



## Challenges facing local communities in Tanzania in realising locally-managed marine areas



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### ABSTRACT

This study explores how the history and process of establishing a marine protected area (MPA) under the control of the state has led to limited interest in community-based management amongst local stakeholders. The study contributes to the understanding of historical events that have discouraged the take-off and scale-up of community-based conservation approaches, such as locally-managed marine areas (LMMAs). LMMAs are being promoted increasingly as a desirable approach in marine conservation. However, there are a limited numbers of cases where such initiatives have been used as a strategy for marine management in sub-Saharan Africa, and very few operational examples of such schemes exist in the Western Indian Ocean region. Through semi-structured questionnaires, 193 community members selected randomly from 15 villages of the Mnazi Bay-Ruvuma Estuary Marine Park (MBREMP), Mtwara district, Southern Tanzania, were interviewed about their attitudes towards efforts to promote local management and the conservation of marine resources. The study also involved 17 focus group discussions, 13 in-depth key informant interviews, participant observation, and a review of secondary information. Over 85% of the questionnaire respondents commented that there was insufficient participation by legitimate community representatives in the development of the MBREMP. Almost 90% of the respondents agreed that the management of marine areas has increased significantly, particularly in the last two decades following initiatives by the government, donors and external NGOs. However, 70% of the questionnaire responders had observed that a rapid shift from centralised to community-based management has been hindered by a lack of acceptable community rules and by communities frequently equating conservation with prohibition. Developing LMMAs in areas based on the lessons learned from MPAs could be a better alternative to developing entirely new community-managed areas; however, this can only succeed if limitations including the key principles of community participation and empowerment are addressed.

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### 1. Introduction

The multifaceted nature of human-induced and natural threats to global marine environments has led the scientific community to recognise the importance of an integrated approach to the management of marine and coastal resources [1]. In response, marine protected areas (MPAs) are often recommended, and adopted around the world as a management tool for marine

systems [2–4]. MPAs are formally designated areas, subject to varying degrees of protection that are generally intended to maintain marine biodiversity and facilitate resource recovery and enhancement [5,6]. MPAs also play a vital role in mitigating the effects of climate change [7] and can ensure ecosystem resilience, contributing towards climate change adaptations and protecting essential ecosystem services by sustaining key ecological functions, services and resources [8]. Most notably, MPAs provide useful sites for education and research purposes [9,10]. However, MPAs are not a panacea, but are rather one management tool among many [11,12].

The implementation of protected areas in coastal areas has increased rapidly since the World Summit on Sustainable Development in Johannesburg in 2002, when the first international target of establishing a global network of MPAs by 2012 was set [13].

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Since this summit, the last decade has witnessed huge efforts to reach the additional targets that have been set, such as at the eighth meeting of the Conference of the Parties (COP) on the Convention on Biological Diversity (CBD), which stated that there should be effective conservation of at least 10% of each of the world's ecological regions by 2012 [14]. Similarly, in 2010, Parties to the CBD recommitted to a new target to effectively protect at least 17% of terrestrial areas and 10% of the world's marine and coastal ecological regions by 2020 [15]. While these are very impressive ambitions, several authors e.g. [16–19] have argued that these targets are difficult to achieve in reality.

Despite these impressive actions, the question of how MPAs can meet the CBD target and expand into areas with no or little history of traditional conservation remains. Currently, there are more than five thousand MPAs worldwide, with a total area coverage of 4.21 million km<sup>2</sup>, encompassing 1.17% of the global ocean surface [20]. While there has been an increase in protected area coverage during the last decade, MPA development has failed to keep up with the development of protected areas in the terrestrial environment [21]. The global distribution of MPAs is both uneven and unrepresentative on multiple scales [20]. In comparison with terrestrial protected areas, MPA designation and management is complicated by the fact that many projects are still guided by top-down management, where national governments are the sole resource managers and policy makers [22]. However, this situation is changing, as revealed by an upsurge of interest in community-based natural resources management; this is intended to compensate for the low capacity of governments to implement local regulations in marine tenure [23,24].

During the last decade, a large number of initiatives to protect marine environments, some lead by governments and others driven by international donors and Non-Governmental Organisations (NGOs), have introduced a shift from state-based MPAs towards management at a local level by relevant stakeholders [25]. These initiatives have promoted either the concept of shared responsibility between governments and resource users through co-management [26], or the practice of bestowing management wholly on the community [27]. This approach has been particularly successful in the Pacific region, in countries such as Fiji, Solomon Islands, Tuvalu, and the Philippines, where numerous community-managed marine areas have been established outside of MPAs operated by the state [28]. Such areas, often referred to as locally-managed marine areas (LMMAs), can be described as community-based conservation approaches.

