

Preliminary Summary of Land Use, Livelihoods and Attitudes in the Selous Niassa Wildlife Corridor

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Overview:

Using a network of contiguous Wildlife Management Areas (WMAs) the Selous Niassa Wildlife Corridor (SNWC) will establish a viable ecological link between the Selous Game Reserve in southern Tanzania and the Niassa Game Reserve in northern Mozambique. WMAs represent Tanzania's most recent effort to embrace community-based conservation and devolve authority for natural resource management to a local level of administration. The official objectives of the SNWC include: protecting a critical cross-border migratory route for elephants and other fauna, conserving a miombo woodland ecosystem that is increasingly fragmented, strengthening rural livelihoods through and incomes from sport hunting, eco-tourism and other sustainable natural resource management strategies, and finally curtailing the illegal transboundary trade in ivory (Baldus, Hahn, Mpanduji, and Siege 2003). Once completed, the SNWC will form one of the largest protected transboundary ecosystems in Africa with approximately 150,000 square kilometers of *miombo* woodland within its borders. While the ecological rationale for the Corridor has been clearly articulated, the governance and socio-economic implications of the SNWC deserve further exploration. Likewise, little attention has been paid to how the SNWC, and the WMA model upon which it is premised, is situated within and influenced by, the history of wildlife conservation policy of Tanzania.

In 1991 the Selous Conservation Programme/GTZ initiated a pilot project for community based wildlife conservation in Ruvuma Region in order to create Wildlife Management Areas as buffer-zones for the Selous Game Reserve. This pilot was later developed and expanded into what is now the Selous – Niassa Wildlife Corridor. In the northern half of the Corridor (where SCP activities were concentrated) community based conservation activities have been underway for 17 years. However project implementation in the southern half of the SNWC was only initiated at the end of 2005. While this research was being conducted, project activities were focused on the southern half of the Corridor, specifically capacity and institution building.. *Therefore this preliminary summary is in no way intended to serve as a final evaluation.* Rather, it is hoped that this research will contribute to and inform participants about the social and economic effects and future impacts of the Corridor.

Overall Research Objectives:

The following data and observations are based on a *preliminary* review of data collected during my Ph.D. dissertation fieldwork between September 2007 and June 2008. Using the Selous Niassa Wildlife Corridor (SNWC) as a case study of large-scale conservation, the overall objectives of my research included an appraisal of the conceptualization, design and implementation of the Selous Niassa Wildlife Corridor (SNWC), and a projection of how the Corridor will influence local livelihood strategies in the future. This summary represents only a partial aspect of the overall research project.

Methods:

Several methodologies were used in the course of my research including: participant observation, questionnaire surveys, in-depth qualitative interviews and archival research. *The following summary refers exclusively to data collected from the questionnaire surveys and qualitative interviews.*

The specific objectives of the questionnaire survey and qualitative interviews were to:

- (1) update existing socio-economic baseline data for a sample of villages in the SNWC
- (2) capture residents' perceptions and knowledge of the SNWC
- (3) clarify the proximate and root drivers of land use change in the SNWC
- (4) capture current natural resource utilization patterns in order to project future impacts of the SNWC on local livelihoods.

The questionnaire addressed the following topics: household and village-level demographics, land use, land tenure, agricultural practices, natural resource utilization and villagers' understanding and perception of the Selous Niassa Wildlife Corridor (see Appendix II).

Data Collection and Analysis

A total of 158 individuals were interviewed using a questionnaire survey. An additional 71 individuals (village leaders, elders, village committee members and village game scouts) participated in qualitative interviews either individually or in small groups. The questionnaire survey was pre-tested from 3-7 December and then further refined. I conducted fieldwork between 1 February and 6 May 2008 in the following villages of Namtumbo and Tunduru Districts (see Table 1).

Table 1: Summary of villages visited

Village	Number of participants (questionnaire survey)	Number of participants (qualitative interviews)	Sub-Total
Amani	12	10	22
Hulia	11	7	18
Kindamba	8	2	10
Ligunga	15	3	18
Lusewa	15	3	18
Magazini	20	11	31
Marumba & Molandi	13	14	27
Misyaje	3	2	5
Mchomoro	23	4	27
Nambecha	19	2	21
Ndenyende	13	7	20
Semeni Settlement	6	6	12
Total	158	71	229

Preliminary summary of quantitative data

The following summary is based on the data from 158 questionnaire surveys collected in the twelve villages listed above (Marumba and Molandi were counted as one village given their proximity to one another). Averages from each individual village were compiled and then a total average was calculated for all thirteen villages. Only the total figures are shown below. It should be noted that these figures represent *the sample*, and not necessarily the larger population as the data has not yet been tested to confirm statistical significance. Nonetheless it is my hope that the following information can inform and update existing social and economic baseline data within the Corridor.

