

Spring 2015

# The Contribution of Indigenous Ecological Knowledge in the Conservation of Enguserosambu Community Forest, Tanzania

Agnes Sirima  
*Clemson University*

Elizabeth Baldwin  
*Clemson University*

Follow this and additional works at: [https://tigerprints.clemson.edu/hehd\\_awards](https://tigerprints.clemson.edu/hehd_awards)

---

## Recommended Citation

Sirima, Agnes and Baldwin, Elizabeth, "The Contribution of Indigenous Ecological Knowledge in the Conservation of Enguserosambu Community Forest, Tanzania" (2015). *Health, Education and Human Development Awards*. 11.  
[https://tigerprints.clemson.edu/hehd\\_awards/11](https://tigerprints.clemson.edu/hehd_awards/11)

This Poster is brought to you for free and open access by the Research and Innovation Month at TigerPrints. It has been accepted for inclusion in Health, Education and Human Development Awards by an authorized administrator of TigerPrints. For more information, please contact [kokeefe@clemson.edu](mailto:kokeefe@clemson.edu).

# The Contribution of Indigenous Ecological Knowledge in Conservation of Enguserosambu Community Forest, Tanzania

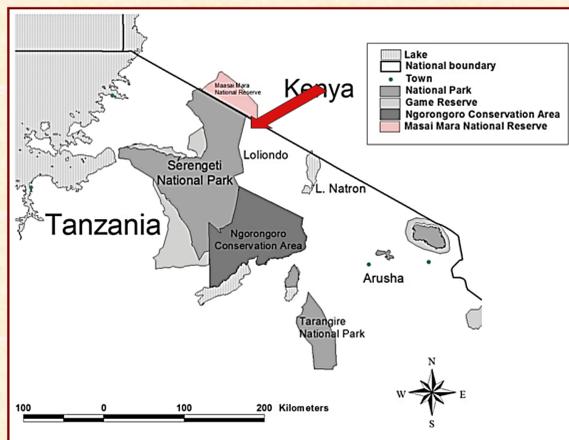
Agnes Sirima & Elizabeth Baldwin  
Clemson University



## Background

Enguserosambu Community Forest is a community managed forest in northern Tanzania. It is located along prime tourist attractions such as Ngorongoro Conservation Area, Serengeti National Park and Lake Natron. For over two decades, conflict surrounding land and natural resource use in Loliondo have dramatically increased, raising concern for the long-term conservation of biodiversity in the area. Maasai communities within Serengeti-Mara ecosystem have occupied the area since the 15<sup>th</sup> C, long before Serengeti was declared a national park (Homewood & Rodgers, 1991). Maasai pastoralism has for centuries co-existed along side spectacular wildlife populations in and around the ecosystem (Thompson & Homewood, 2002). Recently, the changing economic atmosphere due to increased investors in wildlife resources around the area has resulted in the ignorance of local resource use practices in favor of land use with more tangible short term economic returns. An understanding of the indigenous knowledge system that Enguserosambu communities use to protect the forest as well as their culture and lifestyle is crucial in appreciating its role in managing the forest resources for the benefit of the ecosystem and the people.

## Study Site



## Methods

Four villages; Naan, Ng'arwa, Enguserosambu and Orkiu Juu were surveyed. Purposive sampling was used to obtain research participants. A total of 57 individuals were involved out of which 19 were females. Customary elders, forest user groups, NGO's, community conservation trust, village government and district forest officials were among research participants. NVivo 10 was used for thematic analysis of interviews.

To empirically test effectiveness of indigenous knowledge, land cover analysis for the period of 15 years was conducted. Two Landsat imagery of 2000 and 2015 were used for comparison. UTM Zone 36 WGS 84 projection was used. Unsupervised image classification was applied based on spectral differences in the imageries using cluster module in ArcGIS 10.2. Visual interpretation was applied to classify image to different land cover categories. Change detection was then performed to compare the land cover change between selected study period.

## Results – Knowledge and Institution



Enguserosambu Forest hold a special value to the community

- ❖ It is a spiritual place
- ❖ Source of livelihood
- ❖ Place where cultural celebrations are held
- ❖ Dry season grazing ground

Knowledge sharing mechanisms

- ❖ Age – group meetings
- ❖ Traditional ceremonies
- ❖ Cultural bomas

Forest management practices

- ❖ Fencing of important areas
- ❖ Forest patrol
- ❖ Land use plan
- ❖ Enforcing traditional laws

