

# Exploring paradoxes in the search for sustainable livelihoods: a case study from Tanzania

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**Abstract** Many aspects of the relationship between conservation and livelihoods are well documented in the literature both the positive synergies and the negative implications of pursuing one priority over the other. This paper describes research that explored the specific influences in household decision-making in park adjacent communities in Tanzania to determine whether conservation and sustainable resource utilization was an influencing factor. While conservation did not appear to be a significant influence, productivity of the natural resource base to maintain livelihood activity and well-being was a prime driver of household decisions. However, in articulating the challenges faced by households a number of paradoxes became apparent. This paper highlights four paradoxes from the research relating to: the need for capital to support productivity improvement; the approaches for perceived needed intensification of resource utilization; the dependence on government for solutions; and the assessment process of the range of livelihood options. We present the research findings related to these four paradoxes and present potential actions for resolving these dilemmas.

**Keywords** Conservation · Livelihoods · Decision-making · Vulnerability · Tanzania

## 1 Introduction

Working towards environmental conservation and economic development simultaneously emerged in the 1980s under the banner of sustainable development (WCED 1987; McNeely and Miller 1984). Strategies targeting both objectives achieved mixed results. Many authors argue that achieving both simultaneously is philosophically and practically

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impossible and that there are always trade-offs that need to be made bringing less than satisfactory results for one objective or the other (Benson and Craig 2014; McShane et al. 2011; Salafsky 2011). Others view the positive outcomes for both objectives, whether complete or not, as being significant and thereby justifying the approach (Davies et al. 2013; Turner et al. 2012). Sustainable livelihoods emerged as the heart of the sustainable development agenda since resource utilization activities at a household level hold the key to economic stability for those suffering from insufficient subsistence resources or a lack of income security (Ashley and Carney 1999).

The relationship between livelihoods and conservation is complex (Minteer and Miller 2011). Removing lands from productive livelihood activity to preserve biodiversity in formal protected areas often directly impacts people dependent on natural resources for their living (Tumusiime and Sjaastad 2014; West and Brockington 2006). It may also have negative impacts on conservation through overuse of lands outside the protected area (Hall et al. 2014; Sirima and Backman 2013).

Advocates of formal conservation mechanisms often promote the benefits of alternative livelihood activities such as tourism and other activities within the value chain associated with the change in land use for the area (Baird 2014). These benefits, such as employment, education and infrastructural development, can be significant, definitely beneficial and representative of a marked improvement in well-being for people within the affected communities (Sandbrook and Adams 2012; Spenceley and Meyer 2012). However, many examples have been documented where benefits have not been retained locally, where benefits do not match the level of costs incurred and where benefits accrue to the elites as opposed to the people who have experienced the costs (Halpern et al. 2013). Furthermore, the shift from traditional livelihood activities to activities that are completely foreign is a shift that many communities and/or cultures find difficult (Schellhorn 2010; Waylen et al. 2010). Nevertheless, the challenge of conflicting goals for formal conservation mechanisms has brought about considerable focus on strategies that place priority on delivering benefits to the people affected. More recent efforts, such as community conserved areas and pro-poor conservation, illustrate such a focus. Inherent in these strategies are the same principles that characterized earlier examples of CBNRM such as local authority over resources but with a much greater emphasis on community ownership of land and resources and responsibility in the land use decision-making process (Spenceley and Meyer 2012; Mitchell and Ashley 2010).

One of the key challenges to deriving appropriate benefits from conservation lies in matching the costs with the benefits. CBNRM and ICDPs frequently targeted community-level benefits, while costs were often borne more personally by individuals within the community. Thus, attention to the dynamics of livelihoods and the context within which livelihoods could be sustainable became a focus of attention. Chambers and Conway (1991) have been acknowledged as leading contemporary thinking around the issue of sustainable livelihoods, and it is from their initial work followed by a variety of other conceptualizations (Bebbington 1999; Ellis 1999; Carney 1998; Scoones 1998) that the Sustainable Livelihoods Framework (SLF) (DfID n.d) emerged as a way of understanding the relationships involved in the process of livelihood decision-making. Essentially, the framework identifies 3 major elements of context faced by households that form the foundation for sustainable livelihoods: (a) assets—the individual resources that households have to work with; (b) vulnerability—dynamic forces that pressure households and disrupt stability; and (c) structures and processes—community-level characteristics that can facilitate or hinder access to or utilization of assets for the purpose of addressing vulnerability (Serrat 2008; Solesbury 2003). Households respond to the interaction of these

context factors by forming strategies to reduce vulnerability and to work towards increased benefits and well-being.

