

GLOBAL PARTNERSHIPS IN TANZANIA'S MARINE RESOURCE MANAGEMENT: NGOS, THE PRIVATE SECTOR, AND LOCAL COMMUNITIES

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ABSTRACT

While Tanzania's system of designating terrestrial parks and protected areas has been historically exclusionary, recent conservation initiatives are acknowledging the need to involve local people in these programs and to provide benefits to resource-dependent communities. New policies for protecting marine resources are also following this approach. Government agencies, in collaboration with external institutions, are now experimenting with systems of community-based marine resource management through the establishment of non-exclusionary Marine Protected Areas, involving local user groups in both management and benefit regimes.

The fugitive nature of marine resources, together with diffuse user groups that cannot be defined as traditional "communities," provide tremendous challenges to marine resource management in East Africa. Additionally, pressures of globalization are resulting in increased use of and impact on marine resources in coastal regions. However, these same pressures have also brought about new opportunities for collaborative resource management through the involvement of international non-governmental organizations and private sector operators. Still, with these opportunities come further complications as rights of access to resource use and control are continually debated and reconfigured with new sets of actors. In the current context of globalization, the state, local communities, international development agencies, transnational and local NGOs, private sector operations, and a variety of other global and local user groups all have a stake in protected area management programs.

In coastal Tanzania, a number of new models of collaborative marine resource management have been established within the last decade, and international actors are playing an influential role their creation and implementation. Central to these programs have been the efforts of international conservation NGOs and private sector tourist operations. Both of these types of institutions are interested in the conservation of marine resources, and each is trying to involve local user-groups in community benefit programs to obtain local support and ensure long-term program sustainability. Still, there is much variation in the design of these programs and in the relationships with local community groups in programs from these different sectors. This study looks comparatively at community-based marine conservation initiatives designed and implemented by both international NGOs and private-sector tourist operators to better understand their relationships with local user communities, how these programs are changing community behavior, attitudes, and access to natural resources, the challenges faced by each type of program, and what the implications of these programs are for marine resource protection and long-term sustainability.

COMMUNITY-BASED CONSERVATION IN TANZANIA

Over 25% of Tanzania's land surface has been set aside in parks, protected areas, and wildlife reserves in order to safeguard the country's valuable wildlife resources (Leader-Williams et. al., 1996). Unfortunately, Tanzania's historical policies of excluding local communities from within national park and protected area boundaries has placed severe constraints on rural residents, restricting their access to prime agricultural and pastoral lands, and resulting in a history of conflict between rural Tanzanians and the national government over access to natural resources (Neumann 1998). To address these conflicts, resource managers are now acknowledging the need to incorporate human concerns into conservation plans. "Community-based conservation" is being heralded as the way of the future for natural resource management in developing countries (Murphree 1993), and organizations ranging from government agencies to NGOs, international development institutions, and private tourism operators are now looking to incorporate community benefits into their conservation agendas. Today there are few, if any, conservation areas in Tanzania that do not have a "community-based" component sponsored by an associated donor agency. However, many questions still remain as to what exactly is meant by community-based conservation, who should implement these kinds of programs, and how it can best be done (West and Brechin 1991; Gibson and Marks, 1995; Newmark and Hough 2000; Schroeder 2002).

More recently, Tanzania has acknowledged the need to expand its protected area system to incorporate its territorial waters as well (UNEP 1989). Marine protection does not yet have the same history of conflict as land-based conservation programs in Tanzania, and thus provides a tremendous opportunity to pilot innovative conservation programs in collaboration with local community and user groups. However, the fugitive nature of marine resources, together with diffuse user groups that are difficult to define as traditional "communities," provide a significant challenge to establishing marine resource management programs. While community-based land conservation tends to focus on local resident communities, fisheries resources are often used by people who come from great distances and local "resident" communities may not exist, or management by local communities may neglect or exclude other primary resource users.

