Mapping perceptions of space:
Community importance, need, and change
in Mto wa Mbu

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Fall 2016
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Acknowledgments

I would like to thank Oscar for his feedback on the logistical aspects of my project, and Felicity for her feedback on my methodologies and final drafts, and for advising me. Thank you as always to Drs. Oetter and Sumpter for their geographically minded feedback throughout this and all of my projects. Thank you also to my parents, without whom I would never have had this opportunity. Shout out to the three other students I lived with, Anna, Cora and Anilyn, for filling my time and sharing chipsi mayai and habari moto moto with me every evening. My deepest thanks to George, my translator, who gave me invaluable information about the interior roads and always found willing interviewees, and to Bruno, who was not my translator but who took us out on Saturday nights and hiking on Sunday afternoons. Thank you to rafiki zangu Rangoo and Angeli, who shared pizza with me and taught me new Swahili vocabulary (polepole). Finally, my sincerest thank you to Pasco, Innocent, other Oscar, Frank, Sousa, and all the painters at Rafiki Art Studio that we had the privilege of meeting, learning from, cooking with, and sharing laughs with throughout the too-short three weeks we were in Mto wa Mbu. Your company was irreplaceable, and I enjoyed every second you allowed us to invade your everyday lives. You taught us much more than just how to paint.
Abstract

Cities throughout the African continent have been developing at an unprecedented pace, many of them due to the influence of the tourism industry. This is particularly true in Tanzania, a country famous for its national parks and their ability to draw in tourists and, through them, money for development. However, this is only the tip of the iceberg, and the only way to get the whole story of what people think, do, and need is through the experiences of the people themselves. This study focuses on a small town in northeastern Tanzania called Mto wa Mbu, situated on the northern end of Lake Manyara National Park, and its people’s perceptions of the park, important communal features, community need, and temporal change. Throughout the study, 72 semi-structured, opportunistic interviews were conducted with residents of varying demographic backgrounds. It was discovered that agriculture, tourism, and the environment were the most important features to participants (not the national park). Over half of participants thought the park was within the community, and 25% perceived it as separated. Residents overwhelmingly pointed out the need for a hospital and more schools, as well as better infrastructure for water (flood control and irrigation) and interior roads. In spite of this, three-quarters of changes experienced over time were perceived as positive, with the largest improvement occurring on the social service front. Finally, in response to the need for improved interior infrastructure, much of which is impassable in the wet season and compromises the health and livelihoods of hundreds of residents, GPS mapping was conducted and a visual overview of priorities for road improvement based on condition and traffic was generated. Ultimately, the results of the study should assist the community of Mto wa Mbu – its leaders, its people, and its park – in future land use and urban planning by demonstrating the importance of listening to the voices of the people, the real experts. Furthermore, the study aims to catalyze the improvement of interior infrastructure essential to the livelihoods of residents through the priority map generated. The results show the steps that need to be taken and provide recommendations for how people, the government, and the national park can work together effectively to bridge the wide gap that currently exists between these actors for the ultimate benefit of all of them.
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Appendix A. Interview questions for participants

Nuts and Bolts
“Place incarnates the experiences and aspirations of a people. Place is not only a fact to be explained in the broader frame of space, but it is also a reality to be clarified and understood from the perspective of the people who have given it meaning.”
- Geographer Yi-Fu Tuan, 1979

1. Introduction

The above quote by famously influential geographer Yi-Fu Tuan summarizes the meaning of place in geography. Whereas ‘space’ is simply a location bereft of meaning, a ‘place’ is given meaning by humans, and in turn becomes very valuable. The study of place, even on a local scale, is a complex one for two reasons. First, a community itself is a place, yet within that community there are sub-places, such as homes, shops, and places of worship, which themselves are places and are therefore important. Second, the meaning of a particular place may differ between people, even within the same community. As a result, the community may be perceived very differently by people of varying ages, sexes, occupations, levels of education, family structure, and experiences. Because of these differences, and the possible consequences and implications they have on the community, it is important to study the relationship between people and their communities. It would be impossible to understand a place without knowledge of its people and their perceptions of their own space. This study, therefore, focuses on the perceptions of people of varying demographic backgrounds in Mto wa Mbu, a small town in the Arusha region of Tanzania located on the northern end of Lake Manyara National Park. A study of this kind has never been conducted in this region, but its importance to understanding inter- and intra-community dynamics as they relate to demography, land use and management, and conservation issues cannot be understated.

The intent of the project is to develop an overview of community space, need, and temporal change in Mto wa Mbu based on the unique perceptions and experience of its residents. This will be beneficial to me, as a geographer fascinated with perceptions of space and place around the world, and to the people of Mto wa Mbu itself, as it will provide to the people a comprehensive overview of the important spaces in their community, allowing them to reflect on their own perceptions of community space and how it relates to other members of the community. This has the potential to initiate conversation about bringing together community members and bridging gaps that may exist between people and their needs. Overall, the purpose of this research is to 1) gain an understanding of important features within the community for planning and reflective purposes; 2) gather resident perceptions on the relationship between the community and the nearby national park to bridge the divide that has developed between them; 3) work to understand what community members need and how they can get it; 4) analyze if and how the community
has changed over time – and whether these changes have been positive or negative – to gain insight into what changes can be expected in the future; and 5) map the quality of interior roads in order to catalyze and prioritize future infrastructural improvement. In other words, the ultimate goal of this project is to take the opinions and experiences of residents and use them to give back to the community.

2. Study Site

Mto wa Mbu is a relatively small community in the Monduli district of the Arusha region of northeastern Tanzania. In English, its name means “river of mosquitoes.” The population is 11,405, compared to the total population in the Arusha region of nearly 1.3 million (Government of Tanzania, 2012). Of this population, 52% of people are female and 48% are male, and the average family size is 3.7 people (Government of Tanzania, 2012). The climate is semi-arid with two wet seasons during the year, one in October to November and the other in April to June (Mrema, 2015). It is the only place in Africa where all four families of African languages occur together, as they city is home to upwards of 120 different tribes (Muganda, 2009). The three principle sectors of its economy are irrigated agriculture, business ownership, and tourism (Mrema, 2015). Mto wa Mbu is a popular tourist destination due to its proximity to Lake Manyara National Park and its location in Tanzania’s northern tourism circuit, conveniently on the road to Ngorongoro Crater and Serengeti National Park (Muganda et al., 2010; Figure 1). Economically, tourism is an immensely important industry in Mto wa Mbu: The largest proportion of people, 30.9%, work either in curio shops or directly in the tourist industry as guides, company operators, or drivers (Luvanga & Shitundu, 2003).

The site was chosen for this project because of its relationship to the tourism industry. The importance of community need is especially potent when such high potential exists for growth and wealth due to the lucrative industry of tourism, but whether people receive the services they actually need is another story entirely. Similarly, another criteria considered for site choice was the proximity of Mto wa Mbu to Lake Manyara National Park (LMNP). Many indigenous people in Tanzania have a long and complicated relationship with national parks, including eviction from ancestral lands and resources and exclusion from policymaking decisions (Igoe). It will therefore be beneficial to uncover how people perceive LMNP in relation to their community, and provide insight into how the relationship between the park and Mto wa Mbu can be fostered and improved upon.
3. Literature Review

Much of the work relevant to my study was carried out by former students in the School for International Training (SIT) programs in northern Tanzania. My methods were supported by past research from Nicholson (2007) in which mass surveys were distributed to street vendors in Arusha by non-random selection in order to accurately represent demographics of the population. Another student led semi-structured interviews to farmers in Kizanda village in the West Usambara Mountains over 15 days, asking people to indicate on a map where their food is grown, used, and sold (Reich, 2003). This student used a semi-structured interviewing approach as well, going into the process with set questions and then letting interviewees elaborate as they found important topics to them. Drawbacks pointed out by the researcher included translation requirements and difficulty generating a complete and representative picture of the community. It was also recommended that future students use less open-ended questions in interviews, compile maps together rather than using individual ones, conduct individual interviews towards the end rather than at the beginning of the study, and take coordinates of people’s residences using a global positioning system (GPS) unit, all of which I considered when developing my methodology.

