

# WOLTS Project Tanzania

## Naisinyai Summary

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This short Summary presents the main findings set out in full in the WOLTS Project Tanzania – Naisinyai Village Report, September 2017, available at [www.mokoro.co.uk/wolts](http://www.mokoro.co.uk/wolts).  
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## The WOLTS research and methodology

Mokoro's practical and action-oriented long-term strategic research project, the Women's Land Tenure Security Project (WOLTS), is piloting its methodology through a 'Study on the threats to women's land tenure security in Mongolia and Tanzania'. Working together with HakiMadini in Tanzania, we have been investigating the state of women's land tenure security in pastoral areas affected by mining investments, through both participatory qualitative and quantitative research to identify the main threats to the land rights of women and vulnerable groups. The WOLTS project's aim is to assess possible means to improve gender equity in land tenure governance and secure the land rights of vulnerable people from internal threats within communities, as well as to support communities as a whole to withstand external threats to their land and natural resources (see our website: [www.mokoro.co.uk/wolts](http://www.mokoro.co.uk/wolts)).

This Summary shares our findings from our research in Naisinyai village between June 2016 and February 2017, including initial field visits, a baseline survey and a participatory fieldwork phase. We are grateful for both the overall support of the Simanjiro district government and the engagement and hospitality of the people of Naisinyai throughout.

Our baseline survey was conducted in August 2016 with 10% of households across Naisinyai. It included 125 households, of which 103 were randomly sampled and 22 were additional female-headed households. Thus 82% of the total survey sample was randomly sampled (including 97 male- and six female-headed households) while 18% comprised deliberately targeted female-headed households (22 households). This was done to boost the total number of female-headed households surveyed so as to help uncover critical gender issues for vulnerable groups. Data from the 22 additional female-headed households have only been included in comparative analysis of male- and female-headed households, and not in all the general baseline analysis.

The participatory fieldwork phase took place in February 2017 and included 13 focus group discussions (FGDs) and 12 individual biographic interviews (BIs), involving over 104 people. Different types of social groups and individuals were specifically sought out for these discussions and interviews, so as to reflect different characteristics and issues that we considered worth exploring further after analysing our baseline results (e.g. widows, miners, monogamously/polygamously married men and women, etc.). FGDs were structured around standard participatory exercises, including natural resource and migration mapping, seasonal labour analysis, and stakeholder analysis and institution mapping. BIs followed structured question guides that were tailored to the circumstances of the individual being interviewed in order to help us learn about people's lives and livelihoods and the ways both gender relations and access to different resources have changed since their childhoods. Our research also included interviews with different local government officials as well as with representatives of mining companies and organisations working in Naisinyai.

## Location and population

Naisinyai village lies in Naisinyai ward in Simanjiro district, Manyara region, in northern Tanzania. The nearest medium-sized town is Mirerani, which borders Naisinyai immediately to the south; the Simanjiro district headquarters are based 145 km further south along a graded dirt road at the small town of Orkesemet. Naisinyai village centre is about 19 km south of Kilimanjaro International Airport, along a new tarmac road. From there it is a further 65 km west to the major town of Arusha. No precise data were available on the total land area of Naisinyai, although village leaders estimated it to be around 30 km<sup>2</sup>. The village's three main land uses are pastoralism, crop farming and mining. Parts of Naisinyai are included within the borders of the Mirerani Controlled Area (MCA), a 7 km by 2 km strip of land that is the only known source of Tanzanite gemstones in the world. According to the Arusha Zonal Mining Office as at 1 June 2016, 732 Primary Mining Licences (PMLs) had been granted

in the MCA for small-scale mining of Tanzanite, of which around 180-200 were then active, and one large- and two medium-scale Tanzanite mining companies were also present in Naisinyai.

Naisinyai contained three vitongoji (sub-villages); the two nearest to Mirerani town were more densely populated while people in the third were much more spread out. This third kitongoji (Naepo) was in the process of changing its administrative status to become a village in its own right. Across Naisinyai, extended families commonly lived together in clusters of households, with several houses or huts built near one another, and many modern houses were visible. The total population of the village as at 9 August 2016 was 8,770 people living in 1,243 households.