Demographics

Baseline demographic data was collected for each village from the Village Executive Officer: All data was collected in either 2007 or 2008.

Table 2: Summary of demographic data

Village	Population			Total # households	Dependency Ratio
	Male	Female	Total		
Amani	511	654	1165	186	.81
Hulia	800	920	1720	250	n/a
Kindamba	300	400	700	250	n/a
Ligunga	n/a	n/a	3665	601	1.4
Lusewa	3600	4061	7661	991	0.2
Magazini	3600	3945	7545	763	n/a
Marumba	n/a	n/a	3376	584	0.5
Molandi	n/a	n/a	3042	456	n/a
Misyaje	595	706	1301	301	n/a
Mchomoro	3431	3715	7146	739	0.3
Nambecha	2005	2067	4072	479	0.4
Ndenyende	834	1124	1958	369	0.5
Semeni Settlement	n/a	n/a	448	72	n/a

Table 3: Summary of demographic data

<i>Indicator Measured</i>	<i>Total average or total average percent ($\Sigma\%$)</i>
Total number of respondents (questionnaire survey)	158 (94 male, 64 female)
Average age	45.1
Average household size	6.9
Alternative sources of income beyond agriculture	55%

Socio-economic status

A socio-economic index was used to estimate material wealth and social status per household. The index ranges from 3-25 and is calculated by counting manufactured consumer goods such as bicycles, cell phones, as well as structural characteristics of the house, education level and membership in a village or political committee. The scores are calculated based points assigned for each indicator (see Appendix III).

Preliminary results (see Figure 1) indicate a relatively normal curve, with a mean of 8.3 and median score of 8.2 (n=151). A preliminary appraisal of the data suggests that the distribution of material wealth and status is not significantly uneven, however further statistical tests are required to reach any final conclusions about the data.