Over the past two decades, the LMMA concept has gained popularity as an effective alternative to state-operated MPAs [29]. Whilst LMMAs are potentially good initiatives, they can be difficult to implement, especially in locations with no history of traditional marine management. These areas need to be largely or wholly managed at a local level by the coastal communities working with other stakeholders and/or collaborative government representatives who reside, or are based, in the immediate area [30,31]. In contrast to state-operated MPAs, community participation and buy-in with LMMAs must be very high in order for the project to be a success, and this is shaped by the realities and constraints of particular places, people, and ecosystems.

Despite the importance of marine resources to community welfare, there is still slow growth in the appreciation of community-managed areas, such as LMMAs, in many countries of the Western Indian Ocean (WIO) [32]. This study attempts to determine why this is the case by examining some of the practical barriers to successful adoption of LMMAs, particularly in Tanzania. The study focuses on forces currently shaping marine conservation, especially political structures and processes, power struggles, and the distribution of the benefits of successful management [33]. Notably, the opinions of communities in Tanzania regarding a

range of interests and priorities are an important consideration, and may serve as an invaluable reference for practitioners trying to implement LMMAs in similar areas in the future. Tanzania represents an important case study in LMMAs process because marine conservation can encompass approaches involving local people in the design and establishment of MPAs [34,35]. Tanzania also possesses several attributes frequently deemed suitable for community-based conservation, with successful experience in terrestrial protected areas, in particular, the enactment of wildlife management areas [36–38]. However, until very recently, MPAs established in Tanzania have been heavily influenced by fisheries law and regulations [39,40]. Characteristically, in mainland Tanzania, MPAs are legally established in the form of marine parks (multiple uses) and marine reserves (no take areas) under the Marine Parks and Reserves Act no. 29 of 1994 [39]. Currently, there are three marine parks and 15 marine reserves, all established and recorded under the Marine Parks and Reserves Act [39,41].

Additionally, local communities are frequently directed by various authorities to complete the procedures involved in managing marine areas in a rather top-down fashion [35,42,43]. In reality, these are not local community initiatives; communities have no direct role in their establishment and often feel that these initiatives are influenced by international organisations, bringing a set of ideas that are often in contrast to those of local populations [39,42]. Furthermore, the MPA legislation does not provide any explicit relationship between government bodies, such as the Marine Parks and Reserves Unit, and the private and NGO stakeholders; in addition, MPA legislation does not stipulate nor indicate how private and NGO stakeholders could be involved in MPA management. It is interesting to note that the MPA legislation is currently under review though it is not known whether, once revised, it will accommodate community-based conservation projects that are governed by local by-laws. Presently, the governance structure of MPAs does not allow greater participation, power sharing and decision making by non-governmental stakeholders, including the private sector [40]. This has caused conflict and, in some instances, strong resistance and deep community hostility towards the concept of protecting marine areas, such as in villages on the western edge of the Mnazi Bay-Ruvuma Estuary Marine Park (MBREMP) in southern Tanzania [44]. Similarly, there was an immediate negative reaction to the initial initiative to create the marine park by the residents around this area, with evictions and the loss of livelihoods forming the basis for most of the resentment towards the protected area [45]. It is apparent in these examples that there were critical issues that were either overlooked or ignored, which could have provided an insight into some of the demographic, cultural, and social factors that influence community acceptance or non-acceptance of MPAs. While there may be many opportunities to learn from such existing conservation activities, resistance and conflicts can inhibit the successful and widespread adoption of community-based conservation measures.

## 2. Materials and methods

### 2.1. Study site

This study was conducted in the Mnazi Bay-Ruvuma Estuary Marine Park, a multi-use MPA situated in the Mtwara rural district, on Tanzania's southern border with Mozambique. The MBREMP was established in 2000 and encompasses an area of 650 km<sup>2</sup>, of which 220 km<sup>2</sup> is land [46]. The remaining 430 km<sup>2</sup> includes mangrove forests, islands, and extensive coral reefs [47]. The population of the MBREMP has recently been estimated to be approximately 40,000 people, living in 17 villages [48]. The

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