CASE STUDY

ECOBOMA: Ecological Monitoring for Rangelands Management

Northern Tanzanian pastoralists depend entirely upon the rangeland's ecosystem for their survival. Healthy rangelands are therefore a matter of life or death. Population growth, increased livestock pressure and land scarcity in times of climate change, produces a lethal combination that dramatically increases the vulnerability of pastoralists. A detailed understanding of the rangeland's conditions allows ECOBOMA, a project funded by the European Union, under the Global Climate Change Alliance Tanzania, to prioritise interventions for indigenous and scientific knowledge.

In close collaboration with pastoralist communities, the ECOBOMA project has successfully piloted an ecological monitoring protocol that integrates user friendly methodologies with more sophisticated statistical models.

There are lots of challenges in setting up a low cost, replicable ecological monitoring protocol usable by local communities as a tool to prevent overexploitation of natural resources, thus reducing insecurity and conflict.

Elibariki Olemtoto (Resource Assessor and Village Executive Officer – Engutukoit village):

"I appreciate the ecological monitoring and I believe it will create a great impact in the future. We are doing this so that we can understand if the vegetation is continuously decreasing or increasing for the sake of our livestock. We saw and realised that if we understand better the vegetation that we have, it would help us in planning, during the rainy and dry seasons, on how to use our land and how to utilize the vegetation that we have for ourselves and our livestock".

The importance of environmental monitoring

The ECOBOMA project aims at improving and increasing the capacity of vulnerable Maasai Pastoralists in Northern Tanzania to cope and adapt to the adverse effects of climate change, as well as contributing to poverty reduction and ameliorating livelihoods. The project is set in a critical ecosystem of savannah dominated by Acacia-Commiphora bushland and thickets and it forms part of the Greater Kilimanjaro ecosystem. The ecosystem, supporting more than 35,000 pastoralists and their livestock, functions as an important ecological corridor for wildlife moving between three national parks, namely Kilimanjaro, Arusha and Amboseli, and conservation areas such as Enduimet CWMA and Ndarakwai Private Conservancy. Yet, the rangelands between the protected areas are far from conserved. A changing livestock composition that favours sheep and goats, the presence of drought refuges, and long drought spells, have had a severe impact on the productivity of these rangelands.

Climate change has compromised the ability of local communities to plan traditional livestock movements but reliable data to interpret rangeland conditions has not been available.

Increasingly, unpredictable rainfall patterns with longer periods of drought has hindered the ability to read the ecosystem and traditional husbandry practices have not guaranteed survival of the herds. Livestock density, tree cutting, soil erosion, low rainfall, strong winds, lack of available water for livestock, the presence of invasive plant species, are also known factors that have contributed to the increased vulnerability of the beneficiaries but have not been quantified.

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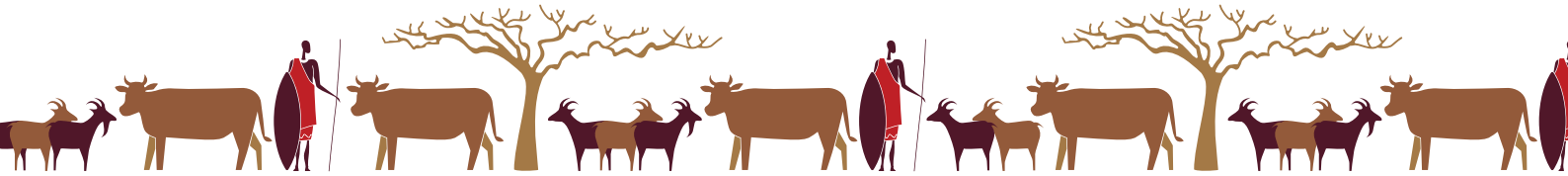

The ECOBOMA approach

So far the project team has undertaken extensive consultations with long term experts of rangeland ecology. Since July 2016, the methodologies have been tested in the field and the project is now confident to be able to identify a good compromise between complex methods that would not be adoptable by local communities, and enough scientific rigour that will produce reliable predictors of carrying capacity. The carrying capacity informs communities on the health of the grazing areas, thus giving quantitative information on how many heads of livestock that can be fed. Anything above the carrying capacity is a number that can increase the risk of overgrazing.

Successes:

- ECOBOMA has set up and tested a reliable ecological monitoring protocol that informs on the quality of pastures and can be adopted by other communities in need of such information.
- Trained 5 beneficiaries on data collection methods and transformed them into professional resource assessors able to collect data on grassland quality and inform their communities. Their knowledge and skills will remain in the community after the project ends.
- Informed communities on the threat of invasive plants and their effect on rangeland quality and set up alert systems, including networking with organisations on invasive plants management protocols.
- The methodology adopted has been shared with the Northern Tanzania Rangeland Initiative consortium of partners with an aim to confront rangelands quality on a regional scale.

Main challenges:

- Project human and logistical resources for ecological monitoring were scarce but working closely with the communities has also provided key additional manpower for data collection.
- Pastoral communities are very suspicious of any data collection that occurs in their pastures, this can hinder speed and become a threat for the data collectors. Extensive presentations of the activities helped by local leadership still plays a key role in the level of engagement of the communities.
- Finding the right methodology was time consuming; some methods were replaced/abandoned in light of their poor long term sustainability prospects.
- Field visits to resilient pastoral systems with improved land use management favoured the understanding of the rationale and the adoption of the rangeland ecological monitoring initiative but are very expensive.
- Communities have participated with different degrees of engagement in the assessment of the rangeland quality due to different approaches of the local government.
- Translating results in a language that is easy to understand for rural pastoralist communities is complex and has still not been achieved.

Becoming more climate resilient

High livestock density associated with erratic rainfall are the main drivers of pasture degradation. The ECOBOMA rangeland ecological monitoring is set to quantify the perceived vulnerability of the beneficiaries to climate change and has three prime objectives: 1) provide communities with simple but rigorous tools to assess the quality of the rangelands and the existing livestock pressure; 2) prioritise interventions of rangeland protection to prevent degradation and consequent loss of pastures; 3) inform land use planners and management plans on rangeland quality.

Communities in the ECOBOMA project have been empowered to make informed decisions on their utilisation of the rangelands and decreasing livestock, which would appear to be the most effective and rapid solution in times of drought, although this is not culturally acceptable if not associated with tangible and rapid financial benefits. Adding value to livestock utilising products such as leather tanning could support destocking. Other solutions under discussion are setting aside larger portions of grassland to function as drought refuges, have more regulated access to cattle watering points to limit soil damage from trampling; and improving law enforcement to prevent illegal tree cutting and poaching.

Oikos is collaborating with the National Land Use Planning Commission to understand the capacity of the Districts in the production of land use planning.

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