For detailed mapping, Mallams (2011) used a Garmin GPS to take coordinates of points of interest around a nature reserve in northern Tanzania, also taking elevation points for some in order to create a digital elevation model (DEM) of the study area. This researcher also created a more visually appealing and accurate map upon his return, since geographic information systems (GIS) software was not available in country. Another student used similar methods at Ndarakwai in the western Kilimanjaro region (Knight, 2000).
4. Methodology
My research consisted of two parts: 1) informal, semi-structured interviewing using opportunistic sampling, and 2) GPS mapping of interior infrastructure. Primary data was collected in the town of Mto wa Mbu over a period of 14 days from the 7th to the 26th of November, 2016. As part of my methodology, I constantly reviewed my questions to find room for improvement and analyzed the responses I received to figure out any possible help I could provide to the community through my study. The result was the second part of the project, which was added in the third week of the study in response to overwhelming community demand for improvement to interior roads.

4.1. Interviews
The first part of the project involved informal, semi-structured interviews conducted in either English or Swahili, depending on the ability and comfort of the interviewee. Interviews conducted in Swahili proceeded as such: I asked questions one at a time in English, my translator related them in Swahili, they were answered in Swahili, then translated back into English. I used an opportunistic sampling method in which I found people at work, in the streets, or in their homes, explained my work, and obtained permission for a few minutes of their time for a few questions about their community. This is an accepted method of research among social scientists and geographers, and has the potential to provide a fairly representative sample of the population (Clifford et al., 2010). This method was by far the most viable method for my purposes because no demographic overview of the community exists at this time (pers. comm., city mitigation technician). Therefore, my original plan of non-randomly sampling based on demographic representativeness was impractical.

After appropriately greeting people, introducing myself, and making it clear that their participation is completely optional and that they need only answer the questions they feel comfortable with, the interview began. Interviews generally lasted between 5 and 15 minutes, with some lasting up to 20 minutes, depending on the amount of information people volunteered and the language in which the interview was conducted. Interviews consisted of six questions (Appendix A). There was no direct question about socioeconomic class; instead, it was inferred from occupation, language of the interview (people who speak English tend to be more educated and therefore wealthier), setting, and if compensation was provided (only less wealthy participants asked to be compensated). I also tried to judge socioeconomic class relative to other residents of Mto wa Mbu, rather than by Western standards. I left out a direct question about class because of cultural sensitivity surrounding questions about income in Tanzania.

Upon completion of data collection for the first part of the project, I compiled the demographic information first by manual methods and then in Excel. I found average age and residency time both overall and by sex. By assigning values of 1, 2, and 3 to low, middle,
and high socioeconomic classes, respectively, I was able to calculate averages for this data as well. The first feature listed by participants for the question on important locations was taken as the most important feature, the second as the second most important, and so on. I compiled all features listed as the most important ones and analyzed them for demographic patterns among respondents (e.g., were women more likely to point out agriculture as more important?). Only up to the first four features listed were considered because very few people volunteered more than this. Then, for the first features, I further analyzed demographic information of the respondents for basic statistics and patterns. I did the same for the remaining questions, again running basic qualitative statistical analysis for each. I then produced graphs in order to easily visualize my results. After basic analysis was complete, I began sifting through my interview notes to pick out specific information pertinent to each question, including quotes and interesting thoughts or experiences people shared. The result is a comprehensive overview of community experience, space, and need.

4.2. Map of Interior Roads
In the second part of the project, I mapped the interior infrastructure of Mto wa Mbu using the smart phone application Easy GPS. I corroborated my data points with a handheld Garmin GPS obtained from the SIT office. To accomplish the desired result, I walked with a guide through the backstreets of the town, none of which are paved, recording the longitude and latitude coordinates of the points once per minute. I took note of the condition of the road and assigned a letter value (G = good, M = medium, P = poor; Figure 3) to this aspect of the data; I also observed the volume of traffic moving along the road and assigned letters to this characteristic as well (H = high, M = medium, L = low). I assigned these characteristics to roads by comparing them to other interior roads, rather than comparing them to the paved road. In addition, I recorded the coordinates of points of interest such as homes, shops, bridges, and water sources. I then transferred the points to Excel to prepare them for entry into ArcMap, a popular type of geographic information systems (GIS) software. This process included compressing the metadata into a usable format from my field notes and converting the coordinates from degrees-minutes-seconds (DMS) into universal transverse Mercator (UTM), a projected coordinate system that allows computation of distance and other valuable spatial information. Because of lack of access to ArcMap in-country and limited internet availability, I was not able to make a final heat map displaying priorities for infrastructural improvement; however, I will do this upon my return to the United States. There, I will enter my data points and metadata into ArcMap and digitize lines connecting the points to represent the roads. Finally, I will work to appropriately symbolize the data based on the roads’ condition and volume of traffic as well as points of interest along them. The result will be a map depicting the main interior roads of Mto wa Mbu and data that suggest priorities for their improvement.
Figure 3. Examples of good (G), medium (M), and poor (P) condition interior roads, respectively. Road condition was classified as good if there were minimal rocks and debris, poor if it contained large imperfections such as mud holes (shown) or debris, and medium if it was somewhere in between.

5. Results

5.1. Interviews

5.1.1. Demographic Information

I interviewed a total of 72 individuals over a period of 10 days. There were 46 males and 26 females whose ages ranged from 22 to 75 years, with an average female age of 37.8 years, male age of 37.1 years, and overall age of 37.4 years (Figure 4). The average socioeconomic class (1 = low, 2 = middle, 3 = high) was 1.46 or lower-middle class; the averages for females are males were 1.19 (lower) and 1.61 (middle-lower), respectively (Figure 5). Residency times ranged from one to 79 years with an average of 26.4 years for females, 23.6 years for males, and 24.96 years overall (Figure 6). Of the 72 interviews, 44 were conducted in Swahili and 28 in English.

Figure 4. Age ranges of participants.
5.1.2. Important Features

Agriculture, tourism, and the environment were the three most commonly listed most important features, followed by the national park and water (Figure 7). For the second most important feature, responses included agriculture, water, business, and tourism (Figure 8). Tourism, business, and agriculture were commonly pointed out for the third most important feature (Figure 9). “Water” encompasses responses of lakes, rivers, and precipitation.
Figure 7. Participant opinions of the most important feature in their community.

Figure 8. Participant opinions of the second most important feature in their community.

Figure 9. Participant opinions of the third most important feature in their community.
Focusing on the most important features, a demographic overview was constructed (Figure 10). The five most common responses to this question were agriculture, tourism, environment, the national park, and water. People that gave “agriculture” as their first response were twice as likely to be male and tended to be significantly older on average (41.4 years; between 3.7 to 8.5 years older) than people in other categories. The youngest average group (32.9 years) listed the national park as most important. People with a longer mean residency time (at least 30 years) were more likely to respond that agriculture or the environment are most important, while people with the shortest mean residency times (fewer than 20 years) listed tourism or water instead. While an equal amount of men and women offered tourism as their response, no females thought water was the most important community feature.