Six per cent of the randomly sampled households in our baseline survey were female-headed households. Extrapolating from this suggests that at least 75 households in Naisinyai were female-headed at the time of our survey. Our survey data also suggest that 56% of the population were children (aged 18 or under), 4% were elderly (aged 65 or older), and 40% were working age adults (aged 19 to 64). At least 77% of the members of our randomly sampled households were under the age of 35, a finding that is broadly in line with the national average. Naisinyai is ethnically very homogenous, with almost all inhabitants being Maasai, and Christianity is the predominant religion.

## Recent history of economic and population change

There have been dramatic changes in Naisinyai village over the last 50 years, mainly as a result of the development of mining since the 1960s. Mining operations seemed to have expanded most rapidly within the last 10-20 years, contributing to the clearing of much thick vegetation and the cutting down of trees, a reduction in available pastureland, and the expansion of settlements to accommodate the related influx of people into the local area, including migrant labourers from other parts of Tanzania. All these changes have taken place as Naisinyai itself has transitioned from being a purely pastoralist community to much more of an agro-pastoral community.

The main changes following Villagisation in 1974 were social and land use related, as sedentarisation was encouraged with the introduction of universal primary education (UPE) from 1977, and then as crop farming started to increase. There seemed to have been a particularly significant increase in crop farming over the last 10 years with the establishment of a number of large-scale farms that altered the course of the Kikuletwa river through the development of irrigation systems, as a result of which the river no longer reached Naisinyai most years and farmland there was no longer irrigated. A further change after Villagisation was greater regulation of the use of pastureland, at the same time as Naisinyai's traditional grazing areas were reported to have become notably less accessible with the development of mining, with livestock paths blocked between mining sites and dangers to livestock from mining pits.

## Livelihoods and gender relations

### Marriage and family situation

The large majority of married couples in our baseline survey were in customary marriages, with a small majority of these marriages (54%) reported as being monogamous; polygamous marriages were more common in the visibly wealthier parts of the vilage. Seventy-nine per cent of all female household heads in our survey were widowed, 14% were in polygamous marriages with their husbands recorded for census purposes as the head of another wife's household, and one female household head was separated. We felt it was possible, however, that some of the polygamously married female household heads were in practice also separated, and were thus vulnerable women, but would not record themselves as such due to the stigma around separation and divorce.

## Education

Education levels appeared to be very low and boys seemed to be generally favoured in access to educational opportunities. However, we were also told that girls had more chance to get an education nowadays compared to former times when all girls were married off at a very young age.

## Relative wealth and poverty

Housing in Naisinyai appeared to be increasingly using modern materials, with only 50% of randomly sampled households living in mud houses and only 10% having thatched roofs, as a result of cash income and related local development generated by mining. However, there were significant differences between female- and male-headed households, with 75% of female-headed households living in mud houses compared to only 48% of male-headed households. A small majority of households, and a higher proportion of male- than female-headed households, had access to either mains electricity or, more commonly, solar power; other households relied completely on battery-powered torches and/or kerosene lanterns for their lighting.

For both male- and female-headed households across the village, the most common sources of water were open deep wells nearby and outside mains taps, by means of payment and shared access in both cases. There was a wide variety of different types of sanitation provision but few gender differences in this, for example with 39% of female-headed households and 32% of male-headed households in our survey not having a toilet at all.

There were significant gender disparities in access to all modes of transport, and even though a higher proportion of female-headed households owned bicycles it seemed that they were mainly used by male members of the household. Motorcycles were the most common form of transport, reported by 36% of male-headed households in our survey but just 7% of female-headed households.

Eighty-three per cent of randomly sampled households in our survey had mobile phones, 42% had radios and 5% had televisions. Female-headed households were much less likely to have a radio than male-headed households, but gender differences were not so great for mobile phones, which 84% of male-headed households and 75% of female-headed households reported having.

Overall, our baseline survey data on housing type and materials, access to electricity, water, sanitation and transportation, and ownership of certain possessions provided some indications of relatively higher poverty rates among female-headed households. This was supported by the findings from the participatory fieldwork, which revealed specific challenges for women.

