

Assessing the success of community-based natural resources management through the integration of governance, livelihood and conservation attitude indicators: case studies from Caprivi, Namibia

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ABSTRACT

This paper presents an ongoing interdisciplinary research effort to develop methodologies to measure the effectiveness of community-based natural resource management (CBNRM) in Namibian conservancies. Conservancies were created in Namibia in the mid 1990's in order to foster sustainable natural resources management and improve local livelihoods. Conceptually CBNRM returns land and resource rights, including rights to wildlife, to people on communal lands to promote economic and ecological well-being through sustainable management. In practice, this is implemented through different configurations with a wide range of results. This paper uses two case studies, Wuparo and Mashi Conservancies, to analyze livelihood strategies, CBNRM governance, and local people's attitudes. This study focuses on accountability and transparency as measures of governance. The two case studies examine these measures of governance in the context of livelihood strategies and attitudes toward wildlife, national parks, and conservancy management. Data was collected through household interviews and observation of governance processes in June-July 2007. Initial results show that even though institutional arrangements may be similar in the two conservancies, community governance varies. This has direct implications on the performance of the conservancy. Preliminary results also indicate differences in livelihood strategies and attitudes towards conservation, specifically as it relates to the conservancy and nearby national parks. These attitudes are more favorable in Wuparo than in Mashi. This could reflect differences in the age of the programs or in the ways that wildlife conservation has affected different livelihood strategies. In both conservancies, more can be done to strengthen institutional mechanisms for ensuring horizontal accountability.

Keywords: Community Based Natural Resources Management; Governance, Livelihoods, Interdisciplinary

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INTRODUCTION

Community-based natural resource management (CBNRM) has been defined as “those principles and practices that argue that conservation goals should be pursued by strategies that emphasize the role of local residents in decision-making about natural resources” (Adams & Hulme, 2001). CBNRM was pioneered in the early 1990s by Zimbabwe’s CAMPFIRE program, which returned land and resource rights to poor black communal farmers to promote environmental and economic welfare (Child, 1993). Given that wildlife is mobile and its management depends on collective action, the CBNRM movement has become an informative experiment in grassroots democratization and local governance (Murphree, 2000).

It is our contention that local communities who are given greater resource and governance rights improve both economically and ecologically and ultimately develop into more resilient social-ecological systems. We examine the locus of decision-making and financial flows from wildlife and other key resources in order to test this contention. More specifically, we focus on governance indicators such as information transfers to infer different levels of horizontal accountability within our two case studies. The broad objectives of this research are to contribute to the CBNRM and governance debate as well as to provide tools for local communities to monitor and improve resource governance. Since our case study communities are located close to national parks, we

also expect to gain a better understanding of attitudes towards parks by surrounding inhabitants.

[Figure 1 goes about here]

This paper summarizes our initial findings in two case studies in the Caprivi region of Namibia (see Fig. 1). Initially, it describes the case studies and then examines the results of questionnaires administered in June-July 2007 in the conservancies of Mashi and Wuparo. These questions focus on: financial and natural resource information flows; trust in current leadership; livelihood strategies; and food security. The discussion that follows the results section provides our analysis and preliminary conclusions and their implications for the sustainable communal governance of natural resources.

MEASURING GOVERNANCE: HORIZONTAL ACCOUNTABILITY

Following two decades of implementation, CBNRM in Southern Africa faces the challenge of establishing institutions that practice good governance over the management of common property resources (Turner, 2004; Jones & Corbett, 2000; Campbell & Shackleton, 2001). The lack of accountability by community leaders to their constituents has particularly surfaced as a major hindrance to good governance in CBNRM. Upward accountability from local leaders to the Government department has scored more success in terms of meeting various Government requirements such as membership formation; constitution development and some financial obligations (NACSO, 2004). At the micro level however the mechanisms that reinforce accountability within the community institutions are weak.

O' Donnell (1992: 30 – 46) in his work on accountability identifies two forms of accountability - vertical and horizontal. Vertical accountability is the relationship between unequals; it refers to a powerful “superior” actor holding a less powerful inferior actor accountable. In CBNRM this relationship is exhibited between Government (e.g. Wildlife departments) and the local communities. Horizontal accountability, on the other hand, describes a relationship between equals; it refers to somebody holding someone else of roughly equal power accountable.

Schedler (1999: 15 – 26) conceptualizes accountability as the means of constraining power. Accountability has two basic connotations; answerability and enforcement. Answerability is the obligation of public officials to inform about and to explain what they are doing; and enforcement is the capacity of accounting agencies to impose sanctions on power holders who have violated their public duties. For the purpose of measuring horizontal accountability in CBNRM, this study focuses on how well conservancy officials inform community members. Schedler argues that answerability is achieved through the process of members of a group having the right to information and the corresponding obligation of local leaders to release the necessary information.

Horizontal accountability promotes good governance in CBNRM. This practice should provide an enabling environment for ensuring that social and economic benefits trickle down to all members of a community. So how then can this be measured? In CBNRM communities information is a crucial element, and one that is often lacking. Community members elect their leaders, and within a defined term of office require that these local leaders manage their CBNRM business with confidence. Members require

information on financial, operational, and administrative matters and natural resources. Accountable elected community leaders should provide this information on a frequent and transparent basis.

