of Wildlife Management Areas (WMAs). By the turn of the century it was discovered that the wildlife sector was fraught with corruption, which led to the withdrawal of donor agency support and with it, their influence on the government. In 2007 the wildlife policy was revised and many of the laws advocating community participation and benefits were turned back, place the state once in control of wildlife conservation (Benjaminsen et al. 2013; Ponte et al. 2020).

In 2008 the state introduced new wildlife regulations and fees, which declared all non-consumptive tourism operations illegal without the permission of the Director of Wildlife. This prevented villagers and WMAs to benefit directly from tourism, and negatively affected their agreements with third party tourism operators. In 2009 the Wildlife Conservation Act passed National Assembly. This law strengthened central control of wildlife and gave the Wildlife Division more power to intervene in the management of village lands (Benjaminsen et al. 2013). The new regulations invited new actors such as NGOs, economic and political elites, and tourism investors to manage village lands in the name of conservation, partly undermining the village councils (Bluwstein et al. 2018; Ponte et al. 2020). Sometimes, this has led to land conflicts, evictions, and displacements and have left WMAs without sustainable livelihood strategies (Noe and Kangalawe 2015; Bluwstein et al. 2018), resulting in increased vulnerability of poor households, disempowering communities and causing food, land and safety insecurities (Noe and Kangalawe 2015; Moyo et al. 2016).

Despite these social drawbacks, the laws have however proven to be beneficial to conservation goals. It has encouraged the creation of new territories for the conservation of natural resources and wildlife (Nelson et al. 2007; Nelson et al. 2011; USAID 2013). Today, the country has 38 WMAs together with its 22 NPs, 21 game reserves, 44 game-controlled areas, and the Ngorongoro conservation area, representing a total of 33.4% of the terrestrial surface of 945,086 km² (see Tab. 1). However, only 22 of the WMAs have attained an Authorised Association status yet (Bluwstein et al. 2018; Kiwango et al. 2015; USAID 2013). The WMAs' major successes and challenges were highlighted by the USAID's 2013 evaluation, which was conducted five years after establishment of the first WMAs (USAID 2013). According to the report, the initiative provided benefits to the government, local communities, the private sector and the natural environment. The report also highlights threats to the long-term viability of WMAs which include issues with governance relating to democratic elections, record-keeping, transparency, accountability, communication, budgeting, and government involvement. The economic challenges included the high cost of establishment, the financial dependency of the WMAs, the lack of diversified revenue streams and minimal community compensation at the household level. The social challenges related to a lack of socio-economic monitoring of constituent villages, as well as a general disregard for gender and disadvantaged groups. The main conservation challenge was the absence of wildlife resource monitoring mechanisms. These results will be revisited in the following chapters, where comparisons will be drawn, and a new set of recommendations are made.

4   Study areas and methodology

The empirical analysis presents data from a field visit in September and October 2017 to eight of 22 fully authorised WMAs in Tanzania (see Tab. 2). These WMAs were selected based on two criteria, namely tourist activity and age. Firstly, tourism as economic sector was chosen because it is the leading foreign currency earner of the country with a GDP-share of 9% (International Trade Administration 2019). Nature-based tourism specifically, is responsible for a large share of this revenue and is also one of the main sources of income to WMAs (USAID 2013). The potential WMA case studies were therefore divided into four levels of tourism intensity based on income, namely: very high (profitable: more than TZS 1 billion / USD 432,000); high (breaks even: TZS 250 million to 1 billion / USD 108,000 to 432,000); medium (partially meets basic operating costs: TZS 50 million to TZS 250 million / USD 22,000 to 108,000), and low/no activity (operating loss: below TZS 50 million / USD 22,000) (see table 6). This information obtained from the WMAs before the research process commenced.

Tab. 1: Protected area categories of Tanzania

Category of PA	No.	% of total land surface	Km²	Types of use	Settlement allowed	Management description	Administered by
National Parks	22	Not updated	Not updated	Non-consumptive	No	Managed for conservation of resources through non-consumptive tourism activities	Tanzania National Parks
Ngorongoro Conservation Area	1	0.88	8,292	Non-consumptive	Yes	Managed for wildlife and tourism activities with support to livelihood of communities residing in the PA	Ngorongoro Conservation Area Authority
Game Reserves	21	Not updated	Not updated	Consumptive and non-consumptive	No	Managed for tourist hunting Settlement prohibited except for families of employees	Tanzania Wildlife Management Authority
Game Controlled Areas	44	6.12	58,565	Consumptive and non-consumptive	No	Settlement and other land uses prohibited and hunting under licence from Director of Wildlife	Tanzania Wildlife Management Authority
Wildlife Management Areas	38	3	29,518	Consumptive and non-consumptive	No	Promote conservation outside formal PAs by giving people authority and capacity to engage in wildlife management activities. Local communities allowed to partner with investors in wildlife-based businesses.	Tanzania Wildlife Management Authority; District Councils; and Community Based Organizations/ Authorized Associations

Data source: Modified from Kisingo (2013) and Kiwango et al. (2015)

Two WMAs in each tourism category were subsequently chosen, with consideration to their location and representation of the main tourist circuits in Tanzania, namely north, central/west, and south (see Fig. 5). The year of establishment was also a determining factor in the selection, as the WMAs had to have existed before the 2013 USAID evaluation. In other words, all WMAs established during or after 2013 were excluded from consideration to facilitate

a more direct evaluation in this study of the WMA's performance in 2017 compared to 2013.

