
Conservation and Environmental Refugees:

Drivers of land use change and forced migration in Tanzania



Final Report Submitted To:

Rufford Foundation Small Grant Scheme

17th May 2006

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Introduction:

In 2003, I was awarded a Rufford Foundation Small Grant to explore the use of traditional medicinal by refugees in East Africa. It was proposed to spend time in Kakuma Refugee Camp in northern Kenya collecting this data. After repeatedly contacting and visiting in person the Lutheran World Federation in Kenya, I was informed that students, researchers and interns were no longer permitted to work in the refugee camp for security reasons. For that reason I focused my attention on refugee camps in western Tanzania catering to Burundian refugees in the Kigoma Region. I visited various UN agencies and NGO's working in these camps in Dar Es Salaam and contacted them repeatedly asking for permission to conduct my study in these refugee camps. Again I was not able to secure permission to conduct my project in refugee camps of Tanzanian origin.

Looking more broadly, I was able to focus in on a project site area with severe conservation and environmental forced migration issues. I selected a site where the continued creation of protected areas has turned entire communities into environmental refugees. This is a problem which links directly to conservation policy, poverty alleviation and forced migration which were my primary research goals submitted in my Rufford Application.

1.) Significance to the Literature:

For millennia, pastoralists have shared landscapes with wildlife throughout Africa (Pilgram, Siiriäinen et al. 1990; Homewood and Rodgers 1991; Little, Dyson-Hudson et al. 1999). Throughout the 20th century, this co-existence has been in decline as conservation policy excluded people and livestock from protected areas, and demographic growth and expanding agriculture excluded wildlife use (Ellis and Swift 1988; Pagiola, Kellenberg et al. 1998; Homewood, Lambin et al. 2001; Serneels, Said et al. 2001). Concurrently, many pastoral systems across the globe, including those of Maasai pastoralists in Tanzania, are believed to be in decline and under unprecedented pressure to diversify livestock based economies.

The Tarangire-Manyara ecosystem of northern Tanzania is a site of global biodiversity significance, and has the second highest abundance of migratory large mammal species in East Africa after the Serengeti-Mara ecosystem (Reid, Kruska et al. 1998). The Tarangire ecosystem links the Serengeti-Loliondo-Maasai Mara complex to the west with areas to the east such as the Amboseli-West Kilimanjaro landscape. In addition to the ecological importance of the area, Tarangire and Lake Manyara National Parks are keystones of northern Tanzania's rapidly growing tourism industry, with visitors to Tarangire National Park, for example, growing exponentially from 7,290 in 1987/88 to 85,000 in 2004. Both parks earn in excess of \$3.2 million in gate revenues alone, notwithstanding the value of tourism hunting adjacent to the parks. Revenues from the two parks subsidize several lesser performing parks and generate substantial amounts of foreign exchange, so maintenance of the ecological and economic health of these two parks is an issue of strategic importance to the Government of the United Republic of Tanzania (Otto, Kamara et al. 1998).

However, given the market value of the industry, tourism has yet to play a significant role in poverty reduction or supporting sustainable land use outcomes at a local level. Substantial potential exists, despite policy and other constraints, for harnessing the value of tourism at a local level through Community Based Natural Resource Management (CBNRM) mechanisms. A targeted analysis of CBNRM in the Tarangire-Manyara context can provide some of these answers. This project, therefore, involves a critical engagement with *both* human geographical and Maasai indigenous knowledge, to develop a deeper understanding of the trade-offs inherent in community conservation in pastoral communities. The literature is rich in descriptions of community conservation, pastoral land use decisions, and rural livelihood diversification. Yet very few syntheses actually link how

community conservation actually impacts upon pastoral land use decisions and livelihood diversification. Such an examination will therefore fill an important gap in the scholarship on conservation and rural development in Africa.

