



### RECOMMENDATIONS

- Efforts at addressing illegal fishing practices in the small-scale sector should be strengthened. The rapid increase in the prevalence of chicocota nets in estuaries should be addressed urgently through collaboration between co-management units (CCPs) and fisheries officials.
- Financial management in support of fisheries co-management and marine conservation should be improved. A percentage of fishing licence fees and park fees are required to be allocated to CCPs, local communities and the management of national parks. These funds are poorly managed and often not distributed to the intended beneficiaries.
- Information sharing and co-operation among park officials, tourism operators and fisheries communities should be improved. This will help to increase compliance with park regulations and reduce the pressure on park officials to enforce compliance through patrols and punitive measures. Financial management in support of fisheries co-management and marine conservation should also be improved.
- Governance efforts should aim to increase adaptive governance and resilience in fisheries communities as a response to the impacts of climate change and other environmental forces. Existing community structures such as CCPs should be more closely integrated with disaster risk preparedness.
- Community involvement in environmental impact assessment processes should be strengthened. Communities should be provided with training to assist in monitoring and reporting potential environmental damage related to the large-scale extractive industry and infrastructure investments.

## Small-Scale Fisheries in Mozambique

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### EXECUTIVE SUMMARY

Small-scale fisheries in Africa employ over 95% of fishers and provide more than 90% of the fish consumed across the continent.<sup>2</sup> In Mozambique, as elsewhere on the continent, small-scale fisheries are a crucial component of the rural economy, supporting food security and livelihoods. These fisheries, however, face a range of pressures arising both from dynamics within the sector itself, such as overfishing and illegal fishing, as well as external forces related to the development of other sectors of the economy and geophysical changes associated with climate change. Although governance efforts related to small-scale fisheries have tended to focus on strengthening fishers' access to markets, credit and improved fishing technologies, the emergent challenges facing the sector in a modernising economy such as Mozambique require greater focus on ensuring the sustainability of fish stocks targeted by small-scale fishers and strengthening the resilience of small-scale fishing communities.

### INTRODUCTION

Mozambique was one of the 10 fastest-growing economies in the world from 2001–10 and is likely to sustain this trend in the following decade. The country's strong growth rates have been driven primarily by the recent discovery and exploitation of significant coal and natural gas reserves, but other sectors of the economy, such as tourism and manufacturing, have also shown increasing dynamism. Despite urbanisation trends and strong economic growth, however, most Mozambicans remain poor and reliant on the rural economy, particularly agriculture and fisheries.

There are approximately 280 000 small-scale fishers in Mozambique, each of whom supports a number of family members and a network of suppliers, processors and traders. These localised social and economic networks will remain central to Mozambique's development, even as the country's mining, tourism and other economic sectors experience rapid growth.

Small-scale fisheries in Mozambique and elsewhere in Africa face a range of pressures arising from both within the fisheries sector and from external dynamics. Governance efforts aimed at the sustainable utilisation of fish stocks are threatened by the increase in the number of small-scale fishers, the adoption of new fishing technologies, and illegal fishing practices. Fisheries also increasingly face pressures that stem from other sectors of the economy. As conservation and tourism efforts gain momentum, there are new limitations on access to fishing grounds. Industrialisation and the exploitation of mineral resources also put fragile ecosystems at risk, while climate change poses a range of geophysical and ecological threats.

### THE GOVERNANCE OF MOZAMBIQUE'S FISHERIES

Mozambique's fisheries sector is divided into industrial, semi-industrial and small-scale sectors. The industrial and semi-industrial sectors target primarily shrimp and linefish, while the small-scale sector targets a range of small pelagic species, larger pelagic and demersal linefish species, as well as crustaceans such as shrimp and crab. Mozambique has long recognised the significance of small-scale fisheries. The importance of the sector was highlighted in Mozambique's Fisheries Master Plan, which was adopted in 1996. Small-scale fisheries have been further supported through the development of the Strategic Plan for the Artisanal Fishing Sub-Sector and the establishment of the National Institute for the Development of Small-Scale Fisheries.

Co-management committees, known as Conselho Comunitário de Pesca (CCPs), have been established at 600 landing sites along Mozambique's coastline. These CCPs have played a central role in reducing some of the most damaging fishing practices, such as the use of mosquito nets and fishing in estuaries. CCPs have also contributed to an increased awareness of conservation measures that have been put in place to protect various marine species, such as turtles, manta rays, whale sharks

and dugongs. Fishers have further been supported through a variety of financing mechanisms to facilitate the acquisition of new fishing gears and technologies in order to increase efficiency in the sector. Competition between the small-scale and industrial fishing sectors, a major challenge in many African coastal states, has largely been resolved through the implementation of a three-mile exclusive-use zone for small-scale fisheries and the monitoring of the industrial shrimp fleet through a vessel monitoring system.