Figure 1: Scoring results from socio-economic index

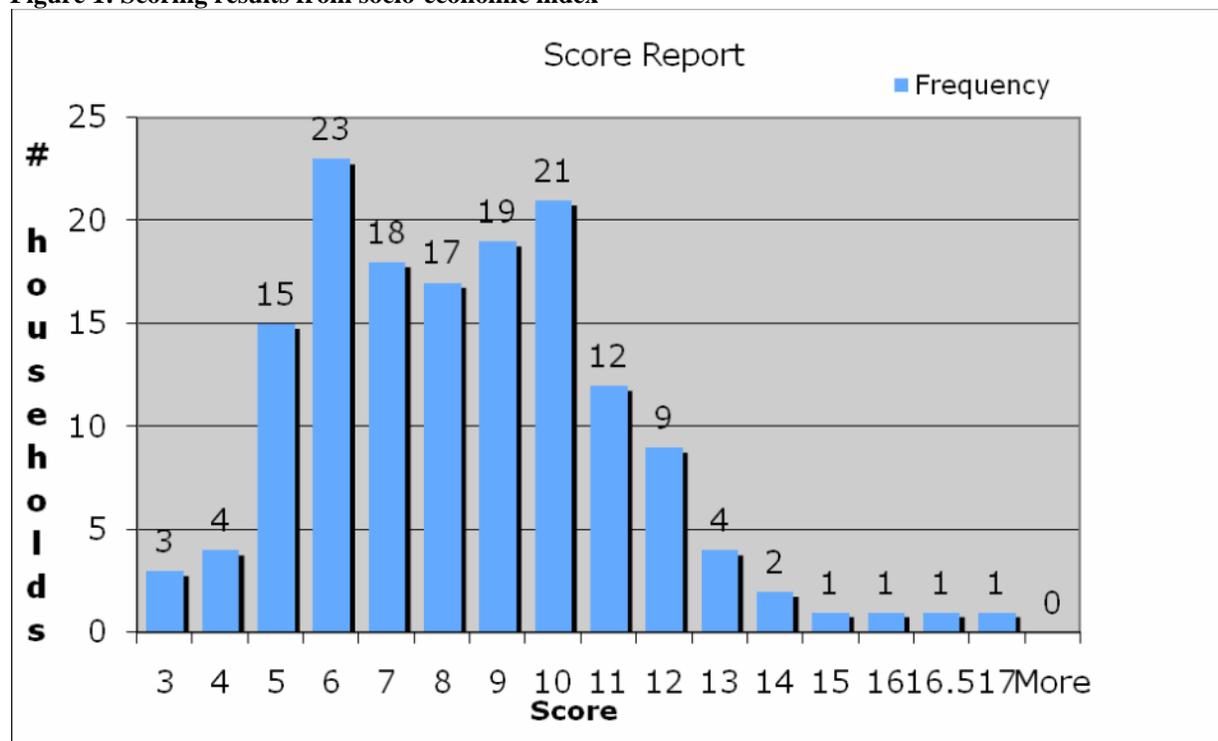


Table 4: Summary of socio-economic index data

<i>Indicator Measured</i>	<i>Total average or total average percent ($\Sigma\%$) n=158</i>
Radio owned in household	50%
Bicycle owned in household	45%
Cell phone owned in household	6%
Television/video owned in household	>1%
Membership in either village or political committee	63%
Building material for house (mud, brick or cement) (scoring ranges from 1-3 accordingly)	1.8
Roofing material (thatch grass or iron sheets) (scoring ranges from 1-2 accordingly)	1.4
Education Level (scoring ranges from 0-5)	1.5

Attitudes

Respondents were asked a series of questions about their knowledge, attitude and perceptions of the Selous Niassa Wildlife Corridor (or “ushoroba” as the Corridor is referred to in Kiswahili). As with all attitudinal research caution should be exercised when interpreting results because perceptions may not reflect actual behavior or knowledge. Nonetheless the responses are useful for understanding not only what residents may perceive or understand, but more importantly *what they want to convey* to an outsider researcher about their attitude and/or knowledge.

Table 3: Summary of attitudinal data

<i>Indicator Measured</i>	<i>Total average or total average percent ($\Sigma\%$) n=158</i>
Percent familiar with the term “ushoroba” *	74%
Percent that agrees that wildlife is increasing	75%
Common benefits associated with “ushoroba”	1. purchase of game meat legally at fair price 2. income for village projects 3. ability for future generations to see wildlife
Common costs associated with “ushoroba”	1. crop damage from wildlife 2. people attacked by wildlife 3. loss of land for agriculture
Percent stating they do not <i>currently</i> have enough land for farming	27%
Percent stating they will not have enough land for farming <i>in the future</i>	57%

* includes recognition of the term “ushoroba”, but not necessarily any objectives of the project

Agriculture and Land Use:

A primary threat to the Selous Niassa Wildlife Corridor is considered to be the uncontrolled and unplanned conversion of land for agricultural purposes (Baldus et. al. 2003; Bloesch, U. and Hahn R. 2007). However it is hypothesized that the conversion of miombo woodlands into agricultural farmland is neither random nor unplanned; rather there are specific local and extra-local forces that drive this conversion. In order to explore this hypothesis, data was collected to analyze both the proximate and root drivers of land use change in the Selous Niassa Wildlife Corridor. A series of closed and open-ended questions focused on agricultural systems and customs (cash and subsistence crops), labor, crop acreage, crop fallowing/rotation, land tenure, and the practice of shifting cultivation (see Appendix II).

Table 4: Summary of land use and labor data

<i>Indicator Measured</i>	<i>Total average or total average percent ($\Sigma\%$) n=158</i>
Average number of farm plots/household	2
Average distance to farm plot from house	2.4 miles
Average total planted acreage/household	10.5 acres
Average reserve acreage/household	3.5 acres
Total Acreage (planted + reserved)/household	13.5 acres
Average fallow time/household	2.3 years
Percent hiring labor for farming	38%
Average amount paid for farm labor	15,000-20,000 TSH/acre for cultivation 7000-10,000 TSH/acre for weeding
Average using fertilizer	22%
Reasons for clearing a new farm plot	1. After 3-4 years soil is “tired” 2. Lack of fertilizer 3. Cash required to pay school fees 4. Crop damage from wildlife

Table 5: Summary of average farm plot size data (sorted by crop)