## Main Livelihoods

Almost all households appeared to engage in traditional Maasai pastoralism as their main livelihood activity. However, a general trend towards the diversification of household livelihoods away from pastoralism was reported, as a result of what was perceived to be the effects of an increasing human population in the local area, increased frequency and duration of droughts and the take-over by mining companies of the majority of the village's pastureland. Various people therefore highlighted the growing importance of crop farming, mining and small businesses to local livelihoods.

Nevertheless, the overall level of livelihood diversification still appeared to be relatively low. Sixty-two per cent of the randomly sampled households in our baseline survey had relied on only one source of cash income in the previous 12 months and 21% had relied on just two sources. Gender differences in numbers of cash income sources were not clear-cut, and four households, all male-headed, reported having no cash income at all.

Some 77% of randomly sampled households reported herding as their top source of cash income in the previous 12 months, but only 50% of female-headed households were in this category. In

contrast, while 29% of female-headed households reported crop farming as their top source of cash income, this was the case for only 7% of male-headed households. These data suggest a lower dependence of female-headed households on herding for their livelihoods than male-headed households, which in turn suggests either that female-headed households may have been more successful in taking advantage of the wider (non-herding) opportunities presented by the development of the local area, or that they have been forced to diversify their cash incomes by constraints on their rights to land and livestock, which were very different for women than for men.

Just 3% of randomly sampled households reported some form of involvement in mining as their top source of cash income in the previous 12 months, all male-headed. There were also two additionally surveyed female-headed households that reported mining as their top source of cash income, and a third that reported mineral trading. Despite the very low reporting of mining (and related activities) as a top source of cash income, several participants in our FGDs and BIs told us that many people were engaged in small-scale mining, mineral trading, and collecting and sorting left-over rubble, an activity which was mainly done by widows. Mining was undoubtedly contributing to cash incomes in Naisinyai, both directly and through its indirect effects on local economic development, but it had nonetheless brought with it numerous problems and appeared to be viewed with ambivalence.

### *Herding*

Ninety-three per cent of the randomly sampled households in our baseline survey reported that they were using their livestock and other animals for their own subsistence, compared to just 41% who reported that they were selling live animals. Livestock keeping clearly had huge cultural significance for the Maasai pastoralists of Naisinyai, with livestock used as a traditional store of wealth and status and in traditional practices such as bridewealth payments. For many local people livestock would thus only be sold when needed in times of poverty, drought or hardship, rather than being kept mainly for the purpose of generating cash. Conversely, when cash income could be obtained from other sources, such as mining or crop farming, livestock would not need to be sold.

There seemed to be quite strict gendered divisions of labour in herding, with women mainly in charge of milking and looking after old and sick animals and men generally in charge of watering livestock, taking animals on migration and livestock sales. It was very rare for any women to be involved in slaughtering animals and it appeared that in many of the female-headed households in our survey that were selling live animals, the actual sales were carried out by sons or other male relatives of the household head.

Conversely, women were reported to be more involved in herding than in the past, for two reasons. First, since the introduction of UPE children were more likely to be going to school, making them unavailable for tending livestock during school term times. Second, as the village had developed, men had become busier with other activities, including mining and crop farming, leaving many day-to-day herding tasks to women. In spite of this, longstanding norms around roles and responsibilities for livestock, with men predominantly in charge, clearly still remained.

### *Crop farming*

Eighty-two per cent of the randomly sampled households in our baseline survey reported that they were growing crops, with the average reported area of their cultivated land being 4.5 ha. By far the most widespread crop was maize, with beans a long way behind, and just a few households grew sunflowers, onions and choroko peas.

The most common use of crops was for subsistence, but at least a fifth of those growing crops had also sold them for cash in the previous 12 months, most commonly bags of maize and beans. Crop farming for both subsistence and sale took place in roughly equal proportions of male- and female-headed households, but it was male-headed households that were slightly more likely not to be growing any crops at all.