![Figure 10. Demographic overview of participants whose responses included one of the five most common features.](image)

### 5.1.3. Lake Manyara National Park

A majority of participants (43 or 60%) considered the national park to be part of their community, 25% responded that it was outside, and the remaining 15% estimated the park to be about half inside and half outside of Mto wa Mbu (Figure 11). People who perceived the park as being within the community averaged 37.8 years of age, 24.8 years of residence, and lower-middle class socioeconomic status. Those who responded that the park is outside the community had a lower average age and residency time but higher socioeconomic status than those who responded that it is inside. The undecided respondents had the highest mean age (40 years) and residency time (26.8 years), but the lowest mean socioeconomic class (Figure 12).
Based on similarity in responses, community needs were divided into general categories (Figure 13) and then into specific subcategories (Figure 14). Participants overwhelmingly agreed on the communal need for improved social services such as schools, hospitals, and banks in Mto wa Mbu. The need for education of residents was the second most common response at 17% – specifically, education on the tourism industry (5 responses), conservation (11 responses), laws (4 responses), and agriculture (3 responses).
Figure 13. Overview of general categories of community need in Mto wa Mbu.

Figure 14. Participant responses to community need grouped by subcategory. Note that general category responses are not shown, e.g. if someone mentioned education in general it is not counted.

5.1.5. Temporal Change

Figure 15 provides an overview of the types of changes participants pointed out. They were overwhelmingly positive (75%), although a significant 24% of changes were negative. Only four participants (1%) observed no changes. Specific positive and negative changes are detailed in Figure 16. The most common positive changes mentioned were social services;
among these the most common was the presence of electricity now (not shown). Infrastructure, specifically the tarmac road (31 participants), and population increase (12 participants) were other common positive changes. As far as negative change, the most common category was environmental change. Flooding (17 participants) was the most common response in this category, followed by overpopulation (13 participants). 16 participants noticed no negative changes.

![Figure 15. Overview of participant perceptions of community change.](image)

![Figure 16. Overview of positive and negative community changes.](image)

5.2. Map of Interior Roads

I collected a total of 334 data points on 16 different roads over a period of 4 days. Of these, eight were main roads and eight were other roads. Five sections of road were in good (G) condition, 11 sections were in medium (M) condition, and eight sections were in poor (P) condition (Figure 17). Furthermore, eight sections of road carried high (H) traffic volume, 10 sections carried medium (M) traffic volume, and one section carried low (L) traffic volume.
(Figure 18). Figure 19 depicts the proportion of roads of each combined type (GM, PL, etc.). The most common type was MH at 34%, followed by MM at 24%. The fewest number of roads were of type PL (1%).

In addition, an overview of the points I collected is shown as a placeholder for the map I will produce upon return to the United States (Figure 20).
6. Discussion

6.1. Interviews

The kind of information I received was not what I originally expected. When I envisioned my project – asking people about what is important to them within their community – I expected them to give me the locations of places that drive their everyday lives. People’s places of work and residence, for example, must be among the most essential for their wellbeing. Others places I had anticipated being mentioned included church or mosque, restaurants, stores where household shopping is done, recreational locations (e.g., the soccer field), agricultural fields, the national park, and infrastructure such as rivers, roads, and electric lines. While I did receive a few of these responses, what was volunteered for the most part was very different and much more general. For example, many people mentioned things like the practice of agriculture and the environment in general (including precipitation, rivers, and the Rift Valley) as the primary important features of their community. I am not sure if this means people misunderstood the wording of the question or if residents of Mto wa Mbu simply have a better understanding of the big picture than I do; either way, I was glad to have my preconceptions (and misconceptions) of community space in the town challenged and corrected. Furthermore, the only experts on services the community is in need of are the people themselves, so their input is invaluable and they deserve a chance to share their experiences for the betterment of the whole community. The people have spoken, and their voices follow.

6.1.1. Demographic Information

The only significant difference between sexes was socioeconomic class: Females (average of 1.19) tended to be much closer to lower class than males (average of 1.61). This makes sense in the context of Mto wa Mbu because men tend to have better access to education, and therefore better-paying jobs, than women. This theory is supported by the proportion of men that spoke English (24, over half of the total amount of males) compared to the number of women that spoke English (only 4, all of whom worked as translators and in the tourism industry). Similarly, females appeared to have a lack of mobility relative to males: 46.2% of women I interviewed – almost half – had lived their whole lives in Mto wa Mbu, compared to 32.6% of men. Lacks of mobility, lack of access to education, and lower relative socioeconomic status for women are likely all connected, and these factors make the input of female respondents particularly valuable as their different experiences told very different stories than their male counterparts.

6.1.2. Important Features
Agriculture was the most common response by far across the first, second, and third important features that people discussed. This makes sense in the context of my sample, which included more farmers than any other occupation, and in the context of Mto wa Mbu, whose largest industry is irrigated agriculture (Mrema, 2015). Therefore, it can be concluded my sample was probably representative of the population in this regard. It also makes sense that tourism was such a common response – 33 people considered it to be in the top three most importance places – because the highest percentage of employment in the town is through the tourism industry and because tourism is the third largest sector of the economy (Luvanga & Shitundu, 2003; Mrema, 2015).

The most common response for the first most important feature was agriculture, followed by tourism, the environment in general, the national park, and water. Respondents for agriculture were the oldest and of the lowest socioeconomic class, and had among the highest residency times. This makes sense because many people who pointed out agriculture as most important were farmers, and the farmer demographic tended to be older and less wealthy – and therefore less mobile, causing their residency times to be higher – than interviewees of other occupations. People with the highest average socioeconomic class (1.67) tended to choose water as the most important. LMNP was indicated as most important by the youngest group (mean age of 32.9), while tourism was indicated by the people with the lowest residency times (mean 16.7). I do not have hypotheses as to why any of this would be true; perhaps a larger sample size or questions specifically targeting these issues would help explain. Furthermore, an equal amount of men and women pointed out tourism as most important, which is significant considering the sample demographics which favored men. This could be explained by the fact that many of the women I interviewed worked in the tourism industry and therefore considered it to be of personal and communal importance.

The focuses of future education and city planning efforts can be gleaned from the results. Clearly, priorities for preservation are agriculture, the environment as a whole, the national park, and water (the latter two of which can be considered part of the environment). People suggested ways that agriculture can be made better: With better technology and access to education about effective farming practices, farmers could make the most out of the land and be able to sell or feed their families more efficiently. Many participants also pointed out the value of education about environmental conservation – including park conservation – to the long-term livelihoods of the town as a whole. This is also connected to agricultural practice, since land conservation will keep agriculture viable in the long run. It can therefore be concluded priorities for education in the future should be focused on conservation of the environment and land, which will support the principle industries of tourism and agriculture in Mto wa Mbu.