<i>Indicator Measured</i>	<i>Total average or total average percent ($\Sigma\%$) n=158</i>
Average plot size (rice)	1.9 acres
Average plot size (maize)	2.7 acres
Average plot size (cassava)	2.7 acres
Average plot size (cashews)	4.6 acres
Average plot size (groundnuts)	1.3 acres
Average plot size (tobacco)	1.5 acres

Natural Resource Utilization

A series of questions were asked to understand what types of natural resources are commonly utilized (or harvested) by village residents. Some caution should be used when interpreting this data; for example many respondents (figures forthcoming) reported using traditional medicine but only 23% on average stated that they harvested traditional medicines *themselves*. From an economic perspective, timber and fish were often harvested for commercial (versus subsistence) purposes. A small percentage of respondents (figures forthcoming) reported selling honey or mushrooms. High expectations were however recorded about the recent formation of village bee keeping associations and the potential to earn cash from the sale of honey. Respondents were less enthusiastic about the potential to sell mushrooms given that they are perishable and are freely available to anyone who is willing to forage. Nonetheless, a small number of women (<10 out of 158) reported selling mushrooms locally in the village or along the roadside.

Table 6: Summary of natural resource utilization

<i>Indicator Measured</i>	<i>Total average or total average percent ($\Sigma\%$) n=158</i>
Number of times firewood collected per week	2.2
Average distance travelled to collect firewood (miles)	1.8
Number of times game meat purchased in 2007	0.9
Percent collecting firewood	100%
Percent collecting wild fruits	86%
Percent collecting mushrooms	81%
Percent collecting traditional medicine	23%
Percent fishing (subsistence or business)	18%
Percent collecting honey	17%
Percent harvesting timber (legally)	2%

Comments on data:

In addition to the quantitative data provided above, the questionnaire survey revealed a number of important trends, conditions and insights that merit some comments as they add context and clarification to the numbers listed above.

Land Use

In the northern half of the Corridor there has been a marked shift from the planting of tobacco to rice (particularly in the villages of Nambecha and Mchomoro). The reasons given by villagers for this shift included a high input of labor in return for a low crop price, grievances with tobacco cooperatives regarding poor grading and delay in payments, and the practice of loaning money to farmers for fertilizer which then must be paid back by all cooperative members. Conversely, the price of rice has been steadily increasing, it requires comparatively less fertilizer and labor than tobacco, it is directly sold by the farmer and can be consumed if not sold. Throughout the Corridor rice is a critical cash crop for the majority of households and is used to pay secondary school fees, house improvements and other capital intensive needs.

The availability of wetlands, and not labor, is the limiting factor for rice production in the Corridor. In some areas, wetland areas are perceived too small by villagers to meet the growing demand for rice. Because wetlands are also critical habitats for wildlife there is growing competition between farmers and wildlife, as well as potential for increased human wildlife conflict. Given their value as critical habitat for wildlife and watershed management many wetland areas have been, or are expected to be, included within the Selous Niassa Wildlife Corridor. Accordingly, farmers may face an increasing shortage of wetlands for rice production which could eventually lead to a conflict over the boundaries of the Corridor as residents demand more fertile land in the future.

It is not clear if existing Village Land Use Plans (VLUP) anticipated the current growth in rice cultivation or competition between wildlife and farmers in wetland areas. Future land use plans in the southern half of the Corridor (which are expected to be carried out in 2008) should consider the importance of wetlands for both human and wildlife populations when identifying and demarcating the Wildlife Management Area (WMA) boundaries.

Discussions with villagers revealed several other important trends and conditions related to the practice of shifting cultivation. First, villagers report clearing new farm plots more frequently than did their parents or grandparents. The primary reason given for clearing a new farm plot was that the current soil was exhausted, and fertilizer was either not available or too expensive. Therefore, the price and availability of fertilizer appears to be correlated with the clearing of new farm plots. External factors that appear to be driving the conversion of forest to farmland include the subsidization and promotion of fertilizer use by the government until the mid 1980's which created a dependency on agricultural inputs, the increased price of fertilizer over the past 15 years, and an increased demand for cash at the household level.

Finally it is worth noting that while the average fallow period for the sample (n=158) was two years, I believe that there was some confusion between the concepts of crop rotation and fallowing when the survey was delivered, thus there may be some inaccuracy in this data..

Another interesting trend is that land acquisition based on inheritance is decreasing, and younger people are increasingly relying on clearing their own land or "borrowing" land from neighbors.