This study thus sets out to investigate two key aspects of horizontal accountability. First, we argue that in the decentralization of common pool resources, such as those found in CBNRM areas, transfer of information from elected representatives to their constituents allows the latter to make informed decisions with regard to natural resource management. We focus on two types of information: financial data (annual budgets, source and amount of income; how money was spent; income from campsites; and income from lodges) and natural resource data (hunting quotas; number of animals shot on license; prices of animals; trends in rare and endangered species). Second, we argue that availability of information leads to positive community attitudes towards elected leaders. This is measured by examining perceptions of constituents towards elected leaders.

BACKGROUND OF STUDY AREA

Data was collected in Mashi and Wuparo conservancies in the Caprivi region of Namibia (see Fig. 2). Conservancies are multiple use zones within which residents are given partial rights to manage and benefit from wildlife, subject to certain institutional conditions. In Namibia, they are the prime mechanism to strengthen community management capacity in communal areas (Long, 2001).

[Figure 2 goes about here]

Mashi conservancy was gazetted in 2003. It is bordered on the east by Sobbe conservancy (not shown on map), on the west by the Kwando river and Bwabwata

National Park, on the north by Mayuni conservancy and on the south by Mudumu National Park. It is composed of four village areas: Ngonga, Lizauli, Sachona and Lubuta. Ngonga and Lizauli make up slightly more than half of Mashi's 985 households and are located along a graded road that roughly parallels the Kwandu River. This road runs from the Kongola junction (20km to the north) through Mudumu National Park to Wuparo conservancy (and others) to the south, connecting to Caprivi's administrative capital and main market, Katima Mulilo, 150km away. The northern portion of the Mashi study area is characterized by sandy infertile soils that generally become less suitable for crop production with distance from the river. The southern portion of Mashi sits on clay soils that are relatively more fertile. Mashi's interior population is located in Sachona and Lubuta, which are connected to the graded road by a 20 km 4x4 track through fields and bush. These settlements are situated on the conservancy's most fertile soils. The interior population is more densely clustered than the riverside population and has large tracts of agricultural fields, primarily to its north. Despite appearing to be more remotely located than the riverside population, the interior villages are closer to Katima Mulilo and the tar road that leads there from Kongola. The remainder of the conservancy is largely unsettled. Much of the interior is bush and grassland and serves as a wildlife corridor.

Wuparo conservancy was gazetted in 1999. It is bordered on the west by Balyerwa Conservancy, on the east by Malengalenga Conservancy, and on the north and south by two National Parks, Mudumu and Mamili respectively. Most of Wuparo's population (310 households) is located in the Sangwali village area, while the rest is divided between the Samalavi and Samaduno village areas. All three are located along or within

a few kilometers of the same graded road that goes through Ngonga and Lizauli (Mashi conservancy). Wuparo conservancy is characterized by extensive floodplains, interspersed by Terminalia and Mopane woodlands and grasslands. Precipitation ranges from 600 to 700 mm per year. Wildlife is extremely diversified and present in large numbers, including among others elephants, Roan antelopes, lions, leopards and warthogs.

METHODOLOGY

The results and discussion presented in this paper are based on the integration of three distinct research protocols conducted within the framework of an interdisciplinary exploratory research project, involving researchers and conservation practitioners from several institutions in the United States, Namibia, Botswana, Zimbabwe and Zambia. The objective of the overarching interdisciplinary research project was to explore how ecological, socio-economic and governance factors interact to influence the sustainability and resilience of linked human-ecological systems. The process was largely exploratory and stakeholder driven to determine which variables should be considered, with a strong emphasis on how this could realistically be incorporated into community based monitoring systems (i.e. so that it lives beyond the presence of university trained researchers).

This paper focuses on the integration of socioeconomic and governance factors (ecological factors are not discussed here). Separate research protocols were designed to collect data on (1) governance factors and attitudes towards wildlife, and (2) on socioeconomic factors.

GOVERNANCE FACTORS AND ATTITUDES TOWARDS WILDLIFE

A participatory research methodology termed the “Community Dashboard” was used to collect data on governance and attitudes. Standardized systems for measuring the effectiveness, legitimacy and performance of community governance have not yet been developed for CBNRM. Furthermore, systems for assessing how well CBNRM programs are serving the needs and aspirations of their constituency are also lacking. The development of the Community Dashboard is one mechanism to start addressing those data gaps. It was developed by an interdisciplinary team with input from practitioners and conservancy representatives, based on pilot work conducted in the region in 2005.

In each conservancy, local research assistants were selected and trained to conduct individual interviews using a structured questionnaire consisting of 10 questions written in English. The research assistants translated the questionnaire orally during the interviews into local language (mainly Sifwe, Yeyi, and Mbukushu). The questionnaire included indicators of community governance performance (such as participation, decision making, attitudes, and accountability) and Likert-like items to measure attitude towards wildlife and national parks. A total of 137 households were randomly selected in Mashu (n=67) and Wuparo (n=70) to complete this research protocol.

SOCIOECONOMIC FACTORS

Socioeconomic data was collected through structured household questionnaires. In both conservancies, a sample of households was randomly selected (n=51 in Wuparo,

n=60 in Mashi), following a full count of the number of households in each village within the conservancy boundaries. For reasons beyond the researchers' control, a few villages were omitted.

The socioeconomic questionnaire was focused on demographics, livelihood strategies, consumption, production and risk perception. It was designed by an interdisciplinary team on the basis of previously used data collection instrument from a related study in Tanzania and Uganda and an extensive literature review. The household questionnaires were conducted either in English by the investigators or in a local language through translation provided by local research assistants.