Pressures of globalization have also increased the number of stakeholders in marine resource management in coastal regions (Hatzios 1997; Hviding 1994; White 1994). However, these same pressures have also brought about new opportunities for collaborative resource management through the involvement of international nongovernmental agencies and private sector operators. But with these opportunities come further complications as rights of access to resource use and control are continually debated and reconfigured with new sets of actors. In the current context of globalization, the state, local communities, international development agencies, transnational and local NGOs, private sector operations, and a variety of other transnational and local user groups are all involved in protected area management programs.

In coastal Tanzania, many new models of collaborative marine resource management have been established within the last decade, and international actors are playing an influential role in their creation and implementation. International development funding has been central to the establishment of these programs through the efforts of international conservation NGOs and private sector tourist operations. Both of these types of institutions are interested in the conservation of marine resources, and each is following international trends of increasing the

involvement of local user-groups in community benefit programs to obtain local support and ensure long-term program sustainability (Levine 2002). Still, there is much variation in the design of these programs and in the relationships with local community groups in programs from these different sectors.

The type of institution sponsoring community-based marine conservation initiatives has a significant effect on the way the program is implemented, its ability to obtain funding, and its relationship with government agencies and local user communities. Protected areas sponsored by international NGOs and private sector operators are significantly changing community behavior, attitudes, and access to natural resources, but many questions remain about what the implications of these different types of programs are for natural resource access and long-term sustainability. This paper presents a brief review of the different community-based marine conservation initiatives ongoing in Tanzania to date, their methods, advantages, limitations, and the some of the future implications of these various techniques for protected area management with local communities in Tanzania¹.

NGO-SPONSORED CONSERVATION PROGRAMS

The majority of community-based marine conservation programs in Tanzania are being sponsored by international NGOs working with funding from international development agencies and other sources, generally in conjunction with local government officials for program implementation. Conservation and natural resource management techniques used by NGOs vary tremendously, from the creation of exclusion zones, to the establishment of limited-use areas, increased marine patrolling and enforcement, or facilitation of community-based management decisions. NGOs generally do not do the patrolling, enforcement, and park management themselves, but they will often supplement funding for other agencies to do so, or provide basic infrastructure and support (such as boats and radios) for marine protection. They also host educational seminars and workshops to teach community groups about the importance of marine environmental resources and monitor the condition of marine habitat and fish stocks.

Hand in hand with these conservation techniques, a number of methods are being tried to more actively involve local community members in marine conservation, or to provide them with benefits stemming from their protection. The goal of these programs is to increase community-support for conservation initiatives by improving local livelihoods, as well as to gain local assistance in implementing and sustaining the programs (White et. al., 1994). Many international NGOs have encouraged the establishment of local NGOs and/or village-level conservation committees to assist in local implementation of environmental protection programs. They have also begun programs to return some of the benefits of tourism to local communities through offering a percentage of park revenues to be used in community development projects. More recently, NGOs are beginning to involve local community-members in data-gathering or assessment of coral reefs, mangroves, and fish stocks (Horrill et. al., 2001). Additionally, they are facilitating community involvement in the establishment and implementation of management

¹ The information from this paper was obtained through interviews with conservation program officials, village conservation committee members, and rural fishermen in coastal Tanzania, as well as program literature review. In-depth interviews were held with villagers and program personnel involved in the Misali and Menai Bay programs, and basic interviews were conducted with program officials in the other programs discussed. Site visits were carried out in all areas.

plans, and establishing alternative income generating schemes such as environmentally-friendly enterprise development programs and/or savings and credit groups designed to relieve stress on marine resources while improving the livelihood of community members.

Mafia Island Marine Park (MIMP)

The first attempt to initiate community-based marine conservation programs in a marine park in Tanzania was in Mafia Island. Mafia is the largest marine park in the Indian Ocean (822 km²), established in 1995 under the Marine and Reserves Act of Tanzania. Situated just off shore from the Rufiji river delta, Mafia Island includes a tremendous diversity of coral reefs, mangroves, and seagrass bed habitats and contains important nesting grounds for endangered sea turtles (Dodoji 2002). MIMP is managed by the World Wide Fund for Nature (WWF), in collaboration with the Marine Parks and Reserves Unit of the government. The park involves a complicated system of exclusion zones, restricted-use areas, and permit systems within the reserve. Park residents have preferential access to resource use in specified use zones, and other Mafia residents are able to apply for permits for restricted use in certain areas (GMP 2000).