Farming was largely mechanised, with most farmers hiring in tractors to prepare their fields; some wealthier male farmers also mentioned hiring in casual labourers to help with planting seeds and weeding. This suggests that there could be constraints on the ability of poorer female-headed households to engage in crop farming in their own right on anything other than a small scale; they would have to either rely on family labour or hire labourers or tractors according to their economic strength.

Men were reported to be involved in the overall farming of crops for food in 70% of all randomly sampled households, compared to just 37% where women were involved. In our discussions about the respective roles of women and men in farming, some women claimed that men just came to help with harvesting in order to measure the size of the harvest. Further, according to most participants in our FGDs and BIs, while some married women farmed independently on plots that they were given to use by their husbands, all women generally had to assist their husbands with farming on all the household's land. Women seemed more likely to be involved in providing labour for manual tasks such as planting, weeding and harvesting, and people from other households also provided significant inputs, for payment in cash and in kind.

### **Gender Relations**

Divisions of labour within households appeared to follow traditional Maasai patterns, with women in charge of all domestic activities, including water collection and fetching firewood. Typically the male household head was in charge of allocating work to his wife (or wives), as well as to his children, assigning tasks to each household member as he saw fit.

Even though many participants in our FGDs and BIs seemed to think that traditional gender roles had changed in recent decades and that women were now more engaged in various cash income-generating activities, money still tended to be controlled by their husbands. Only small amounts, such as that from milk sales, could be kept by wives, and usually only for household purposes rather than for the wife herself. In 54 randomly sampled male-headed households containing a husband and wife, no women received any cash income at all, making them extremely dependent on their husbands and lacking any of the bargaining power that might be expected to come with making cash contributions to the household economy. However, some FGD participants (and particularly those in monogamous marriages) reported that in their household decisions concerning the use of money were made jointly.

Most women identified their general lack of any assets or monetary resources as their most significant problem. Other big challenges for gender relations were women's lack of education and a lack of substantive and meaningful female representation in local land and natural resource governance and decision-making bodies. More positively, some 15 informal women's savings and credit groups had been established in Naisinyai for women to support each other to start small businesses and buy livestock. Some women had also come up with innovative solutions to prevent the capture of money they earned by their husbands, such as through the use of mobile money.

### **Mining in Naisinyai**

Mining in the Mirerani area has expanded substantially since the discovery of Tanzanite in 1967, initially through small-scale mining and then with the involvement of bigger companies following the official designation of the MCA around 1995/96. During our baseline survey and participatory fieldwork phase the only large-scale mining company operating was Tanzanite One and the only medium-scale company operating was Tanzanite Africa. A second medium-scale company, Kilimanjaro Mining, was active again by the time of a follow-up visit to Naisinyai in the summer of 2017, while our report was being written, but it was rarely mentioned during our FGDs and BIs.

## **Tanzanite One and Tanzanite Africa**

Tanzanite One's previous owners and managers had left it with major debts when they left the company in 2014 but were widely reported to have been very good neighbours. In contrast, much unhappiness was expressed about the new management in place since then. Participants in our FGDs and BIs said that the company now hardly hired any local people and was very disengaged from the community. As a result of the changed conditions, villagers had protested against the company, and some small changes followed, such as the handing out of bags of rubble to one group of women from Naisinyai. Tanzanite One's Managing Director acknowledged to us (in the summer of 2017) that, although he was generally pleased with the company's corporate social responsibility (CSR) activities, more could still be done to support the local community; further, he said that although the company staff member who dealt with community relations in Naisinyai had a good rapport with the village chairman and spoke regularly to him, wider communication such as through community meetings could be beneficial.

Tanzanite Africa was also seen as not doing enough to support the local community and hardly employing any local people. Even though it was reported to have built a well for livestock, concerns were expressed that herders' access to pasture was frequently blocked by the company's operations and that it did not allow women to pick through the rubble for left-over minerals. As with Tanzanite One, we learned that local people did not accept this passively but instead engaged in a number of demonstrations against the company, one of which appeared to have been led by women only.