As compared to their parents, many younger farmers (< 40 years) admitted they have not set aside a sufficient amount of reserve farmland for their children (the average reserve acreage being only 3.5 acres for the entire sample). With less land being left as an inheritance, I anticipate that an increased amount of virgin (or previously uncultivated) land will be cleared for farming in the future.

Fifty-seven percent (57%) of respondents stated that the current size of their farms would be of insufficient size in the future. The most frequent explanation for this shortage was population growth. When asked how they planned to resolve this problem the majority of respondents stated they would find more land by either “borrowing” land from a neighbor, or simply clear a new plot on their own. A minority of respondents (figures forthcoming) stated they were concerned that they would not have enough farmland in the future because the most fertile land would be demarcated as a Wildlife Management Area and therefore off limits to farming.

Attitudes towards the SNWC

While almost three quarters of all people interviewed (n=158) were familiar with the term “ushoroba”, there was a distinct disparity in both awareness and knowledge about the SNWC between the northern and southern portions of the Corridor (see Table 7).

Table 7: Average percent recognizing the term “ushoroba” in southern and northern villages

<i>Northern Villages</i>	<i>Percentage</i>	<i>Southern Villages</i>	<i>Percentage</i>
Hulia	55%	Lusewa	100%
Mchomoro	54%	Ligunga	93%
Nambecha	42%	Magazini	100%
Ndenyende	31%	Amani	92%
Kindamba	38%	Marumba and Molandi	85%
		Misyaje	100%
		Semeni	100%
Total Average Percent	44%		96%

This distinction is attributable to the fact that since 2005 the majority of awareness raising and sensitization activities have focused on the southern half of the Corridor with funding from United National Development Program/Global Environmental Facility. In contrast, the northern half of the Corridor was originally supported by the Selous Conservation Program as a pilot project which ended in 2005 and was later incorporated into the SNWC. Respondents from northern villages referred frequently to the SCP project and the village hunting quota that the project initiated, but understood very little about the design, concept or implementation of the

Corridor. A frequent comment was “I have heard the word ushoroba but I do not know what it means or what it is about.”

There was also tremendous confusion and even jealousy in the northern half of the Corridor about which villages are included in “ushoroba” and why. Several northern village leaders were unsure if their village was included in the Corridor, nor could they explain even the basic objective of the Corridor. Ushoroba was described by some (northern) villages as only benefitting the south, and leaders expressed frustration that the criteria for inclusion in the Corridor was not more transparent.

When asked to describe the objective of the Corridor many respondents from the southern portion of the Corridor associated the project with restriction and prohibition. The Corridor was described as a project to “arrest poachers” and was explained in terms of patrols, arrests, collection of levy fees and the prohibition of access to natural resources such as timber, game meat and fish. This is not surprising given the heavy focus on anti-poaching in the south since 2005 in an effort to increase wildlife populations and reduce illegal logging.

It is important to note however that residents throughout the Corridor articulated both benefits and costs associated with the project (see Table 3). The most common benefit cited by villagers was the provision of game meat through an annual village hunting quota. Although respondents only purchase game meat on average once per year, the annual hunting quota generates considerable support for the Corridor project by providing both protein and income for village development projects. Those villages in the southern half of the Corridor which have not yet received a hunting quota are anxious to receive it, and village leaders expressed growing frustration as to when they would receive their quota. The majority of respondents (in both the north and south) cited crop damage and attacks on humans by wildlife as the primary “costs” of the Corridor. Finally, a majority of respondents perceived human wildlife conflict to be increasing because wildlife populations were increasing.

Finally, it was noted during my fieldwork that the price of domestic (e.g. non game meat) protein sources such as goats, chickens and fish has increased substantially over the past three years (figures forthcoming). Of course some of this increase may be attributable to inflation and it is difficult at this preliminary stage to draw any correlation between the implementation of the SNWC and the rise in cost of other protein sources.

Sociological Impacts

The formation of village natural resource committees, community based organizations and the training of village game scouts all have significant sociological impacts within each village. This is not surprising given that in many villages the SNWC is the only externally-funded development project functioning in the community. Environmental sociologists are concerned with how changes in the access to and use of natural resources may influence social systems. In the case of the Selous Niassa Wildlife Corridor, my preliminary observations suggest important changes in hierarchy, solidarity and norms.