When establishment of the Mafia Island Marine Park was being considered in 1991, communities were contacted to get their feedback on regulations and zoning issues (Mayers & Rumisha, 1992). Some communities have been provided with radios to participate in patrolling, and Village Liason Committees are being established in Park villages to work with the conservation program (GMP 2000). Several village development projects have also been started, including school assistance, water harvesting systems, and tractor repair. Additionally, education and awareness workshops, as well as a number of natural resource and socio-economic surveys, have been conducted at the village level in local villages around the Park, and some community members are now assisting in data collection (WWF 1998).

WWF has helped establish boundary marker buoys, and provided a patrol boat and radio system to respond to reports of illegal fishing in the area (WWF 1998). Park patrols have substantially reduced the incidences of dynamite fishing occurring in the park boundaries, but illegal fishing still continues in some areas, and patrolling is difficult due to the size of the area, variety of restricted use zones, and cost of petrol and equipment maintenance. Many community members are frustrated by the fishing and harvesting regulations and lack of alternatives available to them, and alternative income generating programs, though promised from the beginning, have been slow in coming. A fishing gear exchange program has recently been piloted (Dodoji 2002), and savings and credit initiatives for park resident communities are just beginning to take off, although the results of these activities and their possible impact on resource use and community relations are still uncertain. User-groups that lay outside of park boundaries face greater user-restrictions and restricted access to local benefit programs, although their reliance on certain fishing areas may be comparable to that of local user-groups.

Additionally, although the park is looking into tourism as a way to obtain revenues to support the program in the future, Mafia Island is still a remote and difficult to access destination with a limited flow of tourist of revenue. A gate has recently been built at the park entry to collect the user-fee of ten dollars per day, but the Park is not yet self-sustaining on these revenues, nor do these fees endear the park to the private sector operators within the island. WWF itself has few activities dealing directly with ecotourism, despite their emphasis on its development. Although

one independent hotel owner has a community benefits program, most tourist operations remain high-priced and exclusive with very little local involvement.

Misali Island Marine Conservation Program

Misali Island, located off the West coast of Pemba, in Zanzibar, was leased to a private company for hotel development in 1993, but local community and international objections led to an annulment of their permit and establishment of the island as a conservation area (Hamad et. al., 2000). The Misali Island Conservation Project was initiated in 1996 by the Environment and Development Group (a UK-based consulting group with support from the European Union), and in 1998, CARE Tanzania took over support of the island as an expansion of their Integrated Conservation Development Programs in Zanzibar. CARE, with funding from a variety of international donors, collaborates with the Zanzibar Department of Commercial Crops Fruits and Forestry (DCCFF) to manage the island. It has also established a local NGO, The Misali Island Conservation Association (MICA), to liaison with user communities and assist in island management and community programs.

The Misali Island Marine Conservation Area is considerably smaller than Mafia, approximately 22km², including a core zone of 1.4km² on the West side of the island where only non-extractive uses are permitted. Regulations on fishing gear and techniques are slightly stricter and more tightly enforced around the island than in the rest of Pemba, and no fishing is allowed within the core zone itself, which is patrolled regularly by on-site rangers. Misali Island is used to a varying degree by fishing communities from all over Pemba. The island itself is uninhabited, having no permanent water source, but fishermen from some communities camp on the island for up to a week at a time, and intensity of use does not necessarily correspond to the proximity of a fisherman's home village to the island. Fishermen from outside of Pemba do not frequently come to Misali, although local fishermen claim fishing pressures in general have increased significantly over the past decade. Incidents of illegal fishing are said to have decreased in the protected area and seems to occur less around Misali than in other areas of Pemba, although it has not been entirely eliminated from the area.