This research explores the decision-making process used by households to develop and implement strategies for improved well-being. Of particular interest is the influence of concepts of conservation in that process and to what extent livelihood decision-making is influenced by the perceived need for sustainable natural resource utilization and environmental integrity. Conservation in this context refers to the preservation or protection of the natural environment that avoids detrimental or wasteful use of resources to ensure continuing availability.

We also investigated other key influences related to this central concept: the dynamics of local economies and the nature of income generating activities; the content, structure and flow of available information; and cultural and social considerations. Our results highlighted some interesting paradoxes (defined as a situation that combines contradictory features or qualities). These paradoxes relate to four aspects of livelihood change and improved well-being, namely the need for capital to support productivity improvement; the approaches for perceived needed intensification of resource utilization; the dependence on government for solutions; and the assessment process of the range of available livelihood options. The focus of this paper is to link the research results specifically to these paradoxes and, based on our experience of the study area, identify potential actions for resolving these dilemmas.

## 2 Methods

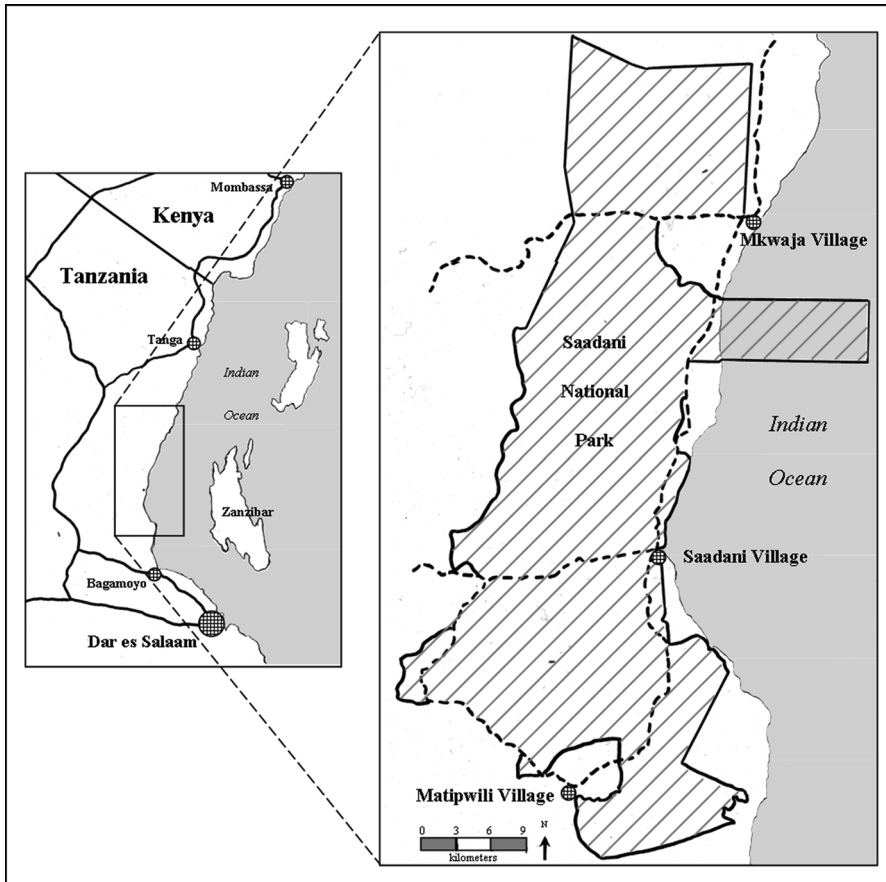
### 2.1 Study area

The study area is situated along the coast of Tanzania north of Dar es Salaam and includes the newly created Saadani National Park (Fig. 1). A description of the study area context below is followed by a description of the data collection mechanisms.