As a result, four WMAs were chosen from the northern tourist circuit (Ikona, Enduimet, Randilen and Burunge) where tourism is highly developed; two are from the central/western (Uyumbu and Ipole) circuit with a medium level of tourism activities; and two are from the southern circuit (Ukutu and Ngarambe/Tapika) where there is little or no tourism develop-

Tab. 2: Profiles of WMAs investigated

S/N	WMA	km²	Year	Region	Tourism activities	Investors (2017)	Tourism level	Villages
1.	Ikona	242	2003	Mara-North	Photography	8	Very high	5
2.	Enduimet	751	2003	Arusha-North	Photography	2	High	11
3.	Randilen	312	2012	Arusha-North	Photography	6	High	8
4.	Burunge	617	2003	Manyara-North	Photography	7	Very high	10
5.	Uyumbu	839	2003	Tabora-Central	Hunting	1	Medium	2
6.	Ipole	2406	2003	Tabora-Central	Hunting	1	Medium	4
7.	Ukutu	639	2003	Morogoro-South	Hunting/ Photography	None*	Low	11
8.	Ngarambe/ Tapika	767	2003	Coastal-South	Hunting	None	None	2

Note: *Kisaki village in Ukutu used to have investors, but because of a conflict of interest, the village ended their participation in the WMA.

ment. While most of the selected WMAs were established during the WMA pilot period (2003-2006), the Randilen case study was established in 2012. It was included in the study because of its success despite its relatively young age and because it represents a second wave (2007-2012) of WMA establishment in Tanzania (USAID 2013).

This study followed a qualitative research method with an exploratory approach to assess the performance of Tanzanian WMAs. The aim of this study is to revisit the challenges identified by the 2013 USAID evaluation and discuss their underlying social and environmental dynamics. The 2013 WMA evaluation was used as basis for the creation of data collection and research tools. Data was collected from the communities from the selected WMAs, the staff of the WMAs, NGOs as well as donor agencies, and the Authorised Association Consortium, using a variety of methods, including focus group discussions, field observations and semi-structured interviews with key persons and representatives of organisations:

- Field observation was employed to see and experience some of the phenomena in the WMAs as described by the respondents, and photos were taken where possible.
- Documents were consulted to supplement the collected data, especially regarding important trends e.g. number of investors, generated and shared revenues, development projects etc in the WMAs.

- A focus group discussion was held with local community representatives in the studied WMAs. Village government leaders assisted in organising the meeting at the WMA headquarters. An interview schedule guided the discussions, which were recorded for the purpose of accurate data analysis. Participants were selected to fairly represent all the interest groups (including youth, woman, and village officials) (see Fig. 6).
- Semi-structured interviews with open ended questions were conducted with each WMA's Executive Secretary as they were able to provide vital information about development. Also, representatives of non-government organisations (World Wildlife Fund, The Nature Conservancy, Frankfurt Zoological Society, Honey Guide Foundation), donor agencies (USAID-PROTECT), the Authorised Association Consortium, an investor representatives of each district council where WMAs are located, and government wildlife organisations including TAWA (Tanzania Wildlife Management Authority), Ngorongoro Conservation Area Authority (NCAA) and TANAPA (Tanzania National Parks) were involved in interviews.