### **Small-scale miners**

Many participants in our FGDs and BIs perceived the vast majority of small-scale mining licences to be held by outsiders. While a few women had PMLs, it appeared that none of the local Maasai women had a licence. There was a general feeling of concern about lack of transparency and accountability with regard to small-scale mining, and a general perception of the powerlessness of the village government to defend people's rights. Village leaders themselves appeared to feel that the law was not in the villagers' favour, serving instead to protect the profits of small-scale miners. On the other hand, village leaders also acknowledged that some small-scale mining companies had made financial contributions to the community, for example helping to raise money to build toilets for the village schools.

### **Contributions of mining to local livelihoods**

According to many female participants in our FGDs and BIs, the benefits from mining to people in Naisinyai had disproportionately accrued to men. While women, and specifically widows, engaged in the collection of left-over rubble, this was a highly dangerous activity that ran the risk of verbal abuse, violence and rape. In contrast, mineral trading, which offered good cash income-earning opportunities appeared to be largely in male hands, and most of the jobs created by mining also seemed to benefit men rather than women. However, some local infrastructure had been built by mining companies, including wells, water pipes and taps, and some buildings had been maintained; these kinds of indirect benefits from mining were felt by both women and men. In addition, mining had clearly made a major contribution to local development in Naisinyai as a whole, in the form of markets for local food and services, the presence of new shops and the very recent construction of the tarmac road to Kilimanjaro International Airport.

#### *Jobs*

Most mining companies operating in the MCA, including the small-scale mining enterprises, did not seem to employ many local people. We were told that the main jobs given to local people were those of security guards, and those were only available to men and were difficult to obtain. According to some participants in our FGDs and BIs, 200 young men from Naisinyai had been

employed by the former owners of Tanzanite One, but nearly all of them had left their jobs and only six local people were still employed by the company. Those few men who worked in any of the mines in the MCA were said to face very difficult working conditions and low salaries. Most of the small-scale mining enterprises did not actually create any direct employment, but instead let local men do the digging and drilling and sorting of materials for them, in exchange for being able to keep and sort through the left-over rocks.

#### *Rubble sorting and mineral trading*

Because of the lack of formal job opportunities in mining many men had instead become mineral traders and brokers, buying left-over minerals from the mines and selling them on to the big Tanzanite market in Mimerani town. Although the majority of these traders and brokers were men, some women were also involved. There were signs that a few local men had become wealthy from this activity, but it was difficult to be sure about the extent to which local mining and mineral trading offered the opportunity for more than a handful of people to become wealthy, as some people with licensed mining plots said that it was hard to make much money because of the operational costs involved.

As noted above, the collection and sorting of rubble clearly offered an important cash income-earning opportunity for poor women, and widows in particular, who used the small proceeds to buy food for their children. However, there were major problems for women in this. They walked up to four hours to reach the mining sites but were not always given permission to access the left-over rocks. They were often verbally abused, beaten and raped, and at least three people had been killed, by the many young unemployed men who also waited to collect the rubble from the mining sites. Participants in our FGDs and BIs told us that women now went mostly in groups or accompanied by a man, yet continued to face harassment and danger. We were told that married women who had been raped often faced further abuse from their husbands, who blamed them for the rape, and there was a huge stigma, with many women not wanting anyone to know about the violence inflicted on them and husbands often finding out only if the woman became pregnant as a result of the rape. Even though village leaders were aware of this major issue for the community, many of the women we spoke with felt that not enough was being done to protect them.

#### **Effects of mining**

While mining companies in Naisinyai (mainly Tanzanite One) were seen as having brought some benefits to the local community, small-scale miners were seen to have brought few direct benefits but instead to have caused major social issues that especially affected women. Both large-scale and small-scale mining have created various indirect cash income-earning opportunities through rubble sorting and mineral trading. However, our fieldwork revealed many grievances with both large-scale and small-scale miners, including the take-over and degradation of pastureland, the worsening quality of water resources and, most importantly, the raping and killing of women and children.

While some people accused the village government of not standing up for the rights of the community, for example by urging individual villagers to stop protesting against the larger mining companies, others felt that the village government was powerless to act in the face of the protection that both mining companies and small-scale miners were granted by law. There were also fears that even more land in the local area would be allocated to mining following some recent geological surveying.