6.1.3. Lake Manyara National Park
Over half of participants considered the national park to be inside of their community. There were many and varied justifications offered for this opinion. The most common was the assertion that the park provides support to community members, particularly those closest to the park, in various forms. First of all, some portion of all park proceeds – about $5 of every individual entry fee, according to a key stakeholder I interviewed – gets funneled back into Mto wa Mbu (pers. comm., retired driver guide). Several people pointed out that several years ago, when a water channel breached, support for its reconstruction was provided by LMNP, an example of park officials working with village leaders to solve community problems. The park provides desks and other supplies to schools, and builds classrooms and water infrastructure for them as well. If funeral support is needed, LMNP rents vehicles for those in need. People can enter the park to collect firewood if they pay a tax, the use parts of the lake for fishing for an additional tax. Support for farmers, healthcare, and the dispensary also comes from the park. Finally, wardens work to reduce human-wildlife conflict by chasing animals back into the park if they bother residents and by compensating people for damage to crops caused by animals. Several participants pointed out, however, that compensation often is not distributed because the appeal process takes a lot of time and money that many people do not have, and even if a case is won, people often do not receive the full amount they are owed; therefore, most people simply cut their losses when animals destroy their crops. This has a large socioeconomic impact on residents, many of whom depend on their harvests to make a living, feed their families, and send their children to school.

Another main point was the indirect benefits brought to the community by the presence of LMNP. Tourists visit the town, not just the park, and therefore help the community by supporting farmer and small businesses, such as painting and woodcarving, and by staying in hotels and campsites around town. Cultural walks provided by cultural tourism companies like the Cultural Tourism Program (CTP) and others help bring tourists and businesspeople together. The presence of nearby Maasai communities also draws visitors in because of their ubiquity in tourist advertising and images of Tanzania. Tourists also sometimes donate to schools and healthcare centers when they visit. Some people are also employed through LMNP as driver guides or fishermen, though usually temporarily and for short periods during the high tourist season, and do not get paid well for their labor. This employment, however, provides opportunities for the youth to care for themselves, and reduces crime by keeping people busy and providing income. Overall, tourism allows people to afford to live as they do, and people suffer during the low tourist season because of this dependence.

A third reason provided for the inclusiveness of LMNP in the community was its effects on the knowledge and perceptions of residents on conservation issues. The community would not exist if the park were not present, and the reverse is also true – it is an interdependent relationship. People need the park in order to survive. It is therefore essential to conserve the park, though many people do not understand this, as several
participants asserted. Community conservation efforts provided by a department of LMNP have helped bridge the gap between people and the park. Because of these efforts, people have an increased awareness of wildlife and environmental issues, and decreases in both poaching and deforestation have been observed as a result. However, more education is needed and should be provided by the park itself: Poaching in secret, despite the consequences, is still an issue because there is a profit to be made – unemployment is the underlying issue here. Furthermore, plastic dumping due to lack of a central waste management system such as a city landfill has drastic negative effects on the wildlife which draws in tourists whose spending supports the livelihood of the town as a whole. With more education, as one interviewee asserted, people will realize that they need the park if their current livelihoods are to be supported in the future. Overall, however, people in this category believe that the park belongs to Mto wa Mbu, and that even though the two entities may be separate, they are still an integral part of one another.

Exactly a quarter of participants were of the opinion that LMNP is outside the community of Mto wa Mbu. The main justification given by these individuals was that locals see very little tangible benefit from the presence of the national park; instead, the government, specifically Tanzania National Parks Authority (TANAPA), enjoy most of the benefits while providing few social services to the community. If the park was inside of the community, as one interviewee phrased it, then people should not have to worry about problems like the need for more schools, teachers, and hospitals. Money funneled in from tourism does not have the potential to benefit most people; there is very low return on money from the tourist industry, even though it is this that explains the existence and location of the town. In fact, some participants pointed out that the only thing people see in return from the park is punishment for hunting, fishing, or gathering firewood for their families. If the park would provide some of these services for residents, then people would not have to perform them illegally, risking their lives and livelihoods. Furthermore, park management should provide education to the community about the conservation of wildlife and the environment. Human-wildlife conflict is also a huge issue, particularly for those in close juxtaposition to the park: Elephants, hippos, and other wildlife are allowed out of the park and often raid, eat, and destroy people’s crops and farms. The park provides no compensation, though in theory the government is required to pay people in this event. Also, people are sometimes killed by animals that exit the park, and LMNP should but does not compensate for loss of life (not that you can compensate for life, as one participant clarified; but some support should still be given). The people I interviewed were upset that animals were allowed outside the park, but people are not allowed in, and questioned the priorities of their government when it comes to caring more for animals or people.

An interesting point some interviewees brought up was the change that has occurred in the relationship between the park and the community over time. Many people said that LMNP used to be part of the community years ago because people received direct benefits from park management and the government. These benefits included the
construction of classrooms and fences for local schools; permanent, well-paying employment by TANAPA; and enhancement of living standards. The only benefits received now are indirect, and these apparently are not enough to justify the inclusion of LMNP as part of the community for many residents. Local people do not have authority in decision-making or policy implementation that affects their community anymore, and corruption is more of an issue at every level than it has ever been. Some participants suggested that perhaps park management is to blame for this estrangement of the park from the community.

Finally, a few participants were indecisive about the position of the park relative to the community and decided it was about half inside and half outside of Mto wa Mbu. They again tended to point out that most benefits are indirect, and that the only residents that benefit are ones working in the tourism industry. As mentioned previously, people are being left out of decisions on important issues pertaining to development and policy, leading to social and political isolation of the local people. Like others pointed out, the national park has the means to give back to the community but does not – for example, they are capable of improving the interior infrastructure by bringing gravel to make the roads passable in the rainy season. Another person brought up that LMNP used to distribute permits to residents for special events years ago, but does not anymore, and they therefore could not tell if it should be considered a part of the community or not. To summarize this indecisive point of view, the park is geographically inside but economically outside of the community, as one interviewee phrased it.

It is important to note that some of the information I received from people was conflicting. For example, people who considered the park to be inside the community told me people are allowed to take firewood from some parts of the park, while participants who believed the park was outside Mto wa Mbu said that firewood collection is not allowed or that paying a tax is required before it is allowed. One person told me that $5 of every entry fee into LMNP is returned to the community, but other sources say it is 25% of park proceeds (pers. comm., Paschal). People were also divided about the difference between direct and indirect benefits: Most people thought that the park provided only indirect benefits, through such avenues as tourism and employment, but some people referred to these as direct benefits and reasoned that the park was therefore very much a part of the community. Finally, and ironically, several participants thought that people cared less for the park because of a lack of education about conservation and the interdependent relationship between the park and the community; but it was the more educated people who considered the park to be outside of Mto wa Mbu.

6.1.4. Community Need

By far the most common thing people said that they needed was a modern hospital with better services and access to medicine. There is currently only a health center in Mto wa Mbu, the services provided are poor (e.g. there is no ultrasound), and there is no pharmacy,
meaning patients must purchase expensive medicine for themselves offsite. If someone has a major ailment they must be transferred to Arusha, which is expensive and time-consuming, and people with bigger problems often die if they cannot afford the trip. Calling an ambulance is also very expensive, even though it is necessary for many as the local health center can prove very far away due to population spread. Some people said that the new hospital should be a government one so that everyone can afford to go, while others said that the services provided by a private hospital would be superior. An issue related to healthcare is education, and the two should go together, according to participants. The main needs for schools include more books, more teachers, and more classrooms because they tend to fill quickly. Some interviewees thought that the government should build a bookstore near the school to increase access to essential materials, because now parents must travel to Arusha in order to buy books with which their children to attend school.