All recorded data was first transcribed, coded and then grouped into themes for easier interpretation by the researchers. MS-Excel aided in arranging and sorting the coded data for allocation of themes. The acquired results were compared to the challenges presented by the 2013 USAID report. The studied issues
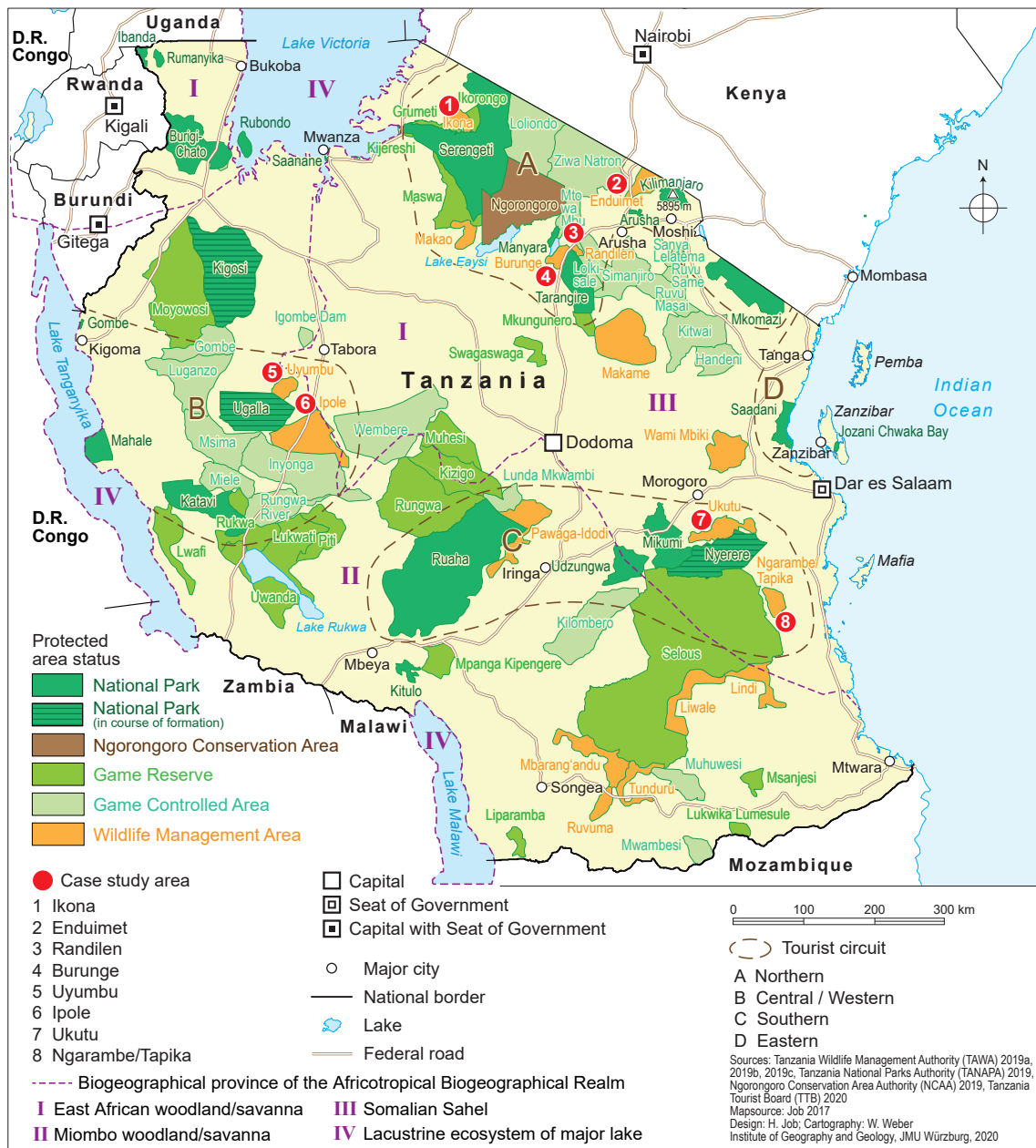
Fig. 5: Tanzania's PAs (2020), including WMAs[1]

were categorized based on their performances in the assessment. Afterwards, the findings were discussed in comparison with the challenges outlined in the previous report. The generated evidence was used to reflect on the expectations of WMAs in Tanzania and to give recommendations.

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[1] Tourist circuit D, Eastern wasn't covered when choosing the case study areas because there are no WMAs yet.

5 Findings

5.1 Governance system

A strengthened local governance system was one of the primary objectives of establishing WMAs, as it is paramount in ensuring effective wildlife resources management at the local level. Using the challenges identified in the 2013 USAID report as a guideline,

members of focussed group discussions were led through a controversial debate on these challenges. At the end a vote was done by raising hands to reach a consensus on a certain challenge of the assembled group. From this process the study arrived at the following broad agreement for each WMA (see Tab. 3):

5.1.1 Fulfilment of governance functions

The study showed that WMAs have functional governance structures with an executive and central committee, chairman, secretary and treasurer. The management teams were elected according to the WMA establishment guidelines, except for Ukutu, which blamed their non-performance to a lack of investors and funds. In Enduimet, an elected official can only hold a position for a maximum of two terms of five years each. In some of the WMAs, these positions were filled by professional staff, for example, the treasurer of Enduimet and the secretary of Ikona were graduates employed by these WMAs. Apart from that, Enduimet also annually contracts external auditors to assist with their financial statements. In other WMAs, such responsibilities are handled by untrained individuals from within the WMA – something which may have a negative impact on proper record-keeping and result in other managerial deficiencies.

Although only local residents participated in the governance system and no individuals from outside the WMAs tried to participate in elections or vied for positions in the organisation, incidents of conflict of interest did occur. In these instances, some village council members also held governing body positions. It was also noted that there is inadequate communication between community leaders, representatives and villagers when making decisions. As a result, village members were unaware of how and why decisions about private sector construction projects and contractors are made. Furthermore, because of inadequate control over the issuing of beekeeping and fishing permits in Ipole and Uyumbu, poachers gained access to PAs under the pretext of being fishers or beekeepers.