Although Tarangire National Park (NP) serves as important dry season wildlife habitat, the park comprises only 2,850 km² out of roughly 20,000 km² in the overall ecosystem. For approximately six months a year, wildlife disperses into the Simanjiro plains on lands under the jurisdiction Maasai pastoral communities. Aerial survey data illustrates declines of over 50 percent of large mammal species in the Tarangire ecosystem over the past decade (TCP/OIKOS 1998; TWCM 2000). I am at an advanced stage of a comprehensive review of the socio-economic and political impacts of CBNRM in Simanjiro District adjacent to Tarangire NP. CBNRM is an evolving set of economic, social, and institutional tools which seek to limit unsustainable natural resource practices, while providing economic returns to communities that balance the costs of living with wildlife (Western, Wright et al. 1994; Hackel 1999; Adams and Hulme 2001; Hulme and Murphree 2001). My study site in Emboreet Village, Simanjiro *has* two long-standing photographic tourism concessions and three tourism hunting concessions overlapping on village lands and contributing revenue directly to the village¹. This village also has zoned lands, alternatively integrating and segregating livestock, wildlife and agriculture. The Government and various NGO bodies are lobbying for land use restrictions to be placed in the Simanjiro Plains for the benefit of conservation. The Maasai however see this as a direct threat to their livelihood strategies. My analysis targets how CBNRM may help improve livelihoods through providing longer term incentives for open range management and the maintenance of pastoralist and wildlife compatible land uses.

My aim is to provide an improved description of how CBNRM and forced migration due to park exclusion affects livelihoods, land use change decisions and land tenure in Maasai pastoral communities to better inform local poverty alleviation and conservation strategies.

2) *Research Niche:*

Although pastoral land use strategies have historically co-existed with wildlife in this landscape, pressures to diversify livestock based economies in recent years in the Tarangire-Manyara ecosystem have increased conflicts between communities and Tarangire NP. The increase in unmanaged dry-lands agriculture, decrease in livestock holdings per capita, poaching and land tenure conflicts are principle threats to resources in the Tarangire ecosystem. CBNRM is one approach that has been proposed as a way of enhancing sustainable livelihoods by creating economic incentives for local communities to reduce land use pressure instead of dry land agricultural conversion. CBNRM projects are being initiated across northern Tanzania, with a focus on establishing wildlife tourism partnerships with local communities in order to channel economic incentives to communities to alter their land use change practices. However, the economic and socio-political impacts of CBNRM in pastoral communities are still largely unknown. Maintaining a viable mosaic of wildlife habitats and economically viable pastoralist land uses in the Tarangire-Manyara ecosystem are closely connected. The future resilience of Tarangire NP will depend in large part on the sustainability of CBNRM initiatives in village owned lands adjacent to the parks, and the provision of ecosystem services from the park to the communities.

A research niche exists for an analysis of the economic role of CBNRM in pastoral transformation in Tanzania. Can CBNRM act as an avenue to broaden the ecological and economic scale of poverty reduction efforts to more effectively reflect complex socio-ecological relations? Will conservation policy contribute to fundamentally more diverse livelihood strategies and food security or will it inherently inhibit rural economic development? These are inherently geographical questions—tied to social, political, and ecological contingencies and spatial relations at several overlapping scales.

¹ Dorobo Safaris and the Dorobo Fund for Tanzania channel wildlife tourism funds to Emboreet Village. Tanzania Photographic Tours and Safaris are also concessionaires and have built a lodge in Emboreet.

3) *Research Objectives:*

The key to providing an understanding of the required incentives to sustainably integrate wildlife and pastoral land uses is a livelihoods-based cost-benefit analysis of agricultural, pastoral and wildlife tourism trade offs and the underlying political economy of each of these different land use strategies. This would be framed within a devolved rights-based management framework and an analysis of its institutional and capacity constraints.

My project was framed by the research question:

What are the social and institutional impacts of community conservation in Tanzania and under which conditions can livelihood benefits be maximized to land holders?

This research question is influenced by three issues that I believe are central to pastoral land use change in Tanzania: the legacy of Maasai land alienation by conservation policy, the effects of structural adjustment policies, and pastoral livelihood diversification strategies. Each of these issues presents specific clusters of questions in order to fully understand the socio-economic and political changes engendered by CBNRM in pastoral societies.