Other needs mentioned as far as social services included banks, electricity, and special care facilities. Most people said there were plenty of banks compared to how it used to be, but that more are needed. Reliable electricity was brought up by one interviewee, but for the most part people thought communications and power infrastructure had seen much improvement already. Several people mentioned the need for elderly care, since the number of children people have is decreasing as the youth move away from their hometown, and thought that the government should provide support to those incapable of working due to age. Furthermore, special health insurance and other support for caretakers who provide for their elderly family members should be made available by the government. Increased care for orphans and the disabled were also pointed out as important community needs. Finally, due to petty theft and other crime around town, both security and insurance for robbery and other indiscretions are needed.

As far as infrastructure, three main needs were brought up: Water, main roads, and interior roads. Only three interviewees mentioned the main roads needing improvement, and their justification was to make export of bananas and other crops easier and more efficient. The people of Mto wa Mbu seemed to have a love-hate relationship with water: They get enough to support viable agriculture year round, but sometimes they have too much and flooding results. Flooding infrastructure is needed to prevent community destruction during the wet seasons. A possible solution would be a pipeline between Mto wa Mbu and the nearby Maasai lands, which are, in contrast to my study site, dry and often unable to support cultivation to the same level. There is enough water to go around, and Mto wa Mbu often has too much, so the addition of a water pipeline connecting the two locations would solve several problems at once. On a related note, the interior infrastructure of the village, as previously pointed out, floods regularly (the magnitude depends on condition and geography; e.g., Figure 21) and requires improvement. People thought that the government should build bridges and channels to funnel water away from the community in order to preserve the livelihoods of the residents who depend on the roads.
While needs for primary and secondary schools are important, education of a different vein is also needed. Residents of Mto wa Mbu, as many participants pointed out, need education about conservation, tourism, laws, and agriculture. The water table is dropping due to increasing population of the city, and education about water conservation is needed. Deforestation is occurring due to increased need for agricultural land, and since this will cause long-term degradation of the land, people need to be educated about techniques to preserve forests such as tree planting. Lake Manyara itself is in peril as well, and some participants thought the lake would disappear soon, and the wildlife that call it home along with it. Effects on endemic species will be stark, so education on the short- and long-term benefits of park conservation is essential. Finally, people are largely ignorant of the effects of global climatic change in the long-term (although they are aware of effects on their everyday lives and livelihoods, and have observed negative changes affecting the land and water around them). People also need to understand the dynamics and importance of the tourism industry, according to five participants. Instead of refusing to allow photos, people should encourage the intake of information through this medium by tourists while recognizing that this system supports their livelihoods. Often, because of lack of access to education and illiteracy, people do not understand laws that affect their everyday activities. Punishments for poaching and lumbering occur often, and all laws are written in English so many people cannot understand what these punishments or their consequences are. Widows could also use knowledge of the law to their benefit, as they are disadvantaged when their husbands abandon them and they are left with no home. Overall, people need to stop valuing other things over education, as one participant pointed out – however, this is a multi-layered issue because the things people value over education are things like working and making money to feed their families, and encouraging their children to do the
same. Clearly, there are bigger problems underlying the lack of education problem that need to be addressed alongside the issue of education.

Other needs in the community were technological: More technology is needed in advertising for tourism, marketing, and agriculture. Farmers would benefit from knowledge of future weather forecasts to plan for what crops to plant (work is being done on this front in East Africa, for example a phone application being distributed to farmers in Kenya). Employment, particularly for youth, is needed in order to reduce crime and provide them the means to support themselves. The establishment of small industries would help with both this problem and the need for surplus crop storage to reduce food waste. An interesting and important need was pointed out by five interviewees: The need for representation of the town in the government. Corruption begins at the village level and permeates practically every level of government since it is easy money to be a politician, and often even those with good intentions end up disconnecting from their community in favor of fulfilling their own ends. People need to be able to depend on their representatives, because without trust between the community and their government it is very difficult to progress. The same problem is present between the community and the national park. “There is a black blanket” pulled over the eyes of the people by selfish politicians, and it needs to be removed in order for the community and these important interdependent relationships to evolve in a positive and beneficial way (pers. comm., retired driver guide).

6.1.5. Temporal Change
A perfect link between community need and community change was offered by one interviewee: “If there are needs in the community, there must be change” (pers. comm., officer). Three-quarters of community changes mentioned by participants were positive, with the most significant advancements made in infrastructure and social services. The main road, connecting Mto wa Mbu to the famous northern tourism circuit of Tanzania, is now made of tarmac, which has greatly improved its quality. This has attracted more tourists, reduced travel time to Arusha from one day to two hours, and made crop export easier and less expensive. Apparatuses of transportation have diversified as well, as people use borabora (motorcycles) more to get around, although I still observed the majority of people walking or riding bicycles. Pipes have been built to transport water for domestic use, saving people time and energy traveling long distances to fetch water that may not be fresh. Only one person mentioned an improvement in interior infrastructure, so it can be inferred that it has not changed and perhaps has worsened.

Electricity was the most commonly pointed out social service that has improved. Since the early 2000s Mto wa Mbu has been improving its electricity accessibility, and this has led to reduced crime, youth employment in various industries, and the proliferation of grinding machines that help improve road quality. There are also more modern houses and buildings now: They used to be almost all mud-and-stick homes, but now cement block
construction as well as more two-story homes have replaced the old building type due to an increase in living standards. People are also investing in houses by building many rooms and renting them out, making their homes into a kind of bed-and-breakfast experience for visitors. There are now more modern schools, including private and international schools. Healthcare has also improved, as there are more hospitals (including private ones) now, but there are still not enough; however, non-government organizations (NGOs) are helping. Employment rates have increased: More people are starting their own businesses as entrepreneurs, and the tourism industry employs people in hotels or as guides. Crime has also decreased as a result of increased employment. Banks have made money transfers much easier, although more are needed (and are coming, according to some participants).

Other positive changes included those in agriculture, specifically increased access to seeds, fertilizer, and pesticides and advancements in technology that have made farm practices more efficient and increased crop yield. Many participants also mentioned population growth and development as positive changes, as they have added more people to the workforce and caused the town to grow, all due to tourism activities. Tourism money has been used positively for development, attracting foreign residents, investment, and support and bolstered small businesses by bringing tourists on walks around town and encouraging them to buy from local people. An increase in business activity has allowed both the skyrocketing of crop exports to Kenya and beyond and the proliferation of used clothes markets, which means that parents can afford shoes and other inexpensive necessities for their children to attend school. Communication infrastructure, including land and cellular phone use, has greatly improved. Two lesser-mentioned but interesting points brought up by interviewees pertained to gender and culture. First, more and more women no longer depend on their husbands, which they used to as recently as 10 years ago. They own their own homes and businesses now, and many women groups have formed around town that provide meals for workers; this has helped to empower women and make their voices heard, which is definitely a positive change. Secondly, since Mto wa Mbu is home to over 120 tribes that have moved into the area over the past few decades, mixing of tribes and beneficial cross-cultural exchange has ensued (although there are also negative effects of this; see below). Finally, less illegal poaching occurs now than in the past, and this is a positive step forward because it means employment in the community has increased and that tourists will continue to visit the national park with reduced risk of inability to see certain animals. Only one person had not seen any positive change in the community, and overall people seemed pleased with the changes of the past few years and hopeful about them continuing into the future; the community and other actors working together can create a “great Mto wa Mbu” (pers. comm., woodcarver A). In fact, 16 participants could not think of any negative changes, asserting that they have all been positive.