### SMALL-SCALE FISHERIES IN A MODERNISING ECONOMY

Despite the efforts by Mozambican fisheries authorities to support small-scale fishers, the sector continues to face numerous challenges. Data on the status of fish stocks targeted by the small-scale sector is scarce; however, fishers themselves acknowledge that catches have declined considerably in recent years. Stocks are threatened by overfishing and illegal fishing practices, but factors such as pollution, poor land use management practices and climate change also pose significant threats. Management strategies for small-scale fisheries have tended to focus on improving access to markets, credit and improved fishing technologies. This is premised on the argument that these constraints, rather than overfishing, collectively limit the ability of fishers and fish processors to escape poverty. Although these interventions can contribute significantly to improving livelihoods in fishing communities, overfishing and illegal fishing practices do pose a threat to the sustainability of the fish stocks targeted by small-scale fishers. These pressures are likely to increase in the future as fishing technologies improve and ever-greater numbers of fishers enter the sector. It is therefore essential that efforts at supporting the economic viability of the sector are combined with management measures aimed at the sustainability of fish stocks.

CCPs, working in co-operation with fisheries officials, will be required to play an ever-greater role in managing fishing pressure and addressing illegal fishing practices in the small-scale sector. In recent years, for example, there has been a significant increase in the illegal use of chicocota nets in estuaries. These fine mesh nets, often constructed from discarded commercial shrimp nets, are set in estuaries and rely on tidal flow to indiscriminately capture a variety of marine species.

Estuaries are important breeding grounds that support both the small pelagic species targeted by small-scale fishers and the shrimp species targeted by the industrial fishing sector. Although certain CCPs have established management and monitoring systems that allow them to address issues such as illegal chicocota fishing in estuaries, many CCPs experience difficulties and claim that they receive little support from fisheries officials.

One of the critical challenges facing CCPs is a lack of funding to support their monitoring activities. Fisheries regulations specify that a proportion of fishing licence fees should be allocated to CCPs, yet these funds are poorly managed and rarely reach the intended beneficiaries.<sup>3</sup> Similar problems are experienced in Mozambique's marine protected areas (MPAs), where a proportion of park fees is required to be distributed to local communities and park management bodies.

The establishment of MPAs is viewed as an important mechanism both for the conservation of Mozambique's marine biodiversity and for supporting the country's tourism sector. However, MPAs also have an impact on the country's small-scale fisheries sector.<sup>4</sup> A review conducted in 2011 noted that the establishment of MPAs in Mozambique had essentially followed a top-down approach with limited community consultation. This had led to conflicts and difficult relations between communities on the one hand, and conservation authorities and tourism operators on the other. Despite the fact that communities acknowledged the positive impact of no-take zones in protected areas, the review noted that communities 'are suspicious about the ultimate goal of these sanctuaries and feel left out'.<sup>5</sup>

Consultations with tourism operators in Bazaruto Archipelago National Park revealed that significant tensions exist between operators and local fishers.<sup>6</sup> Much of the conflict arises from different perceptions regarding the appropriateness of certain species targeted by the fishers. Small-scale fishers widely acknowledged that certain species are protected and recognised the need to avoid capture of these species, particularly dugongs, turtles, dolphins, manta rays and whale sharks. However, tourism operators were also strongly opposed to the capture of various additional species that were viewed as important from a conservation perspective, particularly sharks, rays, eels and groupers (especially large grouper species, such as potato grouper and brindle bass). There has been little formal engagement among the tourism sector, fisheries officials and the fishing

community to resolve these conflicts. Moreover, park officials have undertaken very limited engagement with local CCPs. Fishers reported that they were uncertain of park boundaries and regulations. Stronger co-operation between among park officials, tourism operators and CCPs can contribute to improved levels of compliance among fishers and community support for conservation objectives.

Mozambique is highly vulnerable to the increased risk of droughts, cyclones and flooding associated with climate change. These hazards will compound challenges for communities largely reliant on natural resources and burdened with poverty. Small-scale fisheries communities are vulnerable not only to the direct threats of floods and cyclones to health and infrastructure, but also to the impact of changing ocean temperatures, rainfall patterns and other geophysical processes on the marine organisms that support their livelihoods. The government of Mozambique recognises that the country is vulnerable to catastrophes and that the hazards resulting from climate change are some of the factors that aggravate the situation of absolute poverty in Mozambique. The Mozambican government's Five Year Plan (2005–09) placed particular emphasis on the prevention of damage through natural disasters and the implementation of early-warning systems. The country's relief agency, the National Disaster Management Institute, and Mozambique's National Meteorology Institute, are spearheading efforts to establish an early-warning system for tropical cyclones in Mozambique.