In Wuparo Conservancy, a total of 252 individuals lived in the 51 households interviewed. The average household size was 4.9 residents⁴. Of the 252 individuals, 50% were over 18 years old, and 94% of those were registered members of Wuparo Conservancy. The sample was fairly well distributed among age groups, but gender biased. As we conducted the study, we found more women at home willing to talk to us than men (72.5% of the sample was women). A quarter of the population had no education, 65% had between a grade 1-10 education and 10%, grade 11 or 12. In Mashi Conservancy respondents ranged in age from 20 to 75. The majority were affiliated with two tribes: Mbukushu (n = 28) and Mafwe (n = 26). Both tribes were evenly distributed among the conservancy's two main population areas: along the river and within the interior. Respondents were 60 percent male (50% riverside, 70% interior). In total, 43 percent of household heads claimed membership in the conservancy. Membership rates were higher along the river, where the conservancy office and tourism lodges are located.

⁴ Resident was defined as someone who lived in the household for at least 9 months out of the year.

Results

LIVELIHOOD ACTIVITIES

In Wuparo conservancy, pensions contributed 43% of the total income, followed by formal employment (27%) and cash crops (17%). Thirty-nine percent of households received pensions and 14% received income from formal employment. The majority of these jobs were related to the “Nature” industry, either through a tourism lodge, a safari hunter, the Ministry of the Environment, or the Conservancy. Thus, employment is extremely low in Wuparo conservancy, but the “Nature” industry appears to offer most of the opportunities, even if those are insufficient to curb unemployment rates.

Given that most people in the sample did not receive a pension or a formal salary, we also present results for household income sources without those two categories. It appears then that the largest contribution to household income comes from cash crops (58%), followed by a variety of natural resources that are collected and sold, such as thatching grass (12%) and river reeds (6%). The average annual income in 2006 was 5,574 US\$⁵ for all households and 1,942 US\$⁶ for households not receiving a pension or a salary. Among households not receiving pensions or a formal salary, 41% earned less than 1,000 US\$⁷/year, 48% earned between 1,000-5,000 US\$⁸/year, and 11% earned between 5,000-10,000 US\$⁹/year.

The majority of household expenses goes to food (63%). Households appear to spend little on education (4%) and health (<1%), especially relative to surprising

⁵ 39,609 N\$, according to an exchange rate of 1\$US=7.1\$N on 7/10/07 at www.oanda.com. A similar exchange rate is used throughout the rest of this report.

⁶ 13,800 N\$

⁷ 7,106N\$

⁸ 7,106-35,530N\$

⁹ 35,530-71,060N\$

categories such as electronics purchases, such as radio, batteries, cell phone and airtime (7%). The average annual expenditures in 2006 for all households was 6,856US\$¹⁰.

To complement their cash making activities, households engage in a variety of subsistence activities (Table 1). The majority of them farm food crops (98%), collect firewood (84%), collect thatching grass (78%), and collect reeds (73%). On average, households are engaged in more than four subsistence activities, though a quarter of the sample is involved in more than five such activities. Over 80% of the sample reported that neither their livelihood nor subsistence activities had changed since the creation of the conservancy.

[Table 1 goes about here]

In Mashi Conservancy, riverside households reported an average of 3.4 income-earning activities, while interior households reported 2.6 activities. Riverside and interior respondents also differed markedly in the main activities they listed most frequently for producing income and in-kind services (see Table 2). On the riverside, thatching grass (77%) and river reeds (73%) were the main household activities. In the interior, the top two income activities were pensions (67%) and cash crops (40%). Farm labor was the third most frequently listed activity for both riverside (47%) and interior (30%) populations.

[Table 2 goes about here]

Two tourist lodges and a community-run campground are situated along the graded river road within Mashi's borders. Five percent of households reported a family member with a tourism job and were all located along the river. Two of the three lodges

¹⁰ 48,719 N\$

that employed household members report a total of 65 local workers. Monthly pay for respondents employed by the lodges ranged from N\$ 240 to N\$ 525 (US \$33.80 to \$73.94). For comparison purposes, a 50-kg bag of maize cost N\$100. Respondents who were asked how long 50 kg of maize lasted their family reported an average of 12.6 days (n=18; average household size = 4.2). Four respondents (7% riverside, 7% interior) reported jobs with the conservancy ranging from resource monitor (female) to committee member and campsite guard. Pay for the conservancy positions ranged from N\$300 to N\$500 per month.

Overall, respondents in Mashu reported far lower average annual incomes than did respondents in Wuparo. Conservancy-wide, Mashu respondents reported an average income of N\$ 2352.08 (~ US \$336). Incomes were higher in the interior (avg. N\$ 3553.83) than along the river (avg. N\$ 1150.33). Riverside respondents reported working more frequently for in-kind services than did interior respondents (36.7% vs. 16.7% of households). In-kind payments predominantly consisted of maize, sorghum or millet (85% of in-kind payments reported).

Subsistence activities reported per household also showed differences between the two populations, with the exception of collecting firewood and raising crops (see Table 1). The average number of subsistence activities reported by riverside households was higher (5.3 vs. 3.2), reflecting the proximity of those households to wetland resources such as river reeds and papyrus. Cattle ownership was more frequent in interior households (56.7%) than in riverside households (10%).