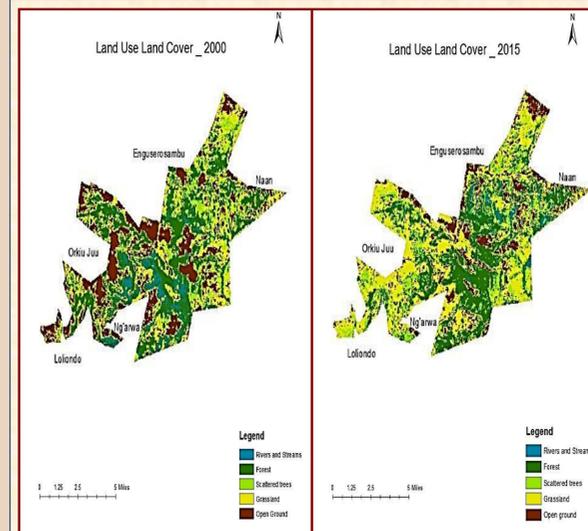
Local institutions

- ❖ Complex set of indigenous and local institutions
- ❖ Forest patrol among the tasks
- ❖ Establish and enforce both traditional and forest bylaws
- ❖ Capacity building to communities

## Land Cover Change

Land use category	2000 (ha)	2015 (ha)	% Change
Rivers and Streams	5884	4145	-29
Forest	25448	23489	-7
Scattered Trees	17886	18640	4.21
Grassland	16964	28423	67.5
Open Ground	21307	12792	-39.96

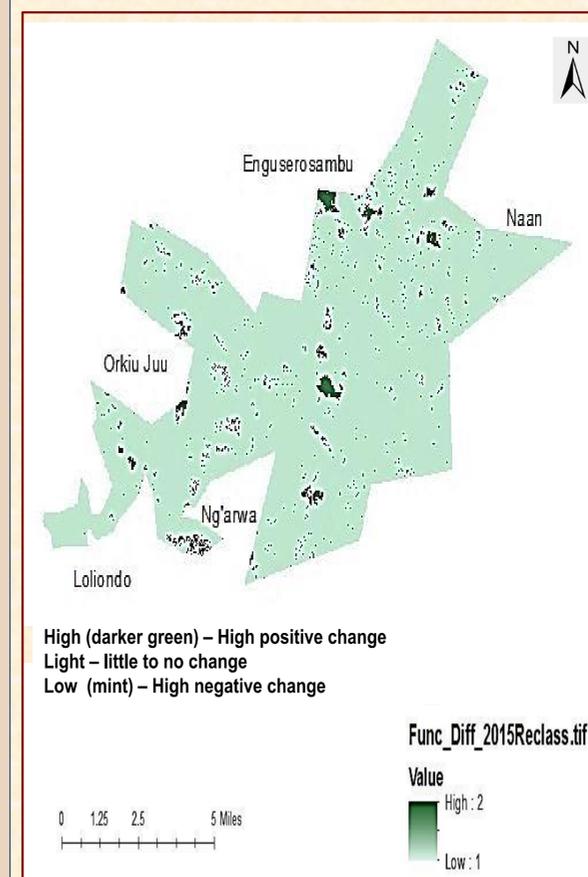
## Land Cover Map 2000 and 2015



Five land cover types were identified

- ❖ Rivers and streams
- ❖ Forest
- ❖ Scattered trees
- ❖ Grassland
- ❖ Open Ground

## Land Change Detection Map 2000 - 2015



## Challenges

- ❖ Population Increase
- ❖ Livestock Increase
- ❖ Illegal activities e.g. fire and logging
- ❖ Encroachment
- ❖ Increased agricultural activities
- ❖ Change in lifestyle
- ❖ Uncontrolled resource access

## Discussion and Conclusion

- ❖ Traditional knowledge still support conservation of the forest however, there are external threats interfering with its effectiveness.
- ❖ Communities through their institutions are capable of making necessary arrangements with regards to resource utilization and management.
- ❖ Despite ongoing power struggle, all institutions participate in forest patrol as a means to safeguard forest resources from poachers.
- ❖ Land use system is undergoing dynamic change due to change in socio-economic activities as well as population increase in the area.
- ❖ Forest alone cannot sustainably provide communities with basic needs, an alternative livelihood source need to be put in place.
- ❖ Despite having clear traditional rules and practices, forest cover change persist.
- ❖ Communities are aware of forest cover changes - similar to what is observed on land cover change analysis
- ❖ Policy geared towards nurturing, capacity building and social capital improvement to the community is important to ensure that their conservation efforts are sustainable and results are felt both at local and national level.

## References

- Homewood, K., & Rodgers, W. A. (1991). *Maasailand Ecology: Pastoralist Development and Wildlife Conservation in Ngorongoro, Tanzania*. Cambridge: Cambridge University Press
- Thompson, M., & Homewood, K. (2002). Entrepreneurs, Elites, and Exclusions in Maasailand: Trends in Wildlife Conservation and Pastoralist Development. *Human Ecology*, 30(1).