5.1.2 Governance connections to village councils

Interviews with villagers in all WMAs indicated that they did not know the purpose of the WMA, what their role in it should be or how they should benefit from it. This was especially problematic in Ukutu and Ngarambe/Tapika, which had little tourism and in-

Fig. 6: Meeting in Uyumbu WMA (Tabora-Central)

vestment potential and therefore generate no income or other tangible benefits from conservation. This lack of knowledge can be ascribed to inadequate communication and participation in most WMAs.

5.1.3 Government involvement in decision-making

The study showed that the government hardly involved the management or villagers living in WMAs when making decisions that affect them directly. Some of these decisions include:
- The termination of investor contracts
- Disbursement of funds, revenues and benefits
- Imposing taxes and fees on WMA investors
- Revenue sharing, as investors pay directly to the government who then transfer funds to the WMAs
- Using WMA money to initiate other projects: e.g., USD 44,000 of Ikona WMA's funds was redirected by the regional director to renovate a district hospital.

5.1.4   Transparency and accountability

Some WMAs, like Enduimet, Randilen and Burunge, follow much more transparent models of financial accounting than others. Enduimet made posters explaining its finances in Swahili for their members to be able to understand (see Fig. 7). In contrast, there were accusations of power-abuse at Ikona as community leaders did not inform the villagers about how revenue disbursed to them was spent. Village administrations were also accused of not being transparent about finances, investor relations and how villages would share WMA benefits.

Tab. 3: WMAs governance performance assessment

Challenges	Performance	Ikona	Enduimet	Randilen	Burunge	Uyumbu	Ipole	Ukutu	Ngarambe /Tapika
Unfulfilled governance functions:									
Elections / staff replacement	Conducted	x	x	x	x	x	x		x
	Not conducted							x	
Record keeping	Good		x	x	x	x	x		
	Fair								
	Poor	x						x	x
Communication	Good		x	x		x			
	Fair	x			x		x		x
	Poor							x	
Governance connections to village councils:									
Village awareness	Good		x	x	x				
	Fair	x				x	x		x
	Poor							x	
Government involvement in decision making	Good								
	Fair								
	Poor	x	x	x	x	x	x	x	x
Transparency and accountability	Good		x	x	x	x			
	Fair						x		x
	Poor	x						x	
Complete devolution of responsibilities	Yes								
	No	x		x	x	x	x	x	x

5.1.5 Devolution of responsibilities

The study revealed that all WMAs had concerns about issues that pertain to their autonomy of existence and operations. Irregularities were reported about the management of resource use, fee collection, contracts with potential investors, use of funds and daily operations that require govern-ment approval. The Tanzanian constitution sees wildlife and land as state-owned resources, limiting the authority of local communities to manage them. Questions about the community's rights to WMA benefits and resources during the field interview indicate that there has not been a complete devolution of power over wildlife resources to the communities yet.

WMA Regulations stipulate that the district government and the Wildlife Director will continue to participate in negotiations between Authorised Associations and investors even after a WMA was approved and user rights granted (URT 2012). While this measure is intended to ensure fair negotiations, problems arise when the process takes too long from the government's side, as it complicates the planning of further activities. The failure of Ukutu and Ngarambe/Tapika WMAs can be directly ascribed to the effect that government interests and overly long bureaucratic procedures have on attracting investors.

Proposed investments in WMAs must by law be approved by the Director of Wildlife Division and paid to the CITES office which falls under the TAWA, which will then divide it between the Wildlife Division, District Council and the WMA. However, this revenue sharing arrangement between the government and the WMAs is not transparent as WMAs do not know how much money they are owed and are therefore unable to demand their fair share. It was noted that government payments do not correspond with the WMA records, and there was also no documentation provided to explain the basis of the payments. This system allows the leakage of the WMAs' tourism revenue, and therefore the funding of community-based tourism projects. The protracted process to access funds further prevents the WMAs from effectively covering their operational costs and because the community does not feel the collected revenue belongs to them, they are reluctant to participate in conservation activities. According to TAWA, this cumbersome system was introduced to ensure that fees are effectively collected and properly accounted for, as they are of the opinion that WMAs lack the necessary skills to do so (WWF 2014).