More than one-third of all Mashu respondents reported seeing a change in both livelihood and subsistence activities since the conservancy's establishment in 2003.

Changes in income-producing livelihood activities were reported by 40 percent of riverside respondents and 36.7 percent of interior respondents. Changes to subsistence activities were reported far more frequently along the river (56.7% vs. 16.7%). The majority of respondents who reported changes to their subsistence activities said conservancy restrictions on resource use were the cause (71.4%). Nineteen percent blamed increased wildlife numbers and 9.5 percent cited new restrictions on claiming and clearing fields for crop production.

Nearly all Mashii respondents (97%) grew crops in 2007, primarily maize, sorghum, melons, and millet. Farmers practice rain-fed agriculture with little fertilizer use. Only 3 percent of respondents who farmed reported using commercial fertilizer. Only 17% of farmers, all from the interior, reported using cattle manure as fertilizer.

Comment [JGC1]: BILL – I CHANGED THAT NUMBER BUT MAYBE I READ IT WRONG?

ASSETS

In Wuparo, shelter and living conditions were found to be pretty basic. None of the respondents had regular access to electricity or clean water in their home. Most houses (>88%) were built with traditional materials (poles, mud and thatch roofs), and over 96% of the respondents used candles for lighting and firewood for cooking. Few households owned special assets that would facilitate farming, transport, communication, or health (Table 3). In fact, 27% of households owned no special assets at all.

Communication also appears to be challenging for most people. Focus groups revealed the importance of (1) having a radio as a means to be aware of what is going on, and (2) of a cell phone to communicate with friends and family (especially during

periods of health, financial or emotional crisis). Fifty-one percent had radios and 20% had a cell phone. Even without an individual cell phone, one could be borrowed, but access to a cell phone was considered difficult by 63% of the respondents.

Mashi households in both areas are also generally lacking in assets, but interior households own more assets on average than do riverside households (2.3 vs. 1.3 assets). The most common items owned over the entire conservancy are radios (41.7%), ploughs (40%), and sledges (26.7%). Cell phones are limited to interior households, which showed 23.3 percent ownership. Cell phone coverage during the study period was absent in most riverside locations but was expanding across the conservancy.

[Table 3 goes about here]

ACCESS TO WATER

Most Wuparo residents (86%) get drinking water from a borehole or well and 14% from the river. Sixty-nine percent of the sample thought the drinking water source was close, 12% thought it was far and 18% thought it was very far. On average, it took people about 1.5 hours to get water. Three-quarters of the sample feels that drinking water has been getting harder to get, and most blamed this trend on the fact that there were too many people (46%), that wildlife represented a danger when fetching the water (16%), that the water source was too far or that the well did not work (14% each).

All Mashi interior respondents receive their drinking water from boreholes. Along the river, 70 percent of respondents used boreholes, while 30 percent took water directly from the river. The majority of respondents in both areas said water was easier

to obtain now than in the past (river: 60%, interior: 53.3%), with creation of boreholes being the primary reason. However, 66.7 percent of riverside residents who relied on the river said obtaining water had become harder. In the interior, theft of solar panels at pumping stations and crowded conditions at primary boreholes were the overwhelming reasons that 36.7 percent of residents reported more difficulties now than in the past.

ATTITUDES

The Wuparo study documented people's satisfaction with the conservancy. The mean score for people's attitude towards the conservancy was 3.91 out of 5. According to this index, 78% of the sample reported being either happy or very happy with the conservancy. Sixty-eight percent of people agreed that they lived better because of the conservancy, and 78% of people trust the conservancy committee. However, this last result was contested by a couple of community members during a report back session held in Samalavi on July 23rd, 2007. The attitude towards the conservancy is not perfect. Forty-eight percent of people claimed that the conservancy had created problems in their lives. When probed for the kinds of problems they may be referring to, the most common answers were problem animals, inadequate benefit distribution and lack of interaction between the conservancy committee and community residents.

The study also documented people's attitude towards the national park (Mamilli National Park). The mean score was 3.27 out of 5. According to the index, most people were neutral about the park (51%), but among the remaining 49%, the vast majority had either positive or very positive attitudes towards the national park. The mix of positive and negative attitudes towards the park is illustrated by some of the following items. For

instance, 90% of the respondents agreed that they liked the park, and 60% disagreed that the park was a waste of land. But, on the other hand, 88% of the people agreed that wildlife from the national park causes problems, 74% disagreed that national park employees help the village and 64% disagreed that they used the national park for relaxation and recreation. However, even though wildlife from the national park was strongly believed to cause problems, the respondent's attitude towards wildlife on a whole was still positive. Three quarters of the respondents who disagreed that national park employees help the village attributed this to the fact that they are no longer able to hunt, collect non timber forest products or fish within the national park, and they blamed the national park employees directly for this.

FOOD SECURITY

In Wuparo, less than 5% of people successfully grew any food or cash crops in the 2007 growing season. However, this varies greatly from year to year depending on precipitation patterns and impact from crop raiding by wildlife (Table 4). In the last planting season, 75% of the sample indicated that they had had a problem with crop raiding. This confirms the finding that 90% of the sample expressed being unhappy with how wildlife affects their crops. The most problematic animals are elephants (35% of the cases), followed by hippos, baboons and antelopes (16%, 15% and 11% respectively). Crop raiding does not appear to be mitigated through field guarding, as 84% of the respondents indicated that they did guard their fields during the season. Crop raiding also seems to be on the rise, according to 89% of the sample. When asked why crop raiding was increasing, 39% said that it was because of the conservancy or wildlife

protection and 61% simply said it was because there were too many wild animals.