MICA, with the support of CARE and the DCCFF, have established a number of programs designed to increase local support for the conservation of Misali and to improve local livelihoods. MICA has membership in the majority of Misali villages in Pemba that use Misali, and it has established village conservation committees in many of these villages. In 8 core villages, CARE, through MICA, works to do environmental education programs, focused on technical or Islamic conservation messages. CARE has also established savings and credit groups in 6 villages to encourage small-scale loans to promote alternative livelihood strategies and income generation. Additionally, a percentage of the money collected from tourist fees collected on the island has begun to go towards supporting local community development projects, such as wells, schools, and mosques, in MICA villages.

To this point, MICA has received a generally positive, if cautious, reception in participating villages. Many fishermen are excited about what has been promised, but are concerned still about losing access to fishing grounds and possible expansion of the core zone. Due to limited funding and the relative newness of the program, many villagers are still unaware of MICA, and user-villages receive uneven distribution of benefits and attention from the program. Although

MICA hopes to eventually be self-sustaining and run the conservation program, membership fees are by necessity low, and tourist revenues, in Pemba's extremely limited tourist market, are not currently adequate to independently support the project or MICA.

Menai Bay Conservation Area (MBCA)

Menai Bay exercises a different approach to marine protection in that it has no exclusion zone where fishing is not allowed. Sponsored by the World Wide Fund for Nature (WWF) in collaboration with the Department of Fisheries and working with the Regional and District Administration in Zanzibar, the MBCA was officially gazetted in 1997, although WWF has been involved in supporting project activities since 1994 (Ngaga et. al., 1999). It covers an area of 470km² in southern Zanzibar which has slightly stricter fishing regulations than other parts of island, as well as increased patrolling against illegal fishing methods in collaboration with the government anti-smuggling unit (KMKM). Local fishermen from certain villages help to patrol their areas using hand-held radios funded by WWF, and a patrol boat is based in one village to respond to emergencies and incidences of illegal fishing within the conservation area. This patrol system has significantly reduced dynamite fishing in the area (Ngaga et. al., 1999), and although illegal fishing still occurs, fishermen using illegal nets are increasingly being prosecuted in court.

The Menai program has helped to establish Village Conservation Committees in all of 16 participating villages which work through the district governance structure and report to the program officials and Department of Fisheries. The project has supported a number of alternative income generating projects within participating villages, including bee-keeping and tree farming. They also encourage mangrove protection and re-planting projects. While many of these programs were initiated by villagers themselves before the program began, Menai has provided infrastructure (such as hives and harvesting equipment) to several communities and encouraged the formation of bee-keeping and mangrove protection projects in others. Community responses to these programs vary between different villages; those that had pre-existing initiatives seem frustrated by the lack of promised support forthcoming from the program, while villages where these initiatives are new are more positive about the attention they are getting from the project and its potential to help them.

A primary problems faced by the Menai program is a lack of funding, and Menai officials are actively promoting tourism in hopes of obtaining a sustainable source of revenue from user-fees collected from tourists visiting MBCA. Menai Bay is a popular destination for dolphin viewing and boating excursions, but the current fee of \$2 per person is rarely collected successfully from either Zanzibari or expatriate tour operators using the area. Because the area is so large and covers such a variety of marine habitat, certain villages receive more tourism than other areas, also contributing to tension between villagers and project managers, as many villages will never directly receive benefits of tourism in their area.

The size and diversity of the Menai area also provides problems in terms of patrolling and working with villagers who have wide variation in their resource use and fishing methods. Some areas are shallow and used only by local fishermen, while other areas have higher external traffic and incidences of illegal fishing. Villages that have traditionally used illegal fishing gear themselves do not see the program as particularly useful to them, as it has provided them with no

alternative sources of livelihood. In the Fumba peninsula, which is far from the patrol boat headquarters, villagers feel particularly abandoned by the project. Villages in this area had previously established patrol systems and their own conservation committees, which they recently dismantled at the request of program officers to fit into the structure of the Menai project. However, the project has not followed through on promised support to the new committees, and the patrol boat is rarely able to respond to their calls for assistance because of distance and the price of petrol. Because previously existing local conservation initiatives are now no longer in existence, local fishermen in these villages believe that illegal fishing is on the increase in their area.

