

Building sustainable ecosystems through community education

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Introduction

Borana Conservancy lies in the Ewaso Nyiro ecosystem in Laikipia County, just north of the Equator in Kenya. Borana, together with its neighbour Lewa Wildlife Conservancy (LWC), is now home to 132 eastern black rhinos (*Diceros bicornis michaeli*) and 122 southern white rhinos (*Ceratotherium simum simum*). The population of black rhinos represents at least 13% of Kenya's black rhino population. Borana's work revolves around 'the four Cs': conservation, community, culture and commerce, showcasing best practices for sustainable living. The long-term goal of the Conservancy is to provide a sustainable ecosystem, in partnership with its neighbours and community, for critically endangered species on the brink of extinction.

However, the survival of Borana's rhinos and other wildlife, is threatened by the unsustainable utilization of natural resources and rangelands across Laikipia County. Expanding human populations are placing significant pressures on these rangelands, exacerbating years of over-utilization and poor management. According to Dr Dino Martins formerly of Mpala Research Centre in Laikipia, livestock stocking rates on many communally owned ranches and conservancies are estimated to be 50 times higher than the recommended ecological carrying capacity (ECC). Many of the current generation of pastoralists believe that the degraded rangelands in their landscape are normal, not realizing that the rangelands should be covered with grass that would retain moisture, sequester carbon, secure water sources, and support biodiversity, if properly utilized and the livestock carrying

capacity were reduced to the ideal balance. Although the local schools teach theoretical environmental science, there is no exposure, at a practical level, to how essential intact, functioning ecosystems serve for both humanity and biodiversity.

There is an increasing acknowledgement of the value of targeted, practical conservation education programmes in helping communities living adjacent to protected areas (PAs) to develop sustainable livelihoods and allow the effective, long-term conservation of wildlife and ecosystems. The future of Borana Conservancy, and of all PAs across Laikipia, Kenya and Africa as a whole, will depend on people placing a high natural-capital value on conservation and wildlife habitats, and on their having the skills to manage the wider environment in ways that support both human livelihoods and wildlife.

Establishing a contextual education programme

In 2009, Borana initiated the Borana Education Support Programme (BESP), which had the twin aims of lifting people living around the Conservancy out of poverty by providing better access to higher-quality education via scholarships, and of raising awareness of conservation issues to nurture a deep appreciation of wildlife and natural habitats. Despite its significant successes, the BESP could support only a relatively small proportion of children and young adults. Further outreach was needed to offer conservation education to a greater number of students and adults.

To that end in 2022 Borana, in partnership with Save the Rhino International, significantly expanded the BESP to address the unsustainable utilization of natural resources in the Ewaso Nyiro

ecosystem. *Mazingira Yetu* (our environment in Kiswahili) will engage the communities living around Borana Conservancy by providing an environment for learning about the importance of natural wilderness, together with understanding the role of soil, hydrology, grasslands and forests, and how these elements are inter-dependent and form a cooperative biotic completeness and contribute to sustaining life.

Mazingira Yetu has three strategic objectives:

1. To build knowledge about conservation issues, including the black rhino, among the BESP's primary audiences, i.e. schoolchildren and adults.
2. To inspire participants to spread key conservation messages to secondary audiences, i.e. family and community members.
3. To enable the wider community to take positive action to conserve the conservancies surrounding the Lewa-Borana Landscape.

Pedagogy

Mazingira Yetu's strategic objectives represent a process model of 'head' (instil knowledge), 'heart' (inspire) and 'hands' (empower). The programme's pedagogy (theory of teaching and learning) focuses on place-and enquiry-based methods i.e. learners will: see conservation in action, dictate the learning journey and have ownership of their learning; feel inspired to take action; and understand the practical ways in which to apply this learning within their own community and environment. *Mazingira Yetu* accomplishes the 'head' and 'heart' levels of the process through structured field trips into the Conservancy for programme participants. These Conservancy trips build foundational knowledge of conservation techniques, exposing participants to thriving wildlife and a well-managed landscape. The Elaboration Likelihood Model of persuasion proposes direct encounters with Borana Conservancy and its wildlife that are likely to facilitate 'deeper message processing and subsequent changes in attitude and behaviour'

(Skupien 2016) among *Mazingira Yetu* participants. The 'hands' level is fostered through the provision of a 6-step practical framework for designing and engaging community action projects.

Key messages

Borana's conservation education team identified several aspects that *Mazingira Yetu* should address:

1. Conservation: the interdependence of organisms within the ecosystem—so that learners understand the value themselves, of their wildlife and landscapes.
2. Community: the governance of Borana—so learners know about communal responsibility, transparency, principles of good governance, why certain security measures are in place, what the long-term strategy and goals are etc.
3. Commerce: the ways in which conservation can develop livelihoods—so that learners know how to make conservation work for them in the short-, medium- and long-term, to diversify their income, create new sustainable career paths, benefit from their positive actions and spark meaningful changes within their communities.
4. Culture: the ownership of knowledge—so learners feel empowered to blend indigenous-knowledge systems with more modern explanatory, science-based knowledge to create holistic approaches to learning that encourage participatory dialogue and design of curricula.

Overt messages will focus upon the value of intact natural resources and wildlife. In 2019, Borana Conservancy conducted a survey process called the Social Assessment of Protected Areas (SAPA), developed by the International Institute for Environment and Development. More than 350 interviews were carried out with households in communities neighbouring Borana, and the process gave a clear indication of the priority issues on which the communities would like to work with the Conservancy. These included environmental degradation, erosion and deforestation, and the issues of land use and other activities that threaten the stability of natural resources and wildlife in the Laikipia County.