Ninety percent of the crop raiding incidents were reported to the conservancy by those affected.

In terms of food security, similar negative results were found in Mashi for both riverside and interior populations, indicating the presence of drought in the 2007 growing season. Previous years, however, showed a wide discrepancy between the two areas in food security (see Table 4). Riverside households consistently reported not growing enough food to feed their families for all of the five years. Interior households fared better, though nearly half of those households reported struggling in four of the five years.

[Table 4 goes about here]

A consistent concern voiced by Mashi respondents involved growing wildlife numbers and increased incidents of crop raiding (see Table 5). Elephants were identified as crop raiders most frequently in both areas: (79.3% on river, 75.9% in interior), with reports of nearly total damage after three or four raiding events. Of the 56 respondents in Mashi who reported crop raiding by wildlife in their fields, 96 percent said that crop raiding incidents were increasing. Fifty-five percent of those respondents blamed the increase on conservancy measures or other forms of wildlife protection.

[Table 5 goes about here]

ATTITUDE TOWARDS WILDLIFE AND NATIONAL PARKS

The Community Dashboard survey found that overall, people in both conservancies hold favorable attitudes towards wildlife and surrounding national parks. A substantial majority in both conservancies agreed or strongly agreed that wildlife and natural resources are important for the future (94% in Wuparo, 85% in Mashi). Neighboring national parks also received support or strong support from a majority of community members (79% in Wuparo, 78% in Mashi).

[Table 6 goes about here]

AVAILABILITY OF FINANCIAL AND NATURAL RESOURCES INFORMATION

Mashi conservancy respondents showed low awareness of conservancy information (See Figures 3 and 4):

- 15 % of the respondents said they had received information on the budget.
- 35% said they had not received budget information.
- 40% didn't know.
- 6% said they had received price information on wildlife concessions sold to the safari operator.
- 40% said they had received no price information on wildlife concessions.
- 40% said they didn't know.

Natural resource information had clearly not filtered to the constituents, with the majority responding they had not received information on numbers of animals shot (36%); trends in problem animals (45%); and community escort scouts (53%).

In Wuparo, 44.9% had received all the information on the budget; and 30% had received some (see Figures 5 and 6). Forty-five percent had received all the information on how the money was spent, and 26% said they had received some. Wuparo, however, recorded few numbers of respondents who had received information on income from campsites and lodges. One percent of respondents had received all the information, whereas 53% had received nothing. Fewer respondents in Wuparo had received natural resources information such as numbers of animals shot (30%); trends in problem animals (14%); and trends in community escorts guards (7%).

The results show that the flow of both financial and natural resources information in Wuparo was higher than in Mashi.

[Figures 3, 4, 5, 6 go about here]

ATTITUDES TOWARDS LEADERS

To assess community members' attitudes towards their elected leaders, the respondents were asked about their trust in Conservancy leadership. They were asked to rate this trust on a five option scale that stretched from 'trust them a lot' to 'strongly distrust them.' The responses are summarized in Figure 7 below.

[Figure 7 goes about here]

When comparing the results between the two conservancies, the largest discrepancies were observed in the 'trust them a lot' (6% in Mashi vs. 20% in Wuparo) and 'neutral' (28% in Mashi vs. 14% in Wuparo). There was very little difference when the other three categories were compared.

DISCUSSION

Life in the conservancies is closely tied to environmental factors. One Wuparo resident summed it up by saying “Water is life”. With so many households involved in cash and food crops, water availability plays a very significant role in the livelihoods of conservancy residents. A good agricultural season means families may have enough food to feed themselves but also a source of revenue to pay school fees, other foods, transportation and medical expenses. On the other hand, a bad growing season with very little rain, such as 2007, makes life very difficult. However, water is not the only factor affecting crops: wildlife is also a threat. Restrictions on hunting and the presence of bordering protected areas is perceived by residents to have increased the number of wild animals, and in turn increased crop raiding incidents. Thus, the uncertainties associated with wildlife and water availability represent significant risks for local residents.

The conservancies are regarded as being responsible for attracting problem animals into the community since they work closely with the national parks system and also enforce strict protection of wildlife. Respondents’ negative attitude towards the conservancy stems from the fact that even when they receive benefits from the presence of wildlife, those benefits do not outweigh the cost from the damage caused by the wildlife on their crops. More is expected of the conservancy with regards to protection of local people’s crops. Some information obtained during our research indicated that community members believe that there is room for improvement from the conservancy with regards to wildlife guarding. Respondents acknowledge the fact that

the conservancy game scouts do not respond as quickly as they should; hence this leads to more crop destruction.

People's attitudes towards the national parks are positive overall, in spite of the human-wildlife conflicts. However, some tensions stem from the fact that local residents no longer have access to natural resources that they traditionally had access to prior to the establishment of protected areas and the conservancy. Furthermore, the benefits that they are receiving from wildlife protection are not enough to cover the costs of losing their crops to wildlife. One of the ways in which the conservancy is working towards providing some kind of compensation is through HAC SIS (Human Animals Conservancy Self-Insurance Scheme). HAC SIS is trying to compensate people for losses due to wildlife. However, the program still needs further improvement according to community members who question the practicality of the regulations that govern this program. For example, they argue against the restriction that HAC SIS compensates livestock losses only if the livestock is killed within its corral. Furthermore, compensation is also only provided when certain species are involved (such as lion, buffalo, elephant, cheetah etc), which does not cover the full range of species that may cause damages.