Tanga Coastal Zone Conservation and Development Programme

The Tanga Coastal Zone Conservation and Development Programme is an integrated coastal management program focused on three districts in the Tanga region of northern Tanzania, extending approximately 180 km south of the Kenyan border. The programme is supported by IUCN – the World Conservation Union’s Eastern Africa Regional Office with financial support from Ireland Aid. Initiated in 1994, this program’s strategy has been to work through existing government institutions whenever possible, and it collaborates with officials at the district government level (Horrill et. al., 2001).

IUCN has provided technical and facilitation assistance to communities and district officials in creating village-based community resource management plans. These plans are made in collaboration with villagers who decide on use regulations and closures for certain reefs and coastal areas. Villagers are also involved in data collection and monitoring of reef status and fish counting. Fishermen have established patrol units in several involved villages to monitor and report incidences of illegal fishing. The program has also worked to increase follow-up at the government level for prosecuting dynamite fishermen, has implemented gear exchange programs for illegal nets, and has worked to encourage mangrove planting in many areas, with some success. Several attempts have been also made to initiate alternative livelihood programs in the involved villages such as mariculture and expansion of seaweed farming. Fish aggregating devices were installed offshore to increase deep-sea fish catch, but after initial success, these devices have since been stolen (Horrill et. al., 2001).

The Tanga program also faces the problem of obtaining sustainable funding. So far, revenues being raised through fisheries taxes do not cover management costs (Horrill et. al., 1999). Obtaining sustainable funding has been identified as a primary goal for the future, but the program is currently dependent on outside donors. Additional difficulties arise from the multiplicity of users in the management areas. Although villages write management plans for their local fishing grounds, neighboring villages are not always in agreement about how resources should be used, or how long exclusion zones should be in effect. Outside fishermen also come from nearby and distant villages to fish, and they are not always aware of or supportive of new regulations. While patrolling can keep illegal activity in check, it can also cause conflict with outside fishermen who have used these grounds throughout history.

PRIVATE SECTOR MARINE CONSERVATION PROGRAMS

While the majority of marine conservation programs in Tanzania are sponsored by NGOs and development aid agencies working through government bodies, the private sector has become

increasingly involved in marine conservation as well. Private sector conservation initiatives have already experienced a good deal of attention and support on the mainland (Dorobo 1995; Clarke 2001), and the role of private reserves in conservation is being taken seriously as an alternative to protection by the government in the developing world (Economist 2001). Private sector programs tend to focus more on supporting conservation through revenues from tourism, and community activities tend to be oriented towards education and/or supporting community development projects. In coastal Tanzania, private marine reserves are smaller, more recent, relatively few. However, two private marine protected areas have been established recently on small islands off the coast of Zanzibar.

Chumbe Island Coral Park

Chumbe Island, located off of southwest Zanzibar, covers a small area – approximately 20 hectares, and has a protected area zone reaching 300m off a portion of the West side of the island where no fishing or scuba diving is allowed. The island was officially gazetted as a protected area in 1994, and was licensed by the Zanzibar government to be managed by a private company, Chumbe Island Coral Park, Ltd. (CHICOP). CHICOP itself was established by a former development worker from Germany, who was impressed with the island's biodiversity and wanted to try a new model of conservation that wasn't completely reliant on outside donor funding. The island itself was leased to CHICOP for a period of 33 years starting in 1994, and the management of the protected reef was given to CHICOP for a period of 10 years (Riedmiller 2000).

Besides limiting fishing in the exclusion zone near the island, CHICOP also manages the protected forest on the island and a duiker re-introduction program (Castle & Mileto, 1995). The island itself has been set up as an eco-tourist resort to fund the conservation and management of the park. Seven bungalows have been built on the island using ecologically friendly architecture designed to minimize water use and waste run-off to the reef. An environmental education center was also built on the island, as well as other basic guest facilities and staff accommodation. Both day and overnight stays are allowed on the island, although the total number of guests is limited to fourteen people total, and overnight stays by local fishermen are only allowed in case of emergency. Local fishermen are employed as rangers who enforce the boundaries through explaining the area to trespassing fishermen or, in extreme cases, reporting them to local officials.