This study further found that the centralised fee collection system complicated the issuing of permits to tourists who wanted to visit community-based attractions. The tourists are required to obtain permits from CITES Arusha or other offices that are not based near WMAs which makes the process cumbersome and may deter tourists from visiting the WMAs. For example, the Enduimet WMA is a 3h drive from Arusha city. It is about 2h drive from Moshi town, but visitors from Moshi first need to go to Arusha to get a permit, and then drive back three more hours to the WMA. Often, visitors are not aware that they must obtain permits from Arusha and are consequently denied entry despite their willingness to pay the entry fee, resulting in a loss of revenue as well as bad publicity.
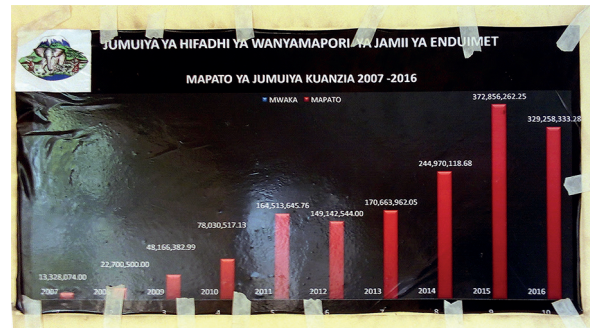

Fig. 7: Revenue collection trend of Enduimet WMA diagrammed as Suaheli language poster

5.2 Actors and resource units

Focused group participants discussed on the socio-economic aspects of WMAs. Concensus was achieved as group on the costs of establishing and running a WMA (see Tab. 4). The income-generating activities of the analysed WMAs ranged from almost none or under-explored to well-developed tourism and tourism-related pursuits, forestry and fishing opportunities. The geographical location of these WMAs greatly determined the nature of economic activities. In the northern part of Tanzania, Enduimet, Randilen, Burunge and Ikona were favoured destinations for photographic safari tourism due to their proximity to famous nature-based tourism destinations like the NPs Kilimanjaro, Tarangire, Arusha, Manyara, Serengeti and Ngorongoro Conservation Area. Due to their scenic location, both Burunge and Ikona were converted into photographic areas despite having concessions for hunting, for which they still pay the costly concession fees. The WMAs located in the central and southern parts of Tanzania, namely Ipole and Uyumbu, as well as Ukutu and Ngarambe/Tapika respectively, are mainly suitable for hunting tourism.

5.2.1 Costs of conservation

The study indicated that in most cases the WMAs were responsible for paying costs associated with conservation. Enduimet, Ikona, and Randilen were supported by donors and investors who sponsored patrol equipment, e.g. anti-poaching transport, uniforms, communication devices and the salaries of village game scouts. No direct financial support of conservation activities by the government was noted for WMAs. The study identified another very important aspect relating to the cost of conservation in all WMAs: the cost of human-wildlife conflicts, such as

Tab. 4: WMAs socio-economic aspect performance assessment

Challenges	Performance	Ikona	Enduimet	Randilen	Burunge	Uyumbu	Ipole	Ukutu	Ngarambe/T.
Cost of conservation carried by:									
	WMA	x	x	x	x	x	x	x	x
	Government								
	Donors	x	x	x					
	Investors	x	x	x	x	x			
Costs of establishing and running the WMA:									
	High	x						x	x
	Medium				x	x	x		
	Low		x	x					
Diversified revenue sources:									
	0/None								x
	1-2							x	
	3-5					x	x		
	> 5	x	x		x			x	

the loss of human lives, injuries, and the loss of livestock and crops, as was seen at villages within Ikona, Ukutu, and Ngarambe/Tapika. It became apparent that inadequate compensation to victims of human-wildlife conflicts removes the willingness of communities to engage in the wildlife conservation sector. Not only is the amount often well below the value of the loss, but it takes a long time to be paid out. Furthermore, authorities are lax when it comes to the control of problem animals.

In terms of costs of conservation, most benefits in the WMAs go to the community – for example, to build health centres, schools and water projects, and provide livestock services – rather than to compensate the households who directly bear these costs. This lacking benefit-sharing model discourages community members, some living in abject poverty, from participating in the WMA activities: they simply do not experience any advantages of committing themselves to wildlife protection. Villagers see no direct link between the construction of community infrastructures like schools and clinics and best practices in conservation, as they often receive such benefits with no effort from their side; in fact, benefits in the form of social services and infrastructure frequently serve neighbouring communities outside the WMAs as much as they do the people who had to make sacrifices, such as allowing wild animals to pass through their land, destroy their crops and prey on their cattle.

Conversely, at Enduimet a well-organised system was in place where the respective WMA shared its revenue with the Kamwanga village, which is not a member of the WMA. Kamwanga, which is too small to join the WMA, is located in a wildlife corridor where the protection of the animals is also needed. This approach to benefit sharing is not seen at other WMAs, not even at the high income generating Ikona WMA, where neighbouring villages like Rwamchanga carry the cost of frequent human-wildlife conflicts.

5.2.2 Cost of establishing and running WMAs

In all eight cases, the cost of establishing a WMA (between USD 250,000 and 300,000) were sponsored by donor agencies, while the day-to-day management expenses, which comprise the salaries of

the village game scouts, the cost of patrol equipment and the maintenance of the WMA's facilities, were mainly carried by local communities. This is concerning since most WMA's were still not financially self-sustaining. Therefore, investors are necessary to help sustain and fund projects within the WMA's. In Ukutu, for example, an investor's operation was stopped by the government and the investor expelled from the area, but the government did not take over any of the financial responsibilities. Some WMAs never had any investors, although at Ngarambe/ Tapika negotiations with a potential investor were ongoing during the time of study.