That being said, there were also significant negative changes that deserve mention. As one participant asserted, all good changes also have a negative impact (pers. comm., woodcarver B). By far the most common thing participants spoke about was the increase in
magnitude and frequency of *mafuriko* (floods). Years ago, flooding in the community itself only occurred in 10 to 15 year intervals; however, recently floods have come every five years, and sometimes less than that. Participants pointed out two reasons for worsening floods: 1) the accumulation of dust and soil in the riverbeds due to banana plantation farming, which decreases the depth of the river and increases the likelihood of river overflow, and 2) the construction of the tarmac road, which increases the amount of precipitation that becomes runoff or overland flow compared to the amount of infiltration into the ground. Several people gave an example of a very bad flood three years ago in 2013 that destroyed homes and flooded much of the community, and blamed the government for its lack of response to the new demands being placed upon the community by environmental change: They believe the government should construct flood infrastructure, such as bridges, and work to expand the river and redirect its flow to Lake Manyara in order to decrease the magnitude of devastating floods that compromise people’s livelihoods by cutting them off from the community. Wildlife decline was another issue raised by several interviewees, who pointed out that due to development and deforestation, some species that are important both because they are key to ecosystem function and because they bring in tourists that support the community are disappearing. People pointed out unemployment for one of the reasons for this, because people poach and fish illegally for money when they cannot find work. Climate change, which is linked intrinsically to many other issues, has negatively impacted resource availability. The water table has dropped; the land has changed and become less receptive to cultivation; deforestation has removed vital keystone tree species, and by extension, species that depend on trees; and all along population continues to increase and make the situation worse. Furthermore, due to the modern way of life, noise and exhaust pollution from automobiles, as well as dumping plastic and other waste and burning it locally due to a lack of a central waste management program, has worsened. To top it off, people have noticed more mosquitoes – and, therefore, more malaria and other mosquito-borne diseases affecting humans – than ever before, and agricultural diseases that affect entire harvests of crops are increasing in prevalence as well. Finally, uncontrolled burning of farmland causes destruction of fields, which is a larger issue now due to the close juxtaposition of farms necessitated by the construction of more homes and buildings to accommodate a growing population. Overall, people tended to affiliate most negative environmental changes with overpopulation of the community, and one interviewee considered the resulting land destruction to be “just like a curse” (pers. comm., environmental officer).

Three types of conflict have also increased in the past years: herder-farmer, human-wildlife, and general crime. Maasai pastoralists bring their cows and goats through the streets and farms of Mto wa Mbu to graze on the greener pastures, causing destruction of land essential to farmers’ crop yields and lifestyles. A quick look at a map of Mto wa Mbu compared to neighboring Maasai lands reveals why: Mto wa Mbu is green all year, while many Maasai people are unable to even farm the land is so dry, much less water their herds
(Figure 20). Water pipes are needed between the main town and Maasai villages, as there is enough water for everyone (Mto wa Mbu often actually has too much; see flooding section above) but the infrastructure to share it does not yet exist. Another seasonal conflict occurs when wildlife exits the park in the dry season due to lack of nutritious grasses and instead utilize farmland for food, often destroying it in the process. Lastly, an increase in crime has resulted from a combination of overpopulation, unemployment, and lack of sufficient police force for the amount of people in town (only 15 to 20 for the entire city).

![Image](image.png)

**Figure 22.** The main town of Mto wa Mbu (left) and the dryer Maasai lands (right).

As discussed previously, most changes in social services have been positive; however, people consistently complained that the hospital’s staff and services have not grown with the population of the town, and that medicine has become more expensive as people’s incomes stay relatively stable. Employment opportunities are also lacking in number for the amount of people that need work, due to the new government that assigns people to work when there is no work to be done (pers. comm., businesswoman). Some people noted that the condition of interior infrastructure has declined as the number of people using them has grown, and that the government should assist in their repair. Finally, the city has “no control” over sanitation, according to one participant, again due to overpopulation (pers. comm., entrepreneur).

Most people considered tourism a positive change, but some pointed out detrimental aspects of the industry: Often, only bigger businesses along the road benefit from tourist spending, and small businesses and people “have suffered” due to decreased customer flow relative to the past (pers. comm., painter). Increasing dependence on tourism also causes people to struggle in the low season due to decreased income. Lastly, its location on Tanzania’s main tourism circuit causes Mto wa Mbu to receive many driver guides and other people that remain in the town very temporarily and leave women pregnant and unable to care for the children, resulting in a higher amount of orphans than
there should be. Furthermore, workers in the tourism industry leave behind another unwanted guest: HIV. Several participants discussed this issue, and although there is no current evidence to show that Mto wa Mbu has a higher HIV/AIDS prevalence than other parts of the Arusha region, this may not be an unfounded conclusion to make due to the geography of the city. Corruption has also worsened, and several participants asserted that politicians have become more corrupt. People pay the same taxes regardless of their socioeconomic situation, meaning the lower and middle class residents are heavily disadvantaged; in addition, the money made from taxes and tourism is enough to fix many problems faced by the town but it is not put to good use due to multi-level depravity in the government. Maasai herders have been known to bribe government officials for access to farmland for grazing that otherwise would be restricted from them, causing crop field destruction; also, when wildlife from the park raid farmland, very little or no compensation is provided to the farmers. One interviewee went as far as to say that it is politicians who hold all responsibility for the negative changes experienced by the community (pers. comm., woodcarver C). People have noticed languages and cultures being disturbed, even disappearing, by the processes of globalization and assimilation: Influences from abroad obviously affect the tourist hub of a town, and this combined with the close interaction between many different tribes has the potential to result in cultural loss, which participants considered to be a negative change. On a related note, several older interviewees noticed that young women tend to wear trousers more than the generation above them, and that this is a loss of tradition that will be negative in the long run. One of these participants also asserted that technology, which is influencing the lives in Mto wa Mbu residents more and more as a result of globalization, has advanced more quickly than education and as a result has the potential to extinguish traditional ways of life. In other words, the presence of technology in itself does not change lives for the better; education is needed alongside technological advancement (pers. comm., retired driver guide). Because there are not enough opportunities for education in Mto wa Mbu, a type of brain drain is occurring in which people are moving away from villages and “natural places,” as one interviewee put it, and toward bigger cities, which affects their places of origin negatively (pers. comm., retired driver guide).

In general, people had strong perceptions about community change, assuming they had lived in Mto wa Mbu a sufficient amount of time (four participants were unable to weigh in on this question due to inadequate residency times). Projecting into the future, changes that most participants considered positive, such as globalization, improvement of infrastructure and social services, and population growth, are likely to continue; however, it is important to keep in mind and work to compensate for any negative changes that may accompany them, such as climate and land change and flooding.

6.2. Map of Interior Roads
Based on the proportions of roads with medium or high traffic and medium or poor condition, a catalog of priorities for road improvement can be developed. The highest percentage of roads (58%) was either medium condition and high traffic (MH) or medium condition and medium traffic (MM). Since the condition is mediocre and traffic is relatively high on these roads, they should be of high priority for improvement. Many roads were also of poor condition and high traffic (PH), which clearly should be priorities as well because of the high traffic volume and very poor condition. Many of the roads in this category were roads that flood badly in the wet season and are impassable by bicycle, meaning people cannot get into town to sell their goods or receive the healthcare they need. This is a particularly big problem for the elderly; some people I interviewed spoke of younger people having to quite literally carry the weight of the elderly on their backs through the floods to get into town. Hundreds of people live on the wrong side of the flooding in the wet seasons, and these PH roads therefore need to take precedence when considering what to prioritize for infrastructural improvement. Upon return to the United States, this information will be able to be visualized in a more easy-to-understand way in the form of a GIS map, and then will be returned to key leaders in Mto wa Mbu who can hopefully use my data in a way that benefits the community in the long run.