Hierarchy is an important social variable which dictates how resources and values are distributed in any social system. Hierarchy can be observed in how wealth, power or decision-making

authority is distributed among residents in a village. The formation of new institutions (including community based organizations, village natural resource committees and village game scouts) has altered hierarchy patterns in the village in interesting ways. For example, committee membership entails access to highly sought after values such as education, wealth, respect and authority. As such, there is considerable competition to be elected as a natural resource committee member or village game scout. As residents compete for hierarchical rank, accusations of nepotism, corruption and general mismanagement are common. The frequent ousting and replacement of committee members was described by several respondents as the best way “to prevent only a few people from benefitting too much”. The high turnover in membership, particularly among village natural resource committee members, poses a significant challenge for capacity building in the SNWC.

Finally, the training of young male youth as village game scouts has had an enormous influence on their identity and status within the village. Village game scouts discussed how they not only benefited from receiving training and occasional access to game meat, but also that their status had changed upon their return from game scout training. One man stated, “the other villagers now respect me”, and another commented, “they [villagers] come to see me if they have a problem...they know I am a serious man now”.

Solidarity, or the collective duties, ties and responsibilities that bind a village together have also been influenced by the SNWC. For example, with the creation of natural resource committees, decision-making authority over natural resources no longer rests solely with members of the village government. Conflicts and jealousies have erupted as natural resource committee members and village government leaders compete for authority and access to the benefits that accrue from the SNWC (such as attending seminars and collecting daily allowances). Several village chairmen complained that their village game scouts had become “overly aggressive or “kali” in dealing with local residents, and that members of the village natural resource committee were acting “on their own without any communication or permission from village leaders.” In another anecdotal example, a group of village game scouts challenged the authority of the village chairman by interrogating and fining a group of villagers for illegally harvesting timber when the chairman had given official permission to collect the timber for a village development project.

Conclusion

The data provided in this summary clearly indicates the importance of natural resources in sustaining and improving local livelihoods. However my results and observations also reveal that access to and control over natural resources is a primary means of accessing power, wealth and respect. The implementation of the SNWC has had - and will continue to have - significant social and economic impacts within the twenty-nine villages that are responsible for the Corridor. It is my hope that this preliminary summary will augment existing socio-economic databases and serve as a stepping stone for further in-depth qualitative research within the Selous Niassa Wildlife Corridor.

References Cited

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Appendix 1: Summary of small group discussions

Village	Leaders/Committees	Date	Total number of people
Amani	Village Chairman (1) Village Executive Officer (1) Kisugule CBO (2) Land Use Committee (2) Natural Resource Committee (2) Village Game Scouts (2)	9-10 April 2008	10
Hulia	Village Chairman (1) Village Executive Officer (1) Natural Resource Chairman (1) Former Natural Resource Chairman(1) Elder (1) Village game Scouts (2)	3-7 December 2007	7
Kindamba	Village Chairman (1) Nalika CBO (1)	7-8 May 2008	2
Ligunga	Village Chairman (1) Village Executive Officer (1) Natural Resource Committee (1)	3-4 March 2008	3
Lusewa	Village Chairman (1) Village Executive Officer (1) Ward Executive Officer (1)	2 March 2008 5 March 2008	3
Magazini	Village Chairman (1) Elders (4) Kisungule CBO (3) Land Use Committee (2) Natural Resource Committee (2)	5-8 April 2008	11
Marumba	Village Chairman (1) Village Executive Officer (1) Village Game Scouts (4) Land Use Committee (2) Natural resource Committee (2)	21-23 April 2008 25 April 2008	10
Mchomoro	Village Chairman (1) Village Executive Officer (1) Land Use Committee (1) Elders (2)	28-30 January 2008 1 February 2008	4
Misyaje	Village Chairman (1) Village Executive Officer (1)	23 April 2008	2
Molandi	Village Chairman (1) Village Executive Officer (1) Land Use Committee (1) Natural Resource Committee (1)	22 April 2008	4
Nambecha	Village Chairman (1) Village Executive Officer (1)	11-14 February 2008	2

Ndenyende	Village Chairman (1) Village Executive Officer (1) Natural Resource Committee (2) Nalika CBO (2) Village Game Scout (1)	5-6 May 2008	7
Semeni	Village Chairman (1) Village Executive Officer (1) Village Government Members (3) Elder (1)	24 April 2008	6
TOTAL			64

Appendix II: Questionnaire Survey

SECTION 1. Demographic/Socio-Economic Data

1. Gender of respondent:

2. Age of respondent:

3. # children (0-14) _____Male _____Female _____(Total)

4. # children in household _____Male _____Female _____(Total)

5. # adults (15-60) in household _____Male _____Female
_____ (Total)

6. # elders (>65) in household _____Male _____Female
_____ (Total)

7. Socio-economic scoring indicators:

Building material of main house (mud, brick, or cement):	
Roofing Material (grass/iron sheets)	
Radio?	
Bicycle?	
Cell phone?	
Television?	
Fuel source(s) for cooking?	
Household membership in any committees (village or political)?	