Saadani, gazetted in 2005, is the only coastal park within the national park system. Its 1100 km<sup>2</sup> protects marine and land-based flora and fauna of the coastal zone. Existing crown land made up approximately half of the park and negotiations with the villages resulted in the additional acquisition of the intervening lands (Bloesch and Klötzli 2004; Baldus et al. 2001; Ansell and Dickinson 1994). However, disputes over the land disposition continue (Orozco-Quintero 2014). Park establishment promoted tourism expansion and additional lodge facilities developed within, and adjacent to, the park.

This research focuses on three of the villages directly and significantly impacted by the park establishment: Mkwaja (pop. 917), Saadani (pop. 2646) and Matipwili (pop. 1975) (Wapling 2010). These villages were chosen based on four criteria: (a) the villages are rural subsistence-based villages where the relationship between livelihoods and natural resources remains dominant; (b) considerable poverty existed in the villages; (c) the villages are adjacent to a formally established protected area which had been established relatively recently; and (d) collectively, the villages display variation in the focus of resource use for livelihood purposes.

The villages bordering Saadani National Park are small and subsistence livelihood based. Fishing dominates in coastal communities and agriculture in inland communities. Services (health and education) are limited, and public infrastructure (water and power) is poor. The transportation network is improving with investment by the national park at least



**Fig. 1** Study area

in road segments important to park services and experiences. However, all-weather roads do not reach all the communities making travel in the rainy season difficult. The economies of the villages are very small, and salt production is the only industrial activity in the immediate area.

## 2.2 Data collection methods

Three data collection methods were used: key informant interviews, focus groups and semi-structured household surveys. In each case, the goal was to achieve understanding from a qualitative perspective rather than determining statistical relationships. Sampling was approached through a snowball technique and when information became increasingly repetitive and redundant that form of information collection was terminated. This process led to 16 key informant interviews, 82 participants in focus groups and 90 household surveys. The sixteen key informants included representatives from village government counsellors, tourism industry management and park management. Focus groups of 8–10 people were held in each village separately with working age men, working age women, women elders and men elders. Participants were asked about the nature and status of the

resource base, the health and diversity of the local economy, the opportunities and challenges with respect to local community development and the nature and level of community engagement in community decision-making.

Semi-structured household surveys were conducted only in the comparably sized core areas of the three villages identified above which did not include all the sub-villages. Thirty household interviews were conducted in each village for a total of 90 interviews, each lasting between 30 and 60 min representing approximately the same percentage of population in each village: Mkwaja (14%); Matipwili (12.9%); and Saadani (10.3%). As the target number of interviews was reached in each village, responses were examined for new insights and it was apparent that saturation point for new information had been reached in each village. Households were randomly selected from the village list, and the first adult responding to the visit was asked to participate on behalf of the household. The household interviews established the primary and secondary livelihood activities of the household and determined whether a significant change had occurred within the last ten years. If so, that example was used to identify what type of change was made and to explore the reasons behind the change. Respondents in the resources sector of livelihood activities were also asked about the status of the resources they depended on, the change that they had experienced and the reasons for that change. Finally, a similar exploration was pursued for those anticipating or wanting change in the future. Again the reason behind such expectations and the barriers that prevented implementation was discussed.

The paradoxes which emerged from the research and which are the focus of this paper were not hypothesized at the outset. Rather content analysis of the results from the three data collection methods provided the categories, structure and meaning within the data relative to the research focus on influences on livelihood decision-making. The dichotomies in people's description of the issues they faced and the potential solutions they identified resulted in the articulation of the paradoxes. For example, many respondents reported that a primary barrier for livelihood improvement was their inability to amass capital for improvements such as irrigation or purchase of a tractor yet later described how they did not want to share improvements or equipment with neighbours.

### 3 Results

The results contain a rich body of information and expressions of the local perspectives on livelihoods and conservation. Specifically relevant to the objectives of this paper, are the contextual responses relating to demographics, community engagement, livelihood participation and the nature of livelihood change. Each of these areas is described below. These descriptions are followed by the results that directly illustrate the four paradoxical areas of livelihood challenges that arose from the responses. Each paradox is then discussed in more detail in the next section.