#### *Environmental degradation*

Although the social effects of mining were clearly felt more strongly and negatively by women in Naisinyai, environmental effects appeared to have been felt equally by everyone. It was widely perceived that the development of mining and consequent population increases had drastically

decreased forest cover and available pastureland in the village. Furthermore, both the large- and medium-scale mining companies as well as the small-scale mining enterprises were reported to drill many holes in the ground; these were often left unfilled and posed an ongoing threat to both humans and livestock, particularly in small-scale mining areas with a lack of fencing. Some people we spoke with also mentioned the general increase in pollution, as mining debris was just left strewn on the pastureland.

Particular concerns were voiced about the chemicals used in mineral processing and their inadequate disposal, particularly near human settlements. Linked to their worries about decreasing water quality, some people also thought that there had been a surge in the numbers of children and elderly women with bow legs as a result of the chemicals used by the mining companies in the MCA.

## **Land allocation processes**

### **Land governance and perceptions about the law**

Before Villagisation, land in Naisinyai was largely regulated through customary land tenure arrangements and passed down through inheritance within families and clans. However, statutory institutions had since gradually acquired more power. Anyone wanting land either for farming or for settlements now needed to apply for it to the village government or to acquire it through the market, although pastureland still seemed to be mainly regulated according to customary practices.

Both the village government and the Ilaigwanak, the traditional Maasai council, were male-dominated and women did not seem to participate in local land and natural resource management beyond their official (statutorily-prescribed quota) positions in the relevant government institutions.

While most male participants in our FGDs and BIs either claimed that women already had equal land rights to men or said that women did not need to own land, most women were very much aware of the injustices in their daily lives and wished to see progress with regards to women's land rights; however, many women were not aware of their statutory rights. Even where women were aware of the law, it seemed that social norms prevented them from claiming their rights. Furthermore, even where men were aware of the gender equality provisions in Tanzanian law, this knowledge could not surmount their deeply entrenched beliefs that women just did not need and/or had no socially legitimate claim to own land, as any land women needed would always be provided to them through their husbands or other male relatives.

### **Access to land for settlements and farms**

At the time of our fieldwork, Naisinyai did not have a Village Land Use Plan to help regulate and manage the village's land. It seemed that land allocation processes and access to land had instead become very commoditised as a result of population growth and a shortage of available land. Whereas in the past people could fence off as much land as they needed for farming or to establish a boma, nowadays everyone had either to buy or lease land or to apply for (a very limited amount of remaining available) land from the village government on payment of fees, making land access in general more difficult for poorer people.

The formal process of applying to the village government for land was the same for both farmland and land for settlements. However, it seemed that, for farmland in particular, no more at all was available for allocation, and thus nowadays the only way to get access to farmland was either through inheritance or through renting or buying it from other owners; alternatively people could go to look for farmland in other (neighbouring) villages. Most often farmland was inherited by sons but in some cases widows also inherited farms, and in polygamous marriages the inherited land was sometimes used by some wives to establish their own houses. The women's rights to this inherited land were not secure, however, as their relatives or neighbours might still try to grab it from them.

Though most people had no documents for their land, they felt sure that they owned it. However, many were aware that without documentation land rights were not secure, and they thus wished either to have statutory titles for their land or to have better protection of their customary rights.

### **Land disputes**

It was clear that a substantial proportion of people in Naisinyai considered land and natural resource disputes problematic, including disputes between mining companies, small-scale miners and the community. Likewise, on the key issue of access to justice, a majority of both men and women felt that it was not easy get a just resolution to land and natural resource disputes in Naisinyai.

Farmland boundary disputes were reported to be particularly common as the borders of plots were often poorly defined. Because of this, Naisinyai's Baraza la Ardhi (Village Land Tribunal) held meetings every Monday during farming seasons to discuss tensions between villagers. If disputes could not be solved by the tribunal, they were forwarded to the Ilaigwanak.