While the Chumbe program has grown substantially, funding still remains a concern. Increasing publicity has helped the hotel to get more visitors, but it still only runs at about 40% capacity and has not yet paid off the initial investor. While the Chumbe Island program operates as a private company, its profits are intended to be channeled into education and conservation programs. During the off season, local school children are brought to the island to participate in marine education programs, and CHICOP has helped to develop marine environmental education material for local schools. CHICOP currently relies a great deal on volunteer labor and outside donor funding to cover conservation and education programs, although hotel management costs are fully covered by tourist revenues (Riedmiller 2000).

While the protected area is small, there are still regular minor infractions into this zone. Some fishermen resent the area being closed off and challenge the zonation on a regular basis. When

the reserve was initially established, a map was presented to local villages that incorrectly showed the reserve as smaller than it was, and many fishermen continue to challenge the official boundaries of the area. Relations with government and a harsh investment climate are also cited as a strain on the program. The government of Zanzibar requires CHICOP to pay normal business fees and taxes, in spite of the differences in their program and profit-making scheme, and it has tried to tax the company for local school children brought to the island, making their non-profit education programs difficult.

Mnemba Island

Mnemba island, located off the northeast coast of Zanzibar, is approximately 1.5 km² and houses Mnemba Island Lodge, a high-priced resort. The island is managed by Conservation Corporation Africa (CCAfrica), a South African company founded in 1990 whose goal is to make conservation pay for itself with high income, low impact tourism (CCAfrica 2000). CCAfrica operates 28 tourist lodges throughout southern and eastern Africa, and Mnemba Island Lodge itself generally runs at almost 90% capacity, often subsidizing the company's other ventures.

Mnemba is surrounded by an extensive coral reef which is a popular destination for scuba diving and fishing, and it is an important nesting ground for sea turtles. There is a no-fishing protected area zone that extends 200 meters off-shore surrounding the island. CCAfrica currently has a 33 year renewable lease for managing the island and is responsible for managing the protected area. Individuals who are not guests of the hotel are not allowed on the island itself, and hotel guards monitor the waters surrounding the island to make sure there is no intrusion into the exclusion zone. When incidences of illegal fishing are recorded, the hotel cannot enforce regulations itself, but guards take pictures and bring these back to local village leaders to try to obtain compliance.

Mnemba Island also works with local communities to try get the impact of fishing and resource extraction off of the island by helping to establish alternative livelihoods. The hotel employs 46 local staff and works with nearby coastal villages to contribute to small development projects including schools, a health clinic, a windmill water pump, and a small vegetable garden. They are also hoping to install offshore fish aggregation devices to get fishing effort off the reef. Money for community projects does not come from CCAfrica itself, but from the "Africa Foundation," which is a separate donor foundation affiliated with CCAfrica projects. The Mnemba management meets with villages to help them to write up proposals to submit to the foundation each year, and they are also hoping to help establish a community NGO that will assist in patrolling the reef for illegal fishing and will obtain revenues based on a small tourist fee.

Although Mnemba management describes its relationship with neighboring villages as generally good, there are still weekly intrusions into the border of the exclusion zone around the island. The Diwani (or local chief) of the area has been caught dropping nets with his family off the shore of the island, and frequently tries to make monetary demands on the hotel. Mnemba Island Lodge is not short of funding to continue operations and to work with local communities, although funding for community projects is contingent on the decision of the affiliated foundation, not Mnemba management itself, and CCAfrica community projects are spread widely throughout their operations in Africa.