The average age of participants in the household interviews was 46 years old. Men represented 56% of the respondents and women 44%. Almost 60% of respondents resided in the village of their birth and 90% had lived their lives within the strip of coastal villages between Bagamoyo and Pangani, a distance of approximately 100 km. Given the focus on livelihoods, only adults were interviewed, and approximately 75% of those were heads of households. Of the women interviewed, 46% indicated that they were the head of their household.

The household interviews included questions of self-perception, asking respondents to rank their relative position in the community as high, medium or low with respect to social connectedness, power and influence and financial status. Three results were noteworthy. First, social connectedness and engagement with community activity were low. Second, a significant majority of respondents, whether or not they felt relatively socially or financially strong, considered themselves to have influence in the village. Third, 26% of the respondents (those not in the majority described in the previous point) considered themselves in the “low” category economically and with relatively no influence in the village.

Only primary and secondary livelihood activities were documented in the interviews. Observations from the data include: resource-based primary livelihood activities including fishing and subsistence agriculture dominate as the primary livelihood activity (58%); the level of primary livelihood business sector activity seemed relatively high (21%) given the very small economies of these villages although microrestaurants tended to increase the percentage, especially among women headed households; the lack of alternatives tended to raise the level of business activity, especially when it came to secondary livelihood activity; and, wage employment was notably low and dominated by part time or seasonal casual labour.

The interviews included questions about change in livelihood activity over the previous ten years and then focused on the specific example of change identified by each respondent to determine the nature of that change and the reasons for making it. Questions were also asked about the potential for future change including the reasons for the desire for change and the barriers to its implementation. Three types of change emerged: modification (18%), where only specific characteristics of the activity were changed such as a different crop in agriculture or a different product for sale in business; augmentation (75%), where additional livelihood activities were added to the existing income base; and new activity (7%), where one livelihood activity was replaced by one from a different sector. A fourth category of status quo identified people for whom no change had occurred within the previous ten years (29%). Modification tended to be almost exclusively related to agriculture. Augmentation dominated as a result of declining resource productivity and was therefore more evident in the coastal villages where the decline in fishing dramatically eclipsed challenges in agriculture. New activities were rare and often represented special circumstances such as a man taking up fishing in retirement after a career as a long haul truck driver, a young man starting a family and establishing his own farm and a woman starting a microrestaurant after the death of her husband when she was unable to maintain the family farm.

Interrogation of the results showed that responses often seemed contradictory. When respondents identified a problem such as fish stock collapse, the solution they identified, such as intensify fishing effort, often appeared to only accentuate the problem rather than resolving it. Four incidents where this occurred in consistent fashion throughout the data were identified as paradoxes. Each of these four paradoxes is discussed in more detail below.

### 3.1 Capital to support productivity improvement

A lack of capital dominated responses as the primary barrier to future change. Fishers described how changes in ocean temperature were causing fish to move deeper offshore in search of cooler water. Traditional fishing by these villages along the coast is limited by the equipment used. The traditional dhow is well suited to relatively shallow waters but is inadequate for the deeper ocean. Thus, capital for the purchase of boats and motors was

commonly reported to be a preferred solution. Similarly in agriculture, respondents preferred expanding production through increased capitalization such as irrigation or mechanization by purchase of a tractor but found it impossible to acquire such capital on the current profitability of agriculture. At the same time, however, respondents were very reluctant to see collective cooperation as a solution for the challenge of low capital. For fishers, sharing boats and motors was not seen as desirable, and similarly, farmers did not want to share infrastructure with neighbouring land owners to develop irrigation systems or purchase tractors. In exploring these reluctances, people in all the villages indicated that they had had experience with unsuccessful cooperative ventures in past. One of the examples used was of a group of fishers in Saadani village coming together as a cooperative to share the use of boats and motors provided to the group through a donor sponsored project to improve the fishing results. The group failed due to the breakdown of cooperation and disagreements over equipment use and financial benefit. Examples reported in each village described similar reasons of group dynamics and finances for the failure of the initiatives. As a result of such experiences, people indicated that they were not interested in resolving their livelihood issues through that kind of mechanism. These results point to a paradoxical situation where capital is perceived as a barrier, but collective approaches to surmount the barrier, which seem to be the most realistic solutions, are actively avoided.