5.2.3 Revenue streams and investment for WMAs

The study showed that some WMAs have further diversified their revenue streams; Enduimet, Ikona, and Randilen supplemented their income from hunting and photo safari tourism by providing cultural tourism. Also, most WMAs had a functional VICOBA (Village Co-operative Bank), in which villagers collectively save money from which they can grant small loans to the group's members for investment in small business projects, e.g. chickens, beekeeping and honey-selling, or beadwork projects for tourist handicrafts. The revenue stream-types are summarised in Tab. 5.

The Authorised Association Consortium indicated that revenue-generating projects fail because most WMAs struggle to prioritise funding for projects, for example, the generator project in Ngarambe village failed because households could not afford to buy fuel. Some socio-economic projects supported by donors or conservation organisations also failed because of a lack of continuity, and conservation-related enterprises like honey-production failed due to unreliable markets for selling the products.

In most of the studied WMAs the private sector was the primary source of revenue as they invested in tourism facilities such as permanent lodges and luxury tented camps. Such nature-based tourism investments can be divided into two main categories, namely photographic and hunting tourism (Tab. 6). The interim development after the 2013 USAID study indicates that the number of private

Tab. 5: Type of WMAs revenue streams

Revenue sources:	Ikona	Enduimet	Randilen	Brunge	Uyumbu	Ipole	Ukutu	Ngarambe /Tapika
Photographic entry fees	x	x	x	x				
Concession fee /lodges	x	x	x	x	x	x		
Livestock groups		x						
Savings	x	x		x				
Camping		x	x					
Donors	x	x	x					
Handicrafts and cultural tourism products*		x	x	x				
Village Community Bank	x			x	x		x	
Bee-keeping and honey	x			x	x	x		
Hunting block fees	x			x	x	x		
Real estate	x			x				
Walking tours		x						
Fishing					x	x		
Forestry products					x	x		

Note: * Weaved products, traditional dances, cultural bomas, village walks, etc.

Tab. 6: Revenue profiles of WMAs investigated

WMA	2013			2019		
	Investors	Type	Revenue (USD)	Investors	Type	Revenue (USD)
Ikona	8	Photographic	337,358.34	10	Photographic [9] Hunting [1]	1,118,329.41
Enduimet	2	Photographic	89,478.69	3	Photographic [2] Hunting [1]	227,156.85
Randilen	*	*	*	6	Photographic	206,163.61
Burunge	5	Photographic [4] Hunting [1]	119,105.18	7	Lodges [6] Hunting [1]	873,031.62
Uyumbu	1	Hunting	32,685.00	1	Hunting	27,484.82
Ipole	1	Hunting	31,053.88	1	Hunting	42,595.47
Ukutu	-	-	-	-	-	17,271.39**
Ngarambe/Tapika	-	-	-	1	Hunting	82,882.69

NOTE: * Investors had contracts with villages and not Randilen WMA;** Money collected from fines (livestock and crop farming within WMA area).

investors is slowly increasing. As the tourism industry becomes more familiar with the WMA concept and their investments increase, the WMAs are able to generate higher revenues. Where there are no tourism investments, WMAs are threatened by the encroachment of agricultural activities, such as livestock farming. For example, in 2019 Ukutu collected a significant amount through fines from illegal livestock farmers.

5.3 Resource system

5.3.1 Protection and monitoring of wildlife resources

In several WMAs, wildlife resources were successfully protected by the village game scouts. The village game scouts at Enduimet, Randilen and Burunge seemed to be well-functioning, but at Ngarambe/Tapika a lack of funds prevented an effective system. The same was true for Ukutu, where the youth was not prepared to participate in patrols without financial incentives or compensation for their time by salaries. In all WMAs, the monitoring of wildlife resources was still a big challenge, and the movement of the animals through village lands created many human-wildlife conflicts such as crop-raiding, livestock attacks, human injury or death. This conflict goes both ways: retaliating after a cow was attacked

in Park-Nyigoti village within Ikona, seven lions were poisoned by the villagers (MAYUNGA 2014).

Also, illegal livestock grazing was encountered during the field study; this is one of the challenges facing PAs in Tanzania. A high frequency of livestock invasion was reported in Ikona, Ukutu, Uyumbu and Ipole (see Fig. 8).