7. Conclusion
People had a lot to say about their community, as I expected and hoped that they would. Clearly, participants, and the people of the community they represent, care a lot about the past, present, and future of Mto wa Mbu and want to see the city succeed. Their input has allowed me to create an overview of community need and change that has the potential to help the community for the better in the long run.

If Mto wa Mbu is to progress in a positive way, several problems and conflicts need to be resolved in the most utilitarian possible manner. First of all, the relationship between the community and the national park needs improvement. Corruption infiltrates bureaucracy at many levels of management, funneling money away from the community that supports the park rather than into it, and the people of Mto wa Mbu have recognized this as an issue and wish to see it addressed. There are many things the community needs that could be provided by the park, such as infrastructure for roads and water, support for small businesses, and better response to human-wildlife conflict.

Secondly, it is important to recognize that although tourism supports the existence of Mto wa Mbu and the livelihoods of many of its people, its effects are not always positive. Small businesses have struggled; HIV prevalence has increased; loss of culture has resulted from increased contact and globalization processes. To view tourism as strictly positive would be ignorant, but with work, starting with constructive dialog and education about the issues, they can be addressed and the activities of tourists can prove equally beneficial to all residents rather than a select few.
Two major issues, which are linked to many community problems and are themselves interconnected, is those of unemployment and overpopulation. Rates of crimes like poaching and petty theft have increased because so many people are without work, and wildlife loss has resulted from continued poaching. Climatic and land change and resource decline have also resulted from overpopulation and population spread, and issues of water scarcity and land degradation harmful to all-important agricultural practices have arisen. Finally, flooding has worsened because of more people practicing inefficient agriculture (e.g., allowing soil erosion that decreases riverbed depth) and because of increased use and condition decline of interior infrastructure. Many people thought that the government and the national park were responsible for supporting the community in fixing these issues, but in addition to financial and skill support, people also need education on how to work on their own issues and those of the community as a whole.

Overall, the people I interviewed seemed to be generally suspicious of the competency of the government in handling (or even recognizing) the problems that affect their everyday lives. However, many people had hope that the relationship between Mto wa Mbu and the government and national park remained intact but could be improved. People expect, as they should, that organizations holding authority over their lives listen to their voices and needs and work to bridge the gap between people and their needs. The government needs to be held accountable for the issues facing the community over which they hold power, and people of the community need to be able to trust their government to take care of them. Education and community involvement and representation are the underlying needs that, if met, would allow more effective legislation and problem solving that will benefit individuals and the community as a whole in the long run.

8. Limitations and Biases
Biases always exist in translating: The interviewees’ interpretation of what the translator says and my interpretation of what the translator says are both issues, and I did not use recording during interviews so it was impossible to cross-check the information. My Swahili is good enough that I could tell whether the translator was making up something completely, however. Furthermore the translator determined where we would go and who could be interviewed, and since he worked for CTP and some interviewees (particularly the woodcarvers and painters) may have received some portion of their income from cultural walks, this could have produced response bias. My position of power (Western, relatively wealthy, outsider, educated, English-speaking, literate, etc.) and that of the translator (educated, bilingual, likely relatively wealthy, and in control of the flow of information) are unavoidable issues that I tried to lessen by greeting properly and asking questions in Swahili, but people might have held information back because of this. My opportunistic sampling method did not necessarily comprise a representative sample, as we can only talk to people who are out and about. Distractions during the interview, such as children, traffic, other social and business interactions, and other people contributing to discussion may
have influenced some responses. There is a general suspicion of research culturally, and some people wanted to know who was sponsoring me and where my results would go, which could have influenced their responses. Similarly, interview locations could have impacted people’s responses, and we also likely did not cover every representative spatial area of Mto wa Mbu where perceptions may have been different. Finally, compensating people, as I did for some participants, may have had an influence on how people answered my questions.

People might have been dishonest about their age (sometimes I noticed people telling me they were younger than they appeared to be), which could have biased my demographic data. Also, since I judged socioeconomic class rather than asking it outright, subjectivity bias may have arisen. Furthermore, categorizing qualitative data as this project required never captures the whole picture and specific individual perceptions may have been lost, although I tried to cover as many people as possible in my discussion. In the same vein, there is difficulty in projecting results of a sample onto the entire population and assuming it is representative, although my results should be fairly indicative of community opinion because of the sufficient sample size.

There may have been subjectivity on my part in rating road characteristics, as I measured this by observation rather than by exact convention. This may have influenced the proportions of roads that fall into each category. Also, I assigned only three categories for purposes of simplicity since I was rating as I walked, so more categories may increase the amount of useful information about road condition and traffic. I am also sure that I missed some features along the roads that may have proved important; however, my translator was good about pointing out features like political party headquarters and water towers that I, as an outsider, may otherwise not have noticed. Finally, limitations in time were an issue: In interviews, I did not want to take up too much of people’s time and therefore sometimes did not ask people to elaborate if they seemed in a hurry, and I did not have sufficient time to walk all of the interior roads, which would have provided a better picture of their state and how to improve them.

9. Recommendations for Further Research

9.1. Recommendations for researchers.

Learn to at least introduce yourself in Swahili rather than relying on the translator to do it for you. Swahili-speakers will appreciate your effort and feel more at ease rather than staring at you while you speak then waiting for the translator to tell them what you said; it makes the interview more personal and makes the situation more comfortable, closing the power gap in the interview a little. This also prevents you waiting for the translator to introduce you and then just jumping into your questions without having said anything to your interviewer. I noticed that some people felt uncomfortable right away, and doing this helps them feel more comfortable, and you might get better (more honest) information out
of them if you present yourself as more of “one of them” than an outsider researching them.

Don’t ask people about their income or socioeconomic status. I got around this in my interviews by asking for people’s occupations – they are much more willing to tell you about this, in fact many people are proud of what they do, and you can infer their socioeconomic status from there. There are other ways to tell that are more worth it than ruining your status with people; for example, if people ask for compensation they are likely of low socioeconomic status, and if people speak English they are likely more educated and therefore relatively wealthier.

Keep in mind that some people might not be literate. My original proposal involved handing people a blank sheet of paper and asking them to draw me a mental map of their community, but the more I talked with my translator upon arrival, the more I realized this wouldn’t be viable because many people are illiterate or have limited literacy, and this would’ve removed many people from my sample. This is something I should have considered earlier but didn’t even think about – a mistake of a privileged person.

9.2. Recommendations for future research.
The interior roads still need a lot of work in terms of study and mapping. If someone were to continue what I started – that is, marking the roads and important points along them (restaurants, convenience stores, markets) along with basic metadata (e.g., “particularly poor condition road here”), I think it would be really helpful and a good way to give back to the community. I wasn’t able to cover all of them due to time limitations, so there is definitely more to be done in this regard.