### **3.2 Need for intensification of resource utilization**

Resource depletion was the main stimulus for change in order to maintain livelihoods within the study area. Fishers acknowledged the virtual collapse of the fishery along with many of the contributing factors such as: dynamite fishing; decreased net sizes; destruction of spawning habitat including the destruction of mangroves; and, off shore over harvesting by large boats from elsewhere. Farmers, too, recognized diminished productivity as a result of changing conditions although for them the most significant factors were higher temperatures and diminished and unpredictable rainfall. These factors were recognized as mainly external. In spite of the notable impacts of local resource use on productivity, future livelihood actions primarily focused on intensification of resource use. Fishers identified approaches such as: improving equipment to fish deeper waters; increasing their attention to the prawn harvest where increasing their activity there could still maintain or improve their livelihoods; or, removing the access restriction imposed on critical reef and river mouth habitats which they had used previously but which had been included in the national park. Farmers wanted to irrigate from the Wami River or expand their land holdings to compensate for lower production. Once again these results appear paradoxical. Resource users recognize that productivity is diminishing and identify key factors that underlie the trend, yet the primary solutions for resolving livelihood shortfalls embrace intensification of resource utilization which inevitably adds to the stress.

### **3.3 Dependence on government for solutions**

One of the striking consistencies in the responses when describing the potential solutions to resource depletion issues was the significance of the perceived role of government. Fishers felt the need for: increased regulatory control and active enforcement by government over the offshore ships; education of local people by government to raise public awareness about the law making mangrove harvest illegal; and, the release of what used to be productive fishing areas now encompassed by the national park. Similarly, many farmers

shared the view that land that was now in the national park should have remained in local production. They identified crop loss to wildlife as a concern and felt the need for government control or compensation. In addition, they believed government support for community infrastructure such as road and rail transport was needed to realize the potential of agricultural production to increase beyond the local subsistence level. While this significant emphasis on government solutions was very evident in one segment of the research results, a dominant expression of dissatisfaction with government, its elitism and corruption and people's feeling of exclusion from the decision-making process was very evident in others. Participants consistently described how village meetings were used more as a mechanism for advancing an agenda than eliciting input and feedback. Also, as noted earlier, more than a quarter of household interviewees felt they had no connection to community decision-making processes and their opinions and ideas did not matter. The paradox in these results is that the government, which is consistently described as untrustworthy and works without consulting the villages, is viewed as having the primary responsibility for resolving livelihood challenges.

### 3.4 Assessment process of the range of livelihood options

The household interviews also explored the reasons people made livelihood changes. Very few new activities were identified; the reasons for those changes were also very few. Commonly people explained that they learned about new livelihood options by observation. They commented on seeing their neighbours or friends doing an activity and being successful at it and so they would follow. One respondent in Mkwaja indicated that he had discussed timber production with someone involved in the activity so that he might get a better understanding of the advantages and disadvantages of various species. This was the only case where direct discussion about the viability of an option was noted by a respondent. It was also very rare for anyone to seek professional advice or external information in order to identify potential options. Two such examples were found among the respondents. However, at the same time the majority of respondents indicated that they felt there were too few livelihood options in their villages. Many wanted government or other community development stakeholders to take action that would expand the opportunities, especially when it came to wage employment. These results illustrate a paradox between the desire for a wide range of livelihood options and the very limited efforts on the part of respondents to seek out options from beyond the very limited spectrum of their own experience and those of their family and friends.

## 4 Discussion

Each one of the paradoxes identified above illustrates some fundamental dynamics or factors in the relationship between livelihood and conservation as discussed in the literature. Those factors are discussed below.

1. Capital to support productivity improvement: capital is a major barrier, but cooperative ventures to build capital collectively are shunned.