5.3.2 Anti-poaching

Anti-poaching practices were found to be effective in most studied WMAs (see Tab. 7). Most of the WMAs, like Burunge, Randilen, Uyumbu, Enduimet and Ikona, have a very close relationship with adjacent PAs with whom they cooperated in operations like anti-poaching patrols. During the field study, the arrest of poachers was witnessed in Burunge and Uyumbu WMAs (see Fig. 9). The arrests were possible because of close communication between local communities, WMAs, investors and adjacent PAs, and the ability to respond quickly. On the other hand, some WMAs had a poor relationship with adjacent PAs and this is detrimental to anti-poaching efforts. For example, a WMA had a poor relationship with the nearby NP, with complaints that the NP excluded its village game scouts from protective activities such as anti-poaching patrols. There were also boundary conflicts between the same WMA and the NP during the study pe-

Fig. 8: Cattle grazing in Kisaki village, Ukutu WMA

Fig. 9: An arrested poacher apprehended after a joint patrol between Ugalla GR rangers and the investor (ABUSAT) in Uyumbu WMA

riod. Another WMA had a poor relationship with the adjacent Game Reserve, with a reported case of a ranger being killed by villagers because of it. Uyumbu and Ipole, on the other hand, had a good relationship with the Ugalla Game Reserve.

6   Discussion

The aim of WMAs in Tanzania was to increase the participation of local communities in the management of wildlife resources and thereby to deliver socio-economic benefits to these local communities, while at the same time benefiting wildlife conservation and environmental protection. Regarding the governance system: all the studied WMAs had governance and resource use management plans available to guide the local communities on how to sustainably utilise and develop their land and resources. Effective planning and monitoring had a positive impact in many WMAs, for instance, in Burunge there were signs of restoration of the Kwakuchinja wildlife corridor which connects Manyara and Tarangire NPs. Increased pressure from human activities in the area, such as cultivation, livestock grazing, and phosphate mining with associated land conflicts nearly erased this corridor. This recovery attracted tourism income to the area, which clearly demonstrates how conservation can contribute to the upliftment of local communities (Stone 2006; Brooks et al. 2013; Cetas and Yasue 2016).

Relating to governance issues, the study revealed that most of the WMAs are still under-performing (see Tab 6). Despite seven WMAs holding regular elections and five doing well with record-keeping, most performed inadequately in terms of communication, village awareness, government involvement in decision-making, transparency and accountability, and the devolution of responsibilities. Effective management remains essential in wildlife resource governance at the local level to encourage long-term community participation (Trombulak and Baldwin 2010).

Under the actor and resource unit category, the study showed that the cost of conservation in all the WMAs are mainly carried by local communities. This is a problem for WMAs that has inadequate or no sources of income, due to a lack of investor and donor support. The main conservation problem local communities experience is the cost of human-wildlife conflicts such as crop-raiding, livestock predation, and human injury or death, for which victims receive little or no compensation. The cost of conservation can also be associated with the models used for benefit-sharing: whether incentives reach at least the household level or stop at the community level for projects like schools, determine people's attitude towards the WMA concept and subsequently their engagement with wildlife protection (Rydin and Pennington 2000; Swemmer et al. 2015). Importantly, members of non-WMA villages adjacent to the WMA also incur costs of wildlife conservation but they hardly ever benefit from the wildlife resources. Only Enduimet shares its revenue with a non-member village, but only because it is situated within an important wildlife corridor. Besides, for people to support the WMAs concept, it is crucial that the system of revenue-sharing is both transparent and fair (Rylance et al. 2017).

Although the cost of establishing and running WMAs were considered to be high, all eight WMAs were supported by donor agencies. Where WMAs had no such income, their lack of funds to support anti-poaching and other conservation activities caused their operations to cease. For instance,

Tab. 7: Synopsis

Challenges	Performance	Ikona	Enduimet	Randilen	Burunge	Uyumbu	Ipole	Ukutu	Ngarambe/ Tapika
Protection of wildlife resources									
Age	Old	x	x		x	x	x	x	x
	Young			x					
Tourism intensity	High	x	x	x	x				
	Medium					x	x		
	Low							x	x
Presence of village game scouts	Yes	x	x	x	x	x	x		x
	No							x	
Effectiveness of village game scout system	Highly		x	x	x				
	Averagely	x				x	x		
	Not effective								x
Monitoring wildlife resources									
Wildlife population and movement control	Strong								
	Average								
	Weak	x	x	x	x	x	x		
	No control							x	x
Livestock invasion / grazing	High	x				x	x	x	
	low		x	x	x				x
	None								
Anti-poaching									
	Strong		x	x	x	x			
	Weak	x					x		x
	No control							x	

at Ukutu and Ngarambe/Tapika resource protection was compromised by the fact that the WMAs could not afford to pay salaries to the village game scouts. Interestingly, some of the WMAs with high revenue collection, particularly Ikona and Burunge, seem to face more challenges than others, like Enduimet and Randilen, mainly because of a lack of transparency and conflicts when it comes to benefit-sharing. This is similar to what KIHMA and MUSILIA (2019) found at the Mwalunganje Conservancy in Kenya. The implication is that the challenges facing WMAs are not only economic-centric but mainly governance-related (CARIUS and JOB 2019). In almost all the WMAs a diversification of revenue streams resulted in an improvement. Six of the eight WMAs had more than five different sources of income, which was important for their financial sustainability. During the study period, Ngarambe/Tapika had no source of income while Ukutu had only one, which benefits only certain individuals. Even though most areas are well-protected and are rich in wildlife resources that can attract investors, they need a diversified, steady source of income for both the villagers and the WMA in general. This will improve the financial sustainability of WMAs in the face of external challenges, like changes to wildlife use regulations, government decisions, and the seasonality of tourism (MCGINNIS and OSTROM 2014; SWEMMER et al. 2015).