Replicating the mapping portion of the project during a different time of year would likely yield different (and revealing) results. I tried to get an idea of how the roads would look in the main wet season by observing them at the time of my project (November, the minor wet season) and by asking my guide and other residents, but it’s hard to know without actually seeing it firsthand. It may be more difficult to do, however, since many of the interior roads may be completely flooded and impassable. Taking coordinates or making note of these parts might be doable and add on to this project in a beneficial way though.
References

Businesswoman. Personal communication, 8 November 2016.
City mitigation technician. Personal communication, 7 November 2016.
Entrepreneur. Personal communication, 15 November 2016.
Environmental officer. Personal communication, 8 November 2016.
Officer. Personal communication, 9 November 2016.
Painter. Personal communication, 9 November 2016.
Paschal, Oscar. Personal communication, 2 December 2016.
Retired driver guide. Personal communication, 7 November 2016.
Woodcarver A. Personal communication, 14 November 2016.
Woodcarver B. Personal communication, 16 November 2016.
Woodcarver C. Personal communication, 15 November 2016.

Appendix A. Interview questions for participants.
1. What is your age? Sex? Occupation?
2. How long have you lived in Mto wa Mbu?
3. What do you think are some of the most important features in your community, natural or artificial? Why are these features the most important?
4. Would you consider Lake Manyara National Park to be inside or outside of your community? Why?
5. Are there any community needs that are not being met? What are they?
6. Have you noticed any changes in your community in the time that you have lived here? Have they been positive or negative? Why?
Nuts and Bolts
We got to Mto wa Mbu from Arusha via dala dala. It ended up being 12,000Tsh a person instead of the usual 6,000Tsh because they put our bags on the inside and they took up an entire seat, so make sure they put your bags on top to save some money. The bus takes about 2 hours, and it’s pretty squished so be prepared to settle in. It’s best to get a bus in the morning when they fill up quicker and you can leave right away instead of waiting for it to fill up.

Upon arrival, we went to the Cultural Tourism Program (CTP) office and they immediately hooked us up with a place to stay and translators. Bruno brought us to the Fig Tree Inn, which is 20,000Tsh a night not including food; this is a little pricey and we found a new place within the first week but the staff was really nice. There’s a restaurant and a pool, and it couldn’t be any more convenient as far as proximity to CTP and the town center. For the rest of the time we ended up staying in the apartment of a student we met at Mweka College in Moshi a couple weeks earlier, and she was nice enough to let us stay for free (although we put together a small contribution for her in thanks between the four of us). There’s also a ton of guest houses that are cheaper around town – Sunlight Lodge and Manyara Guest House are the two I can remember off the top of my head.

The CTP is a great resource; everyone there that I spoke to was really nice and helpful (not to mention hilarious). They will translate for you and/or walk with you through the town if you need to take pictures or GPS points so that you’re allowed to and no one gives you trouble. My translator was George, and he was very good and was giving me feedback on my project within 5 minutes of meeting me and making sure he understood what I was trying to ask people in order to translate most effectively. He also knows everyone in Mto wa Mbu, so finding people willing to be interviewed was not difficult. He told me if I would need to compensate participants ahead of time, and had a distinct plan for the parts of the town we could cover each week. Another student’s translator, Bruno, took us out to Double M and La Brenda pub the first weekend, and then on a hike to the waterfalls and the Rift Valley escarpment overlooking the town the second weekend. George took us to weave tapestries with some local mamas; we got to sketch what we wanted and just had to buy the materials for it for around 3,000Tsh, and then they taught us how to do it from there. A third student’s translator, Oscar, is also a painter and took us
to hang out with the painters behind the CTP office at Rafiki Art Studio, which was probably my favorite part of the whole ISP period outside of my research. We got to befriend and work with these amazingly talented artists, who are also really cool people, and most of them speak really good English too so it was nice to be able to communicate with them better. Every once in a while (once a week or so) we could compensate them 40,000Tsh total (10,000Tsh per person) for paint, canvas, and other materials, not to mention their patient and entertaining teaching. We also cooked with them (chipping in 2,000Tsh or so for ingredients) or ordered lunch with them and got it brought to the studio for 2,000Tsh a person (3,000Tsh if you want a soda too). I’d highly recommend going to meet Frank, Pasco, Oscar, Innocent, Felix and all the other painters during your stay; we ended up going every day and didn’t regret a single second!

For food, we went to the Panone supermarket by the gas station across from CTP and next to the Maasai market for basic stuff (bread, water, peanut butter, juice, soda, cupcakes...the essentials). We took a trip every other day or so to the fruit vendors behind the Maasai market to get mangoes, carrots, papaya, bananas (red and otherwise), and other stuff. Check what’s in season when you’re there – in the fall semester (summer), for example, the mangoes are on point but the oranges aren’t great. Mangoes should be 1,000Tsh for two (and if you go often the lady will give you a third for free sometimes), carrots are 200Tsh each, and you can barter to get bananas down to 1,000Tsh for 7 or 8. There are stores all along both sides of the road that sell big waters (1,200Tsh each), soda, phone credit, pens and notebooks, and basically anything you could need. We also ended up getting chipsi mayai a lot, which is only 2,500Tsh if you get it from the street vendors and takes about 5 minutes to make. Students in the past had recommended the food and nightlife at Scorpion Pub directly to the left of CTP, but it was under renovation when we were here so unfortunately we didn’t get to check it out. There is a great pizza place near Twiga Campsite called Blue Turaco Pizza Point; it’s pricey in comparison to the 1,000Tsh plates but not bad at all for big pizzas like they make (we paid about 12,000Tsh for a single pizza, and they bring you garlic bread for free). It’s about a 15-minute walk from the center of town, and very worth it. You can also take a tuktuk there for 500Tsh a person. There’s also lots of mamas around town that will make you breakfast, lunch, or dinner for really cheap – the one next to our apartment sold us mandazi for 100Tsh each (and also gave us an extra for free on occasion) and full breakfast (chapatti and chai) for 3,000Tsh each, and the painters took us to dinner one night at a mama that made wali maharage and chai for 5 of us for a total of 4,100Tsh for everyone. Seek things out and ask around – everyone’s helpful and you can probably find new places if you explore a bit!

There’s also many fabric stores and fundi (tailors) around town, and if you have leftover money I would highly recommend getting clothes made – just pick out a fabric you like at one of the many stores (with many choices), take it to one of the tailors and they can make you pants, dresses, shorts, shirts, bags, anything. The fabric should be 10-15,000Tsh for a two-piece kanga, 10,000Tsh for a shuka, and 25-30,000Tsh for six yards of kitenge, and then 20-25,000Tsh for the tailor to make what you want. It’s a fun and cool thing to do, not to mention cheap – can you imagine getting clothes tailor-made in the states for $25 or so?

As far as other things to do in Mto wa Mbu, you can rent a bike for really cheap, and it’s a great way to explore the community. Past students have mentioned that the Twiga Campsite allowed them to swim in their pool for free because they have an agreement with
SIT, but we didn’t do this. There are usually soccer games going on at least on the weekends. When we were here there was a tournament, so games were every Saturday and Tuesday at 4pm. There’s a team a bunch of the CTP translators are on or involved in, so they’ll probably tell you about when games are. The schedule is also posted outside the building where Scorpion Pub is located. The games are really fun, and definitely segregated by team supporters so make sure you sit on the right side of the field! The first weekend we took pikipikis to the ridge overlooking Lake Manyara, which is a beautiful photo op that the pikipiki drivers will likely join you for. The ride is really fun and pretty too. You can also hike to the waterfalls to swim and to the Rift Valley escarpment overlooking the city, which is beautiful and completely surreal, especially if you’re a geology dork like me. There’s also a sick baobab tree at the overlook, and if you’re into climbing there’s pegs in the tree you can try out – ask the translators to take you.