4. Education level completed:

None	
Primary incomplete	
Primary complete	
Secondary incomplete	
Secondary complete	
Diploma	
Vocational training	
University	

5. Were you born in this village?

6. If no, where did you move from, and when?

7. Number of village meetings attended last year?

Section 2: Land Use General

1. Do you engage in farming (this includes subsistence, cash crops or a house garden)?

2. Do you have any other sources of income?

3. How many separate farm plots do you currently cultivate?

4. Types of crops currently grown?

SUBSISTENCE CROPS	Size (acres)	Distance from home (miles)

CASH CROPS	Size (acres)	Distance from home (miles)

5a: Do you have reserved land for the future (if yes, how many acres)?

6. Types of crops that you have grown in the past?

Subsistence Crops	Cash crops

7. Can you explain why you changed crops (if applicable)?

8. Do you hire any laborers to work on your shamba (for either food or money)?

9. What do you pay for this labor?

10. When was the last time you cleared land for a new shamba?
11. Do you leave your shamba fallow? If yes, for what length of time?
12. Can you explain why people would decide to clear a new shamba instead of leaving land fallow?
13. Do you use fertilizer?
14. Can you clear land for a new shamba anywhere you want, or do you need permission?
15. How did you acquire the land for your shamba(s)?

Inherited	
Borrowed	
Applied to village government	
Purchased	
Lease	
Cleared	

Section 3: Selous Niassa Wildlife Corridor (Ushoroba)

1. Have you heard of "Ushoroba"?
- 1a: If yes, *where* did you hear about it and *what* can you tell me about it?
2. Do you know anyone in this village involved with the Ushoroba project?
3. In your opinion, what are the benefits of this project?
4. In your opinion, what are the negative impacts or costs of this project?

5. Do you know if any people have or will be moved to create Ushoroba? Explain.

6. Did they move voluntarily?

7. Are there any other projects to conserve natural resources in this village?

8. Is there a natural resource committee in this village? If so, what do they do?

9. Do you know if this village has a land use plan? If yes, what do you know about it?

Section 4: Natural Resource Utilization

1. Do you or anyone in your household collect the following (versus purchase)?

RESOURCE	FREQUENCY	Who Collects	Distance
Firewood (Kuni)			
Wood for charcoal (mkaa)			
Roof thatch (nyasi or makuti)			
Honey			
Mushrooms			
Palm leaves (ukindu)			
Medicinal plants			
Fish			
Wild Fruits			

2. Do you harvest any crops from trees (cashews, coconuts, oranges, bananas)?

3. Do you eat game meat? If yes, how many times did you buy game meat in 2007?

Section 5: Land Use, Wildlife and Livelihood Perceptions:

1. Do you think you *currently* have enough farmland to meet your needs?

2. Do you think you will have enough farmland to meet your needs *in the future*? Why?

3. What can be done about this?

4. Do you think it is an important to conserve wildlife? Why or why not?

5. Do you think there is more or less wildlife in this area compared to the past? Why?

6. In your opinion, what are the biggest problems people have in this village right now?

7. How can these problems be solved?

Appendix III: Socio Economic and Status Scoring Sheet

Indicator	Score Assigned
<i>House Construction</i>	
Mud	1
Brick	2
Cement	3
Grass thatch roof	1
Iron sheet roof	2
<i>Material Goods</i>	
Bicycle	1
Radio	2
Cell phone	3
Television	4
<i>Social Status</i>	
Number of people in the household with membership in either a village or political committee	1 per person
<i>Fuel source</i>	
Firewood	1
Charcoal	2
Kerosene	3
<i>Education Level Completed</i>	
None	0
Primary Incomplete (>Std. 4)	1
Primary Complete (Std. 7)	2
Secondary Incomplete	3
Vocational Training Complete	4
University and Post Graduate	5
<i>Maximum Potential Score</i>	25
<i>Minimum Potential Score</i>	3