In terms of the resource system, this study found some successes: for example, in Enduimet the rate of poaching decreased to such an extent that no elephant poaching was reported during the past four

years (2014-2017), and there was an increase in the size of land that the local community dedicated to conservation. Furthermore, all WMAs had an effective village game scout system in place and conducted active anti-poaching campaigns. However, wildlife resource monitoring remains a challenge, and this has accelerated incidences of human-wildlife conflicts.

7   Conclusion: shortcomings and recommendations

In conclusion, the aim of this study – to revisit WMA challenges identified by the 2013 USAID evaluation and discuss their underlying social and environmental dynamics – was achieved. The first objective was reached by identifying eight out of the 22 fully authorised WMA's that were established before 2013, representing a variety of nature-based tourism activity levels and different tourism regions. The WMAs that were identified therefore are: Burunge, Enduimet, Ikona, Ipole, Ngarambe/Tapika, Randilen, Ukutu and Uyumbu. The second objective – to use the 2013 USAID evaluation's outcome to create research and data collection tools – was also accomplished. These tools were used in the variety of data collection methods including group discussions, field observations and semi-structured interviews. The third objective – to determine and discuss the underlying dynamics of these challenges using a combination of the SES and SLA frameworks – was also reached. The findings were stated and analysed under three main categories from the SESF framework, namely: governance systems, actors and resource units, as well as resource systems. The SLA lens was used in the analysis of each of these system components. The dynamics of each of the SESF categories were subsequently discussed. From this analysis and discussion, the fourth objective – to contribute to the debate on Tanzania's WMA's – was realised. The adapted framework used in this study to determine the dynamics of the WMA challenges made it possible to identify the WMA's shortcomings as follows:

- Untrained persons being in charge having a negative impact on proper record-keeping and deficiencies in other managerial tasks.
- Not being transparent enough about finances, investor relations and how villages can share benefits.
- Inadequate control over the issuing of permits, e.g. fishing.

- The government hardly involves the management or villagers when making decisions, and there has not been a complete devolution of power over wildlife resources to the communities yet.
- Overly long government procedures and non-transparent revenue sharing arrangements between the government and WMAs.
- No direct financial support of WMAs conservation activities by the government.
- The centralised fee collection system complicates the issuing of permits to tourists.
- Inadequate and seriously delayed compensation to victims of human-wildlife conflicts.
- Benefits in the form of social services and infrastructure frequently serve neighbouring communities outside the WMAs as much as they do locals who had to make sacrifices, such as allowing wild animals to pass through their farms, possibly resulting in crop-raiding.
- Widespread illegal livestock grazing and protection being compromised by the fact that the WMAs could not afford to pay salaries to the village game scouts.
- The financial sustainability has to be seen in the face of external challenges, like changes to wildlife use regulations, and the seasonality as well as volatility of incoming tourism because of hazards.

Therefore, we recommend the following:

- Review of the governance structure of WMAs to establish a multi-scale system of interaction with different stakeholders including the government, adjacent PAs, NGOs and donors to create more opportunities for intervention like training, research, joint operations, persistent funding, and even administration.
- Reconsider the government's position for shifting more devolution of power and rights to the WMAs.
- WMAs should be allowed to maximize revenue collection from tourism by overcoming the existing barriers or restrictions set in place by the centralized fee collection system.
- The benefit-sharing model of WMAs should be reviewed to focus on especially poor individual households, rather than the community as a whole.
- Finally, smaller villages located in wildlife corridors adjacent to WMAs must be included in revenue sharing to safeguard biological connectivity in between PAs.

Acknowledgements

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Authors

Fidelcastor F. Kimario
Ministry of Natural Resources and Tourism
Government City
Prime Minister's Street
P.O. Box 1352
Dodoma
Tanzania
fidelcastor.kimario@maliasili.go.tz

Nina Botha
Stellenbosch University
Department of Geography and Environmental
Studies
Private Bag X1
Matieland,
7602 Stellenbosch
South Africa
25ninatjie@gmail.com

Dr. Alex Kisingo
College of African Wildlife Management
P.O. Box 3031,
Moshi
Tanzania
akisingo@mwekawildlife.ac.tz

Prof. Dr. Hubert Job
Julius-Maximilians-University of Würzburg
Institute for Geography and Geology
Chair of Geography and Regional Science
Am Hubland
97074 Würzburg
Germany
hubert.job@uni-wuerzburg.de