DIFFERENT MODELS OF COMMUNITY-BASED MARINE CONSERVATION

Tanzania hosts a wide variety of models of marine conservation programs designed to work with local communities, each with its own strengths and limitations. Building local support and participation in protected area management is not an easy task. Programs that work to actively benefit local community groups tend to experience a higher degree of local support, but communities are often hesitant to accept limits on their access to resources. The limitation of outsider access to local areas often gains more support, as does the prevention of damaging fishing methods (if these methods aren't used by the participating communities themselves). However, not all resource users in marine conservation areas are technically "local," so the issue of who can be defined as the involved "community" is presents a challenge to marine resource managers. NGO programs in Tanzania tend to be less exclusionary in their methods than the private sector, but any degree of exclusion of access to a traditional resource base tends to generate local resistance and concern. NGO programs also seem to focus on using more participatory methods, working more directly with local community members, which can help to gain support and create a sense of ownership for programs, but not if promises are not kept due to lack of follow-up or funding constraints.

All the programs reviewed face the struggle of obtaining sustainable funding for their programs in the long term. The NGO-sponsored conservation programs are reliant on external donor funds, with no internal capacity yet to continue without this donor support. As donor priorities shift, so does the focus and stability of the programs. While this is a recognized problem and many marine conservation programs are trying to build their own internal funding base, none of the mentioned programs have been successful at becoming self-supporting to this point. Private sector programs, on the other hand, have a more reliable funding base, at least for supporting their own operating costs. However, community and conservation programs are the first to be cut when budgets are tight, leaving them in a vulnerable position that is reliant on the priorities and financial stability of the sponsoring company. Fluctuations in funding can be particularly dramatic in the tourism sector, which is the primary sector involved in supporting conservation initiatives. Hotels world-wide were hit hard by the terrorist events of September 11, 2001, and the private sector conservation programs in Tanzania were no exception.

In terms of long-term security of protected area management, private-sector initiatives in Zanzibar are in a particularly vulnerable position. Private companies cannot own land in Zanzibar, and both Chumbe and Mnemba must lease their property from the government for a set period subject to continual renewal. With the instability and constant changes in Zanzibari government, large scale investment in Zanzibar is a risky business. However, the fluctuations in government and political policies also presents a challenge to Tanzanian NGOs who must subsidize and work through government structures to implement their programs. While the protected status of an area itself may be relatively secure, the agency responsible for management is subject to change. Additionally, government agencies tend to rely heavily on NGO funding for protected area management, and if this funding ceases, so does the government's ability to manage the area.

Local perceptions are another key issue in maintaining support for a conservation program, whether or not these perceptions can be validated by actual facts. The rational behind exclusion

zones to increase fish numbers through spill-over to neighboring areas will only work if these areas are closed for a substantial period of time, but getting this long-term continuity can be difficult if local communities are making decisions based on short-term results. Fishermen perceptions of a program can vary substantially based on a number of factors. For instance, in Menai Bay, most fishermen have observed a decrease in dynamite fishing, thus increasing their support for the program in spite of other complaints with program management and a general belief in decreased total numbers of fish. In Misali, some fishermen believe that fish numbers have increased, but many believe that fish are hiding in the exclusion zone where they can't access them, and would like to see the area opened, at least for a short period, to fishing. Program support in Misali villagers is also much higher in areas where they have already received village development projects sponsored by tourist revenues, and thus they believe that the protected area is providing them with a useful source of income. Many fishermen in Tanga believe that fish numbers have increased because this has been shown in participatory data collection, helping to maintain relatively high support for the program. In Chumbe, most fishermen believe in the effect of spill-over from the small reserve, although a number are still concerned about the perceived expansion of the reserve boundaries based on an initial misunderstanding through a map that was distributed with inaccurately drawn boundaries.

It is still early in the history of marine protected areas in Tanzania to be able to state definitive results about the most effective ways of managing these areas while working with local communities. Fortunately, a wide range of methods are being implemented, which should provide valuable lessons for protected area management. Issues of funding, continuity, and community involvement and perceptions all present substantial challenges for marine conservation programs to overcome. NGOs, governments, and private sector operators all have different strengths and weaknesses in facing these challenges, and perhaps a combination of these methods may provide the most effective means of conserving marine habitats and working with local communities to develop conservation programs in the future.

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Ahsanteni sana.

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