The reluctance of participants to see cooperative ventures as a solution to one of the major barriers for livelihood and well-being improvement was unexpected. This preference for individual solutions is not prominent in either the theoretical literature or the practical

application documentation which focuses on greater inclusion and cooperative community-based action rather than addressing the challenges of seeking sustainable livelihood solutions on an individual basis. In this situation, it may be that the emerging preference stems from negative past experiences in which the respondents participated. Negative group experiences can stem from a variety of circumstances and may result in long-term distrust of collective enterprises (Sseguya et al. 2015; Stern and Coleman 2015). However, alternatively, Dearden (1995) cautions about the need to recognize that all ethnic groups do not have the same perspective on the relationship between community, family and individuals. Some groups have a much stronger recognition of individualism than others, and if this is not recognized by development professionals, then programs may flounder on this lack of cultural sensitivity. In contrast, development professionals often perceive that addressing individual needs can easily accentuate inequality and can also concentrate the risk of failure on the merits and actions of one individual versus many and thus increasing the risk of potential loss of development resources.

Rejection of what has become a fairly universal approach to development and conservation challenges the search for viable solutions to the extent of poverty experienced in the study area. The whole premise of community-based approaches related to the characteristics of the study area whether CBNRM, ICDP or community-based tourism depends on the application of informal and formal mechanisms of collaborative management. Such examples are extensively documented in the literature with practical examples from around East Africa. Baldus (2009) provides a compendium of examples of CBNRM, and authors such as Nelson et al. (2009) and Kideghesho (2009) provide specific examples of the nature and effectiveness of the connections between conservation outcomes and the participation of local people. One of the key elements of that relationship is the institutional structure which is developed to ensure local engagement and control (Wittayapak and Dearden 1999). Locally managed marine conserved areas have developed extensive applicable cooperative models given the obvious need for mechanisms to address productivity and benefits from common property resources (Hauzer et al. 2013; Majee and Hoyt 2011; Cinner et al. 2009). Cinner and McClanahan (2015) provide a recent discussion of this kind of management approach on the Kenyan coast. They explain that local collective management authority can bring a wide range of benefits although it takes time for new mechanisms to be embraced and typical challenges such as capacity, transparency and enforcement need concerted support and attention.

The research reported here, however, provided the added dimension of previous bad experiences with cooperative ventures. Snyman (2012) suggests that in such circumstances, expectations in the community that are not realized can have major negative effects. The failures of the collaborative projects reported in this research have definitely influenced future willingness to participate. Future engagement will require overcoming the negative feelings related to previous experiences and rebuilding trust required for success in cooperative relationships (Jordaan and Grové 2013; Floress et al. 2011). What many authors stress is that successful cooperative group function cannot be assumed and that strategies for building positive interactions, engaging participants, producing material benefits, providing capacity building opportunities and developing effective leadership are all critically important (Sseguya et al. 2015; Stern and Coleman 2015).

Other factors such as the status of the resource and the institutional frameworks that exist in the management of the resource beyond the local level play a role in the ability of local villages to take on and be successful in local cooperative management of natural resources (Agyare et al. 2015a). The dismal state of the local fisheries resource in this study area has been well documented (BALANCED Project 2011; TCMP 2008; Ngusaru 2000)

as has the centralizing of resource management tendencies of government in Tanzania (Benjaminsen et al. 2013; Nelson 2010). Such influences illustrate the importance of the “structures and processes” component of the SLF and its influence at a very practical community level on household livelihood sustainability and the need to integrate larger political and economic structures with local livelihood endeavours (Scoones 1998). The challenge is to design and implement a scale of cooperation that is effective within the particular sociopolitical unit under consideration. For example, Agyare (2015b) in a West African example shows how overall cooperative success at the project scale can mask inequalities at the community level and the importance of understanding the local context.

2. Intensification of resource utilization: resource productivity is understood to be diminishing significantly, but adding pressure of utilization is seen as a solution to livelihood challenges.

These research results document two ideas that are difficult to reconcile with respect to resource productivity in the study area. The first is that resource base productivity is recognized to be highly impacted and diminished by a variety of conditions and influences both natural and human induced and the second is that local resource users see intensification of resource utilization as a solution for their livelihood challenges.