The conservancy was set up to try to improve people's lives by providing direct and indirect benefits aimed at countering the costs of living in close proximity to protected areas. However, benefits do not seem to be trickling down to the community level. While our study did not obtain data on revenues generated at the conservancy level through safari hunting, informal interviews revealed that some residents wonder if too much of it goes to conservancy overhead costs rather than to projects for the benefit of the Wuparo communities. Nonetheless, conservancy staff and members do seem to

strive for the maximization and equitable distribution of social benefits, though it will be some time before this can really be seen. The Wuparo conservancy was less than ten years old in 2007. Mashu was only four years old. This is a short time to achieve sustainable and efficient management institutions, especially in an area with low educational levels, hence the mixed feeling of the people towards the conservancy. However, it was interesting to note that there is a discrepancy between the attitudes of the older versus the younger residents towards the conservancy and the national park (personal observation). This likely indicates a change in livelihood strategies. The older generation is more interested in farming activities and experienced living off the land prior to establishment of the national parks and conservancies. On the other hand, the younger generation is more inclined towards tourism and nature related activities or employment. They are also more inclined towards wildlife protection because they have been exposed to these concepts through formal education. It will be interesting to further study these issues to understand what really drives the conservation movement in Wuparo and Mashu conservancies.

In Mashu, the diversity of livelihood strategies for income and in-kind services on the riverfront appears to reflect both an adaptation to a lack of food security and a potential multiplier effect from the presence of tourism lodges. The area's three lodges have a great deal of infrastructure that requires materials such as thatching grass for roofing, river reeds for privacy fencing, and firewood. River resources are also used for craft sales, which is driven largely by tourist traffic in and out of the area.

Interior activities in Mashu show a stronger connection to government offices and markets in Katima Mulilo. As in Wuparo, cash crops and government pensions play a

major role in providing livelihoods for people in Mashi's interior. Soils are more fertile, allowing for stable crop production. However, respondents spoke of the presence of elephants in places where none had been found in recent years, suggesting that crop raiding pressures are increasing.

Mashi respondents expressed concerns about restrictions the conservancy might impose on harvesting of thatching grass, river reeds, and timber products. The conservancy is seen by many respondents as the responsible entity for restrictions and problems that in reality are the responsibility of the Namibian government and other entities. For instance, increases in wildlife numbers would occur regardless of whether a conservancy existed, as would lack of access to the national park and restrictions on hunting within the conservancy area.

The levels of both financial and natural resource information flow show that Mashi, has lower numbers of respondents receiving both financial and natural resource information. Wuparo shows higher percentages of respondents receiving financial information; however, they also show that fewer members are receiving information on natural resources.

On whether members trust their leaders, results show that fewer members in Mashi trust their leaders when compared to Wuparo. However, the percentage of respondents who don't trust their leaders in both conservancies is approximately the same. Differences between the two conservancies may reflect different stages of maturation, in terms of how long it takes to develop a local institution that functions with horizontal accountability. Differences in livelihood activities within and between the conservancy populations also might play a role, as this could account for differences in

costs and benefits associated with CBNRM. These differences will need to be investigated further.

CONCLUSION

Assessing CBNRM governance is important, as it reveals outcomes such as the distribution of social and economic benefits, how communities perceive the CBNRM program, and ultimately, whether it contributes to ecosystem health. This process provides very important monitoring tools for both local communities and their support institutions, such as NGOs and government departments. As the CBNRM program grows in Namibia, it faces the challenge of ensuring that credible governance institutions are built and sustained.

This study shows that both conservancies still need to develop a stronger role for local residents in making management decisions about natural resources. Establishing stronger local governance structures that achieve horizontal accountability is necessary in order to achieve economic and ecological improvements within the conservancies. Positive attitudes toward wildlife and national parks show that local people are open to the idea of a wildlife-based economy. However, distrust for conservancy management and inadequate information flows hinder this process. Lack of accountability in CBNRM represents a major hindrance to achieving sustainable communal governance of natural resources. Local people must perceive the conservancy as accountable, not culpable. This will require a strengthening of institutional mechanisms for establishing horizontal accountability. In this way, community members will be able to make informed decisions about resource management issues, and conservancy management will be able to

respond to the needs of local people by enhancing the benefits and reducing the costs of living closely with wildlife.