### **Women's access to land through statutory processes**

Although the statutory system of land allocation and the local land market in Naisinyai both theoretically granted women equal opportunities with men to access and own land, it appeared that in practice many structural challenges persisted, including strong customary norms that hindered women's access to land through statutory processes. We learned that married women could only request farmland from their husbands and could not apply to the village government for land (even if there was any land available to be allocated); likewise women (even widows) could not apply for land for housing by themselves. Given the very limited availability of land to be allocated by the village government, the lack of monetary resources to buy or lease land was frequently mentioned as an even bigger issue preventing women from getting access to land.

### **Pastureland management**

The nature of pastoralism in Naisinyai had changed significantly since the 1960s, and especially over the past decade, not only due to climate change and population growth, but also due to the large increases in mining operations, widely perceived to have taken over the majority of the village's pastureland, and increasing numbers of human settlements. The distance to pasture had therefore increased, and because of this many people said that their animals now had to be looked after by relatives or paid workers living outside the village for much or all of the year. Yet despite the pressures on pastureland resources and the increasing difficulties for herders, pastoralism was still considered by many to be their best cash-income earning option, as they could make money from livestock sales the whole year round and it was more reliable than crop farming.

### **Access to grazing areas and changing movement patterns**

A large majority of our surveyed households reported giving livestock to other households to graze, and more male-headed households relied on this mode of grazing than female-headed households. More female-headed households grazed livestock themselves either because they had no-one else (no men in their household) to do it for them or because they could not afford to pay others.

Most households in Naisinyai either sent their adult sons on migration or paid people to migrate with their animals; generally wealthier households with big herds used hired labourers while those with fewer animals depended on family members. The frequency, distance and length of migration in search of pasture appeared to have increased in the last two decades. Those who grazed their livestock 20 – 30 km away from their main settlement areas would bring them back for water every few days, but those who took their livestock 100 km away would leave during the dry season and not come back for many months, until the long rains between March and June.

Only a very small patch of pasture now seemed to be left within Naisinyai village and it was only used by very few people, mostly women with young children who needed a regular milk supply so they had to keep their cattle close by. These women were allowed to pass between the mining sites to reach this grazing area, but it was a very dangerous undertaking because of the open pits and the above-mentioned high risk of being raped or abused in areas around the mines.

A further challenge facing Naisinyai's herders was the lack of rainfall in recent years, as well as the drying up of rivers, the perceived result of both large-scale irrigated farming and mining. No migration of livestock from other villages seemed to take place into Naisinyai itself, but some individuals within Naisinyai could ask for permission from landowners to graze their animals on farmland after harvest.

## Conclusions

Naisinyai village has changed rapidly in the last few decades. As the only place in the world where the Tanzanite gemstone has been found, mining has expanded dramatically in the Mirerani area since the Tanzanian mining economy took off in the late 1990s. As a result, dense vegetation and pasture have been cleared both for mining itself and for the expansion of settlements, farms and infrastructure.

Mining has clearly contributed positively to the economic and infrastructural development of the local area and some individuals have amassed large amounts of wealth due to mining. However, it has also changed the nature of local pastoralism, as herders now have to migrate much further to access pasture and many people in Naisinyai have to keep their animals in other villages throughout the year. There have also been considerable negative social and environmental consequences of mining for people in Naisinyai, which in many instances have been borne disproportionately by women.

While gender roles appeared to be slowly changing, and women were nowadays increasingly engaged in herding and other cash income-generating activities, women were still generally not able to own land, livestock or other assets and often had to hand over any money they earned to their husbands.

At the same time, mining-related increases in violence, rape and abuse have predominantly affected women, turning their daily chores, such as collecting firewood and herding animals, into very dangerous activities. Also, the small benefits some women have derived from the collection of left-over rubble are more often than not offset by the dangers incurred. While the village government is aware of these problems, it has been largely powerless and many women seemed to feel that the male-dominated society in which they live needs to do more to adequately protect them.

Several women's groups provide an avenue for women to get their voices heard and generate some cash income, and more changes like this can only help the people of Naisinyai and support the village's sustainable development. In particular, it seemed clear from our fieldwork that mining companies and individual miners need to work together with the whole community to generate more opportunities for women and vulnerable people and to hold the perpetrators of violence against women to account.