Fishers indicated that income from fishing was generally not more than a third of what it had been ten years ago. Other documentation supports such an impact. Ngusaru (2000) stated “The status of inshore marine fishery is classified as poor, due to harvest beyond sustainable yield” (p. 14–15) and other sources indicated that productivity in fishing along this portion of the Tanzania coast was in a significant downturn as early as the early 1990s when additional effort did not produce increased results (TCMP 2008). Similarly, the freshwater fishery of the Wami River is considered exhausted and the reduced fish populations and associated increased stress on other wildlife resulted in lower bird populations and increased attacks on humans by crocodiles (Gritzner and Sumerlin 2007). In agriculture, respondents consistently described decreased rainfall and increased sunshine as the primary causes of diminished productivity. Increasing evidence of the importance of changing climatic conditions in sub-Saharan Africa generally and Tanzania especially for agriculture supports this view (Rowhani et al. 2011; Cooper et al. 2008; Paavola 2008). In similar research to this, Bunce et al. (2010) focused attention on the impacts of such change on coastal villages in southern Tanzania. They reported climate stressors (temperature rise and erratic rain) as dominant.

In response to these challenging conditions, fishers wanted to acquire equipment to fish in deeper waters, apply greater effort to the still viable prawn fishery and have important fishing areas released from conservation status imposed with the establishment of Saadani National Park. Farmers wanted to have greater access to the water resource of the Wami River through irrigation, expand farmland to increase overall area of production and mechanize to be able to worker larger farm areas. Paavola (2008), in a study of the Morogoro area, adjacent to the current study area, investigated the implications of agricultural practices on people’s future relationship with changing climatic conditions and the impacts it might have especially for vulnerable sectors of society. He concluded that patterns of livelihood diversification and intensification of resource use, while helpful in periods of stress, also brought “adverse environmental consequences which increase vulnerability to climate variability and change” (p. 651). This would seem to be also very applicable to the current study area. Continued demand on the water resources of the Wami River, for example, will increasingly diminish water flow regimes and alter the morphology of the river with significant impacts on the adjacent land use and biological

diversity of the riverine area (Gritzner and Sumerlin 2007). A further implication from a fisheries perspective is the potential for collapse of the prawn fishery of the area which is now supporting demand of an increasing population in what is also a reportedly shorter prawn season. Learning from the experience of the coastal fishery seems critical. A comprehensive approach to coastal conservation and management is necessary. Sale (2015) in addressing the need for protection of coral reefs to enhance their benefits to society suggests that we know the solutions for conservation but that the requirements of political will, informed communities and monitoring for tangible results are lagging.

3. Dependence on government for solutions: government is distrusted and the relationship is poor, but solutions to livelihood challenges are seen to be the responsibility of government.

The vast majority of the solutions identified within household interviews involved actions to be taken by someone else—primarily government. Respondents held generally pessimistic attitudes based on livelihood pressures they felt largely emanated from circumstances or forces beyond their control. In part, this is true. Major shocks such as poor health and environmental conditions significantly impact livelihoods (Bennett et al. 2015; Porter 2012; Zou and Wei 2010). Thus, people felt that individual behaviours were less likely to make change or achieve their desired outcomes. Furthermore, many saw their struggles as being the responsibility of government including such influences as infrastructure inadequacies and restrictive regulation over access to natural resources. Such influences are noted in other recent studies of protected area impacts on community development in East Africa (e.g. Baird 2014; Tumusiime and Sjaastad 2014).

The relationship of local rural people with the Government of Tanzania is often difficult. Government authority tends to be increasingly centralized and consultation and engagement with the people, especially rural villages, is not a standard practice which explains why respondents frequently suggested government actions are required to resolve issues. Resource management issues exemplify this context (Benjaminsen et al. 2013; Nelson 2010). Respondents in this research frequently suggested the need for government created livelihood alternatives, especially through creating wage employment opportunities related to the national park establishment, which they saw as an unfulfilled government commitment.