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Fig. 1. Study area: Namibian portion of Kwandu-Chobe corridor

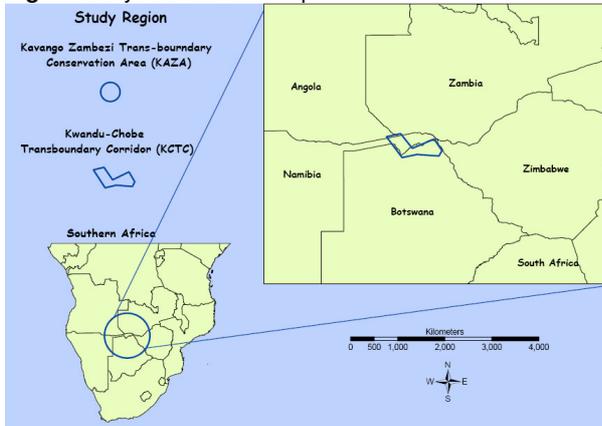


Fig. 2. Mashi and Wuparo Conservancies located along western edge

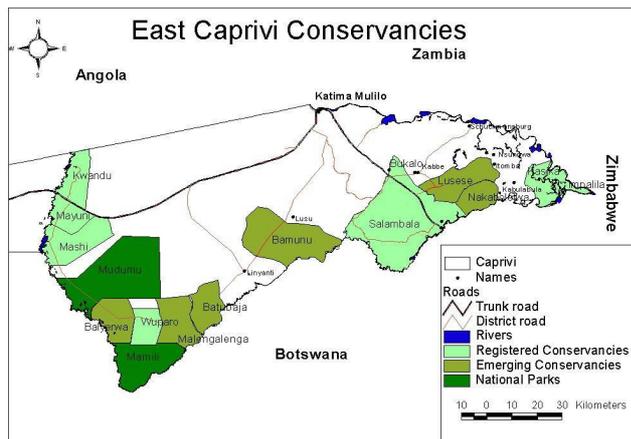


Table 1. Number and percentage of households involved in subsistence activities

	Wuparo		Mashi (river)		Mashi (Interior)		Mashi (combined)		Wuparo+Mashi	
	n	%	n	%	n	%	n	%	n	%
Food crops	50	98	29	97	29	97	58	97	108	97
Firewood	43	84	30	100	30	100	60	100	103	93
Construction poles	25	49	21	70	8	27	29	48	54	49
Thatching grass	40	78	0	0	0	0	0	0	40	36
Reeds	37	73	0	0	0	0	0	0	37	33
Livestock	14	27	3	10	17	57	20	33	34	31
Fishing	6	12	6	20	0	0	6	10	12	11
Edible Plants	8	16	0	0	2	7	2	3	10	9
Medicinal Plants	2	4	0	0	0	0	0	0	2	2
Papyrus	2	4	18	60	0	0	18	30	20	18

Table 2. Livelihood activities for income and in-kind services per household (Mashi)

Income Activity	River		Interior		All	
	n	%	n	%	n	%
Thatching Grass	23	76.7	7	23.3	30	50.0
Farm Labor	14	46.7	9	30.0	23	38.3
Pensions	2	6.7	20	66.7	22	36.7
River Reeds	22	73.3	0	0	22	36.7
Cash Crops	4	13.3	12	40.0	16	26.7
Poles for Construction	3	10.0	8	26.7	11	18.3
Craft Sales	8	26.7	1	3.3	9	15.0
Piece Work / Construction	6	20.0	3	10.0	9	15.0
Firewood	6	20.0	0	0	6	10.0
Timber & Woodwork	1	3.3	4	13.3	5	8.3
Papyrus Mats	4	13.3	0	0	4	6.7
Livestock Sales	0	0	3	10.0	3	5.0

Total = 60; River = 30; Interior = 30

Table 3. Percentage of households owning various assets

Asset	Wuparo	Mashi ¹	Mashi ²	Mashi ³	Wuparo+Mashi
Radio	51	27	57	42	46
plough	37	13	67	40	39
Sledge	33	10	43	27	30
Cell phone	20	0	23	12	15
bicycle	14	7	3	5	9
Canoe	6	10	7	8	7
Fishing equipment	12	3	0	0	6

¹ riverside, ² interior, ³ combined

Table 4. Percent of household growing enough food

	Wuparo	Mashi ¹	Mashi ²
2007	4	0	6.7
2006	77	40	86.7
2005	74	33	63.3
2004	72	25	55.2
2003	46	46	55.2

¹ river, ² interior

Table 5. Crop Raiding - Mashi

Crop Raiders: % HH reporting		
Species	Riverside	Interior
Elephant	79.3%	75.9%
Wild Pig	34.5%	58.6%
Porcupine	31.0%	34.5%
Hippo	51.7%	0.0%
Kudu	20.7%	10.3%
Baboon	27.6%	3.4%
Reedbuck	13.8%	6.9%

Table 6. Attitudes toward wildlife in surrounding national parks
Wildlife and Natural resources are important to our future

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Mashi	51.5%	33.8%	7.4%	1.5%	2.9%
Wuparo	71.8%	22.5%	1.4%	2.8%	1.4%

Overall, what do you think about the Park?

	Strongly support	Support	Neutral	No support	Strong dislike
Mashi	44.1%	33.8%	10.3%	5.9%	2.9%
Wuparo	46.5%	32.4%	9.9%	5.6%	5.6%

Totals may not add up to 100% because of respondents who did not answer.