1. *What are patterns of Maasai Livelihood Diversification in Simanjiro District?*
2. *Are agricultural land use change decisions made as a result of increasing poverty or an attempt to secure land tenure? How does the existing policy environment impact household level livelihoods and decisions?*
3. *Are current community conservation efforts enhancing pastoral livelihoods? Do community conservation initiatives limit pastoral development by restricting land use options? What is the interplay between local level governance and politics that affect land use decisions?*
4. *Is community conservation viewed by rural communities as a short term development process that subsidizes future development? What are pastoral re-investment strategies of tourism revenues, and how do they shape perceptions of wildlife?*

Answers to these three questions are being drawn through the primary research results, and will build upon a theoretical literature review. My project involves a critical engagement with human geographical techniques and contemporary development studies to propose alternative poverty alleviation and conservation strategies in the Tarangire-Manyara ecosystem.

4) *Project outputs:*

My research has collected several specific data sets such as:

1. Land-tenure status, issues and transactions
2. Land-use conversion factors – with an attempt to examine temporal trends on:
 - subsistence versus commercial agriculture trends;
 - information on current immigration trends;
 - agro-ecological practices and constraints;
 - livestock and agricultural prices and marketing arrangements.
3. The livestock economy and pastoral range-management systems
4. Village governance issues
5. Institutional and historical relations with district and central government natural resource management authorities, including national parks
6. Past and current land and natural resource management interventions/programmes, and their perceived weaknesses and strengths, and opportunities for collaboration
7. Wildlife-based enterprise arrangements and practices both in the hunting and photographic tourism sectors (over the past five years)

Emboreet Village is directly adjacent to Tarangire NP. The site is of significant biological value in that Emboreet is the main ecological 'bottleneck' for the migration of large mammals to the villages of Sukuro and Terat in the Simanjiro Plains (INRF 2005). Emboreet is also the only site in Simanjiro with a community-wildlife tourism partnership example. It contains two photographic tourism enterprises and three tourism hunting blocks overlap the village generating approximately \$70,000 per year for the village. Additionally, my project is the first long term research project based in Emboreet. I am incorporating several data collection techniques to support my analysis:

1. *Socio-economic surveys:* I have administered a 14 page broad scale survey to 228 households (HH's) in Emboreet focusing on background information, livestock and crop production and wildlife perceptions. Each survey took approximately 1.5 hrs to administer not including travel time to and from the HH. The aim of this broad scale survey was to achieve a 50 percent representative sample. I was successful in this goal and able to survey 52 percent of the total village household head population. This survey provides a consecutive 3 year data set comprised of quantitative and qualitative data regarding household level livestock, agricultural and diversification strategies. This survey has been entered electronically into a MicroSoft Access database which I formulated and over 100,000 data points entered.
 - a. *Repeat Round survey:* I am following this up with an in depth 12 month, repeat round survey of 38 households in 3 sub-villages along a gradient of the Tarangire National Park boundary. Each HH is being visited once every 2 months and detailed livelihoods data collected. Both surveys are based on a completed stratified wealth ranking exercise for the entire village household list.
2. *Focal household food survey:* In order to ascertain how food security is linked to livelihood diversification, I conducted a focal household food survey. This survey will analyze changes in diet over time, and how diversification is affecting the pastoral way of life. This sub-component of the socio-economic survey will investigate patterns of food consumption for different age and sex classes in each of the 38 focal households, contrasting those households with CBNRM revenues and those without.
3. *Cattle herd performance:* In order to examine how livelihood diversification affects the pastoral way of life and to understand the pastoral economy, I have been monitoring the performance of cattle herds. Cattle performance during the study will be assessed in terms of fertility, mortality and milk production. I will collect this data over the course of 12 months. In order to collect socio-economic data on the commoditization of cattle herds, I will construct cattle life histories for adult female cattle. This data will focus on births and deaths for each individually identified cow and linked generations to calculate calving and mortality rates. Data will be collected on deaths, sales, gifts, loans and exchanges for all cattle age-sex classes to allow for the estimation of exponential herd increase or decrease.
4. *Recorded interviews:* Recorded and transcribed semi-structured interviews are being simultaneously conducted through the survey of different groups such as villagers, village leaders, district officers, NGO staff, large scale farmers, tourism and hunting operators, and government employees. The aim is to collect detailed qualitative information regarding different land uses in Simanjiro.
5. *Archival research:* A second strategy for exploring land use change, the value of tourism at a village level, and livestock and agricultural sales will be through archival research and exploring local records at Village, Ward, District and National levels. I will correlate household level data in terms of sales with the extent of agricultural trade more generally in the district- are there surpluses, who is trading, which localities are supplying agricultural commodities? This data will be useful in understanding the processes of rural transformation occurring in the study area. I have already collected a substantial amount of village and ward level basis archival data, and well as having spent time at District level archives in Orkesumet and at the National Archives in Dar es Salaam.
6. *Focal group meetings, key informants, participant observation, and triangulation:* This has yielded qualitative information from different sectors and enable cross-checking.