At the same time as people look to government for solutions, they also expressed very serious concerns about their relationship with government and local development initiatives. Interview respondents and focus group participants agreed that the village meetings, which were the prime mechanism for interaction with government, were unsatisfactory and poorly attended and administered. People reported feeling disenfranchised. Also previous government interventions have met with limited success which intensifies people's distrust of the top-down approach to community development (Sesabo and Tol 2005). Thus, depending on such a process for solutions must be difficult. At the same time, taking personal responsibility and action for livelihood activities in collaboration with, or independent of, government suffers from the constraints discussed previously such as lack of capital and the preference for independence rather than collective action.

4. Assessment process of the range of livelihood options: people consider the range of livelihood options to be very limited but do not actively seek information and expertise in their decision-making process.

This research suggests that individuals focus on reacting with short-term strategies that reflect their own past experience and that of friends and neighbours, who if successful

serve as role models for those seeking to improve their well-being. People seldom consult widely in the process of determining possible opportunities or in assessing the viability of options they feel have potential. Given that only 10% of respondents originate from outside the region, their frame of reference is limited, as is the scope of the role models they are observing. Respondents with experience from outside tended to be able to articulate their future livelihood options with greater confidence, longer-term perspectives of adaptation and in more depth. They also have seen and experienced role models on an entirely different scale. People with the inclination or flexibility to move, or the experience of having done it, not only perceive more options but actually have more options. Previous research supports this analysis of the role of past experience and the challenge of identifying livelihood options. For example, de Weerd (2010) in his study of movement in and out of poverty in the Kagera Region of Tanzania suggests that those who have “never lived or worked outside their own village were less likely to diversify their incomes including diversifying farming activities” (p. 342).

## 5 Conclusions

The paradoxes discussed above represent a significant challenge for livelihood sustainability in the villages of the study area. Solutions to these challenges require long-term strategies both from within and through the contributions of other development actors especially government and the private sector. This research identified four preliminary directions for such constructive long-term strategies.

- Trust: efforts to rebuild trust among groups within the villages towards collective action require practical applications that achieve success. As discussed above, purposefully planning for successful cooperative group function needs to include strategies for building positive interactions and engagement among participants, achieving concrete benefits, providing capacity building opportunities and developing effective leadership. A current local project is attempting this (Downie 2016). Such efforts need to be expanded and involve more stakeholders so that positive results can be extended throughout the community.
- Natural resources: shocks such as crop failure and restrictive regulatory controls over land and resources force responses which involve change (Porter 2012; Assan and Kumar 2009). They also provide the opportunity to explore options for change and might encourage greater public awareness and understanding as well as action. Consistent with the literature, local patterns of change will inevitably have long-term implications leading to the necessity of significant livelihood adaptation since continuing practices from the past cannot be sustained (Balama et al. 2013; Paavola 2008). No single solution can enhance adaptive capacity. Such a challenge needs to be addressed through many complementary actions involving: effective management of soil, forests and water; structural support to commercialized production activity; and investment in improved social services such as health and education (Paavola 2008).
- Roles and responsibilities: collaborative partnerships among the villages, government and the private sector are needed to develop strategies for economic and community development. They then provide the opportunities for taking livelihood action independently and collectively. The tourism sector represents a significant livelihood opportunity through participation in the value chain and cooperative approaches to build a stronger and more direct relationship between local business and this sector are

needed (Rogerson 2012; Spenceley et al. 2010). Furthermore, people have expressed interest in expanded direct employment which is a proven asset to local livelihood improvement (Snyman 2012; Lapeyre 2010). To be most effective, this requires a much greater emphasis by government on basic education and specialized training if local people are to realize the benefits of expanded and higher-level wage employment.

- Information: The two way flow of information between villages and government influences the range and availability of livelihood options. Participation levels, mechanisms of control of the process, confidence and trust within this process are critical factors to its success, especially if success is deemed to reflect open access and support to all village residents (Waligo et al. 2013; Williamson 2011). Encouraging and supporting residents to experience the application of successful livelihood strategies from other parts of Tanzania would also be valuable.

There is no quick fix to the challenges of livelihood improvement in the study area. Clearly, some strategic actions will be beneficial if properly conceived and sustained. Cooperation of all stakeholders in such efforts is the key, and coordinating such an effort from such diverse stakeholders will be difficult. However, addressing the reasons behind the paradoxes described in this paper will contribute to the needed long-term solutions.

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