At the community level, CCPs have developed simple, cost-effective measures to reduce risk associated with cyclones. For example, many CCPs have implemented a simple flag system (red, yellow or green) to indicate the risk of dangerous weather based on updates received through radio or mobile phone systems. Recent studies have shown that such low-cost responses have the potential to substantially increase the resilience of communities to climate change effects.<sup>7</sup> The incorporation of climate-related risks in infrastructure planning and zoning of coastal development can also substantially mitigate future climate change vulnerability. Mozambique's road infrastructure in the coastal zone is particularly vulnerable to erosion through flooding and sea-level rise, which affects the ability of communities to trade and access health and other services. Upgrading the

country's road infrastructure will therefore significantly improve the resilience of coastal communities.

The risks associated with climate change, although serious, should be viewed in the context of a broader range of social and ecological challenges facing small-scale fisheries. The diverse range of risks facing small-scale fisheries communities requires that policymakers place particular emphasis on strengthening the institutional mechanisms that may assist communities in responding to emergent challenges. Fisheries communities that receive support in self-organisation, environmental monitoring, and engagement with fisheries officials will be more effective in responding to environmental risks emerging from industrial activities or other sources.

Mozambique's Ministry of Coordination of Environmental Affairs (Ministério para a Coordenação da Acção Ambiental or MICOA), through the National Directorate of Environmental Impact Assessment, is responsible for regulating environmental impact assessments (EIAs) in the country. Mozambique's primary environmental legislation, the Environment Law No 20/97, requires the licensing of activities that are liable to cause significant environmental impacts, which in turn is dependent on the completion and acceptance of an EIA. The Southern African Institute for Environmental Assessment observes that, although the legal framework for environmental management in Mozambique is relatively well developed, its actual enforcement is still weak, due to financial and technical constraints, as well as the large size of the country, which makes close surveillance of the use and management of natural resources very difficult.<sup>8</sup>

Capacity for ongoing monitoring of large-scale extractive projects for potential environmental harm and initiating effective responses to cases of pollution is often limited. Community-based institutions such as CCPs can also play an important role in monitoring and reporting on potential environmental damage, yet their effective participation in such processes will require engagement and training by officials.

## CONCLUSION

The Mozambican government's efforts to support

small-scale fisheries through increased access to markets, credit and improved fishing technologies can contribute significantly to improved livelihoods in the country's coastal communities. The establishment of a co-management system through a network of CCPs has also contributed to greater community involvement in fisheries monitoring, peer-education and data gathering. Current management efforts directed at the small-scale fisheries sector, however, do not adequately address the threats of overfishing, illegal fishing and a range of challenges associated with the growth of other sectors of the economy. There are also numerous opportunities to strengthen the resilience of fisheries communities to the diverse livelihood impacts of climate change. In the context of a rapidly developing economy with a range of social and economic pressures, CCPs will be required to play an ever-greater role in managing fishing efforts, supporting the sustainability of fish stocks and addressing threats to the ecosystems on which the livelihoods of small-scale fisheries communities depend. However, if CCPs are to respond adequately to emergent challenges they will require more effective support and ongoing engagement from fisheries authorities.

## ENDNOTES

- 1 Alex Benkenstein is a senior researcher in the Governance of Africa's Resources Programme at SAIIA.
- 2 WorldFish Center, *Fish Supply and Food Security for Africa*. Malaysia: CGIAR, 2009, [http://www.worldfishcenter.org/resource\\_centre/WF\\_2466.pdf](http://www.worldfishcenter.org/resource_centre/WF_2466.pdf).
- 3 Personal interviews, CCPs in the Beira and Vilanculos area, SAIIA, Mozambique, July 2012.
- 4 *Ibid.*, Swennenhuis J, *Strengthening Community Based Fisheries Governance in Mozambique: A Roadmap Developed for IUCN*. Gland, Switzerland: IUCN, 2011, p. 59.
- 5 Swennenhuis J, *ibid.*
- 6 Personal interviews, *op. cit.*
- 7 *All Africa*, 'Mozambique: Researchers warn that climate change will hit roads', 4 October 2012, <http://allafrica.com/stories/201210041380.html>.
- 8 SAIEA (Southern Africa Institute for Environmental Assessment), 'Impact Assessment Case Studies from Southern Africa launched on the SAIEA website', <http://www.saiea.com/News03.htm>.

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