7. *Wildlife revenue data:* I am collecting detailed wildlife revenue streams to Emboreet from photographic and tourism operators over a 10 year period. This data is being systematically collected from all tourism operators in Emboreet village quantifying every form of wildlife economic benefit going back over ten years.
8. *GIS analysis:* I am collecting approximately 24 village based data sets that are useful for a GIS based analysis of land use change in the village.

5) *Significance to the Field:*

Contemporary analyses have concentrated on economic factors that arguably have contributed to incentives for rural communities to contribute to biodiversity conservation. The literature is rich in descriptions of community based conservation, pastoral land use decisions, and rural livelihood diversification. Yet very few syntheses actually link how CBNRM actually impacts upon pastoral land use decisions and forced migration in Tanzania. Such an examination will therefore fill an important gap in the scholarship on CBNRM in East Africa's wildlife rich pastoral rangelands. It will also provide a deeper social understanding of CBNRM as an integrated conservation and development process, and its potential constraints.

In addition my project aims to generate a specific set of outputs that target policy makers, donors and conservation planners in northern Tanzania:

1. Data from my research is catalyzing an intervention by the NGO Ujamaa Community Resource Trust (CRT) to develop a household level benefit sharing scheme of wildlife revenues in Emboreet Village. Specifically, my data regarding wildlife based revenues at a village level and detailed village household list form the foundation of this intervention. This collaboration is aimed at directly enhancing household level food security in Emboreet from wildlife revenues.
2. Data I am collecting regarding land use returns is supporting an novel easement deal by private sector operators with Terat Village to lease a key area of the 150 sq. km. of plains for conservation. My data was a referral point for easement values per acre in these negotiations that has leveraged a significant amount of the Simanjiro plains for conservation.
3. In September 2005, African Wildlife Foundation and the International Livestock Research Institute (ILRI) launched a \$1 million GEF Medium Sized Project of which Simanjiro is a target area. My research has directly fed into work plan design and the socio-economic surveying component under ILRI.
4. Spatial analysis of land use conversion rates and change in land tenure in GIS format.

6). *Revised Chapter Outline:*

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7. Bull or Hedge: Does CBC Affect Pastoral Livelihoods?
 - a. The contribution of CBC to food security
 - b. The effect of CBC on pastoral diversification choices
 - c. The impact of CBC on the pastoral way of life
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8. The Impact of Community Based Conservation on Maasai Perceptions?
 - a. Development, conservation and village governance
 - b. Empowerment, participation, and gender
9. Conclusions: Lessons Learned and Implications for the Future

8.) *Selected References:*

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Table 1: Proposed PhD Timeline

Timeline	2006- <i>Tanzania</i>		2006- <i>Oxford</i>		2007- <i>Oxford</i>
	January-March	April-June	July- Sept	Oct.- Dec.	Jan-March
Literature review					
Repeat Round Survey					
Data Entry					
24 h/hold food survey					
Livestock performance					
Interviews					
Archival Research					
Recorded Interviews					
Data analysis and statistics					
Sell Vehicle, Close down research camp					
Relocate to UK			July 1 st in UK		
Fundraising					
Dissertation Writing					
Dissertation submission					Target: March 2007