Figure 3. Financial Information - Mashi

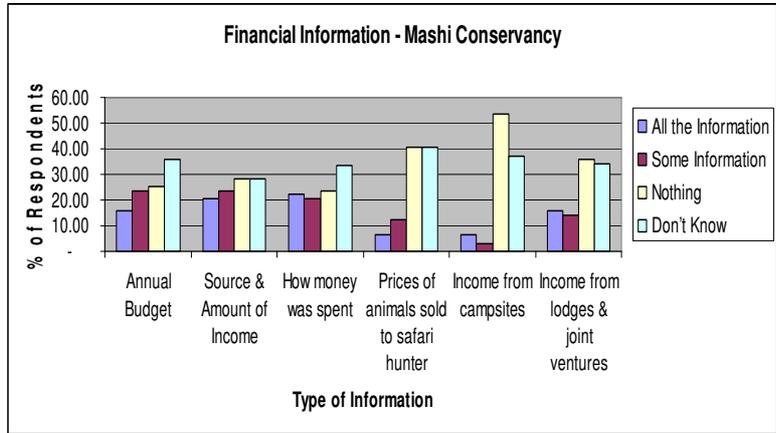


Figure 4. Natural Resources Information - Mashi

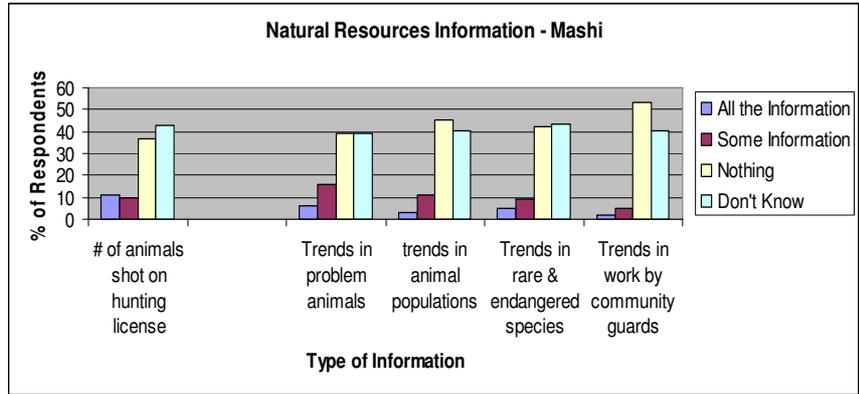


Figure 5. Financial Information - Wuparo

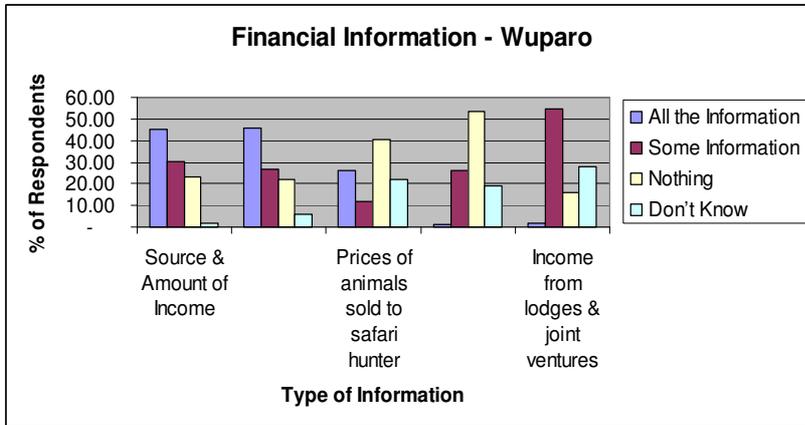


Figure 6. Natural Resources Information - Wuparo

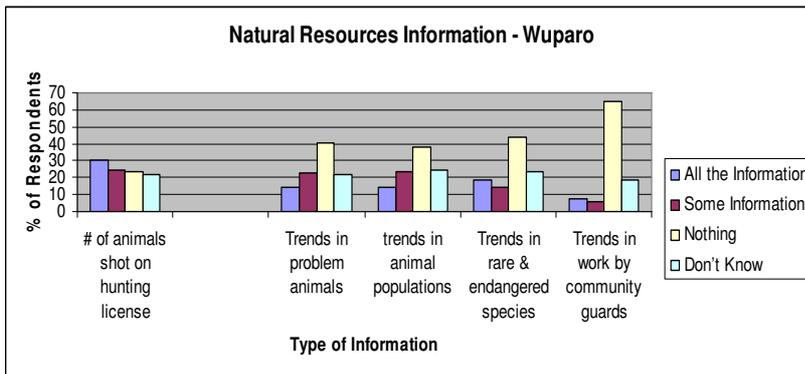
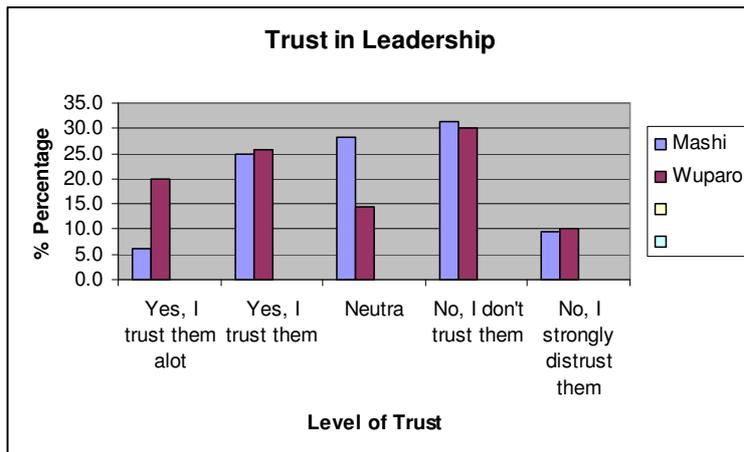


Figure 7. Trust in Leadership



Source: "Community Dashboard SPSS Data set, 2007"