The findings of the SAPA, particularly the aspects that Borana's neighbours see as the most positive and negative impacts of their proximity to the Conservancy, have directly informed the design of *Mazingira Yetu*. For example, *Mazingira Yetu* aims to deliver a better understanding of Laikipia's semi-arid environment and the importance of water management and retention in soil, given that in degraded environments 90% of precipitation is lost as run off. It will also cover how to manage finite resources and how the strategic use of livestock and physical interventions (such as the creation of swales and tree planting) can contribute positively to improving the quality of rangelands and help in reversing degradation. Black rhinos are examined as a flagship species, together with the financial opportunities they bring through tourism; while further discussion will focus on human-wildlife conflict (HWC), whether in terms of crop-raiding elephants or predation from leopards, lions or hyenas.

In terms of covert messaging, learners will gain an understanding into the levels of security that are in place to protect Borana's rhinos and wildlife. They will learn that every rhino is named and known individually. Finally, they will meet role models within the Borana team and, it is hoped, be inspired to pursue careers in sustainable livelihoods or conservation.

Target audiences

Mazingira Yetu will focus on the schools and local communities in the seven neighbourhoods surrounding Borana Conservancy. It is well understood by sociologists that numerous cultural influences/norms around attitudes and behavioural values are absorbed and embedded in childhood (enculturation) by the age 10 (Geertz 1973). If young people develop an affinity with nature early on, they will value nature throughout their lives. Age-groups between 10 and 12 were chosen for direct engagement after considering prior knowledge levels, national curriculum exam periods and household impact / ability to make change. Adults are also targeted by the programme, particularly young adults, women, elders, forest users and pastoralists. With adults

who have become disconnected from the natural wilderness, conservation education programmes provide a means by which to reconnect them and an opportunity to change perceptions.

Programme design and delivery

Having identified the overall conservation goal, the difference that Borana wishes to make, the key messages and the target audience, the project team then focused on *Mazingira Yetu's* implementation, i.e. the 'how'.

A key first step was to employ a consultant, Richard Hennery, who had previously worked in North Luangwa National Park on another black-rhino-focused conservation education programme, to support Borana's head of education, Ochen Mayaini, and Conservation and Sustainability Officer, Isabelle Voorspuy, in developing the detailed plan for and rollout of *Mazingira Yetu*. Richard brings valuable academic, formal knowledge combined with practical field experience of targeted environmental education, while Ochen and Isabelle have a deep understanding of the particular issues and challenges in the Ewaso Nyiro ecosystem. This collaboration resulted in the formulation of the aforementioned pedagogy, which informed the refinement of objectives, content creation, and the acquisition of key resources to implement a programme that would support the theoretical framework and theory of change.

Terms of Reference were drawn up for a conservation education officer (CEO) and education assistant (CEA). Recruitment was informed by Borana's gender and local employment policies, prioritizing the recruitment of women and people from the surrounding neighbourhoods; every effort will be made, through all elements of the project, to break down gender and other stereotypes and demonstrate that conservation opportunities are open to everyone. Stephen Gachagua, who previously worked at nearby Ol Pejeta Conservancy, was appointed CEO, and Jedidah Kamoiro, who speaks Maa, as CEA, i.e. the two positions were filled by individuals known to and trusted by the local community.

Stephen and Jedidah held inception meetings with all the head teachers and environmental teachers from the schools participating in the BESP; the name *Mazingira Yetu* was chosen through this consultation. The inception meetings also informed the development

of different curricula for conservancy trips: day-long visits into Borana aboard a modified bus known as the Mazingira Express, capable of holding 28 schoolchildren and two teachers (or 30 adults).

Beginning in mid-2022, the conservancy trips for schoolchildren introduced cohorts of students to Borana Conservancy and help them understand the importance of a healthy environment while they studied the different wild animals, conservation activities and eco-friendly livelihood opportunities. A two-year rolling curriculum will see Grade 5 students gain an immersive conservation experience through experiential learning activities that offers a 'scaffolding' of knowledge, leading to the introduction of a 6-step action project framework in Grade 6. The 6-step tool encourages learners to take the lessons explored during conservancy trips and apply their understanding into contextual school level eco-projects; conducting a site review, creating a conservation code and implementing an eco-action such as community gardening, a livestock-grazing scheme, a litter-management plan or a water-harvesting strategy. Each cohort will undergo two conservancy trips facilitated by the CEO and CEA, before receiving follow-up visits that offer support for school level eco-projects.

Adult conservancy trips will feature content that is more adaptable than the schedules for Grades 5 and 6 learners. Initially, established community groups will be targeted to capitalize on pre-existing governance structures and motivations. These groups will be engaged with a pre-conservancy trip focus group session in their communities. The purpose of the focus group is to uncover key conservation concerns held by the group, and identify potential problems they could address. The conservancy trip will then feature tailored sessions that respond directly to the needs of that particular group (as well as consistent messaging and education around key concepts such as ecosystems and 'the four Cs'). For example, a community group that is interested in gardening may visit the organic farm, while a group concerned with HWC may receive presentations on chili-fencing construction or beekeeping. This approach results in a more targeted conservancy trip that responds to

individual and collective needs and culture. A similar 6-step action project framework will be introduced as part of these trips, to enable the 'hands' level of *Mazingira Yetu*'s process model.

To provide a learning space to implement the conservancy trips, a disused building—a former tannery—was identified as the site for a new education centre. An asset-based community development (ABCD) (Nurture Development 2022) approach was blended with Moussa et al.'s (2017) school site selection process to analyse the old tannery's suitability. ABCD utilizes a strength-based approach that builds on the assets found in an area, and categorizes assets into six groups: individuals, associations, institutions, place-based, local economies and connections. The predicted content of the education programme was considered, as the activities need to be based in a suitable environment to support learning. Technical requirements including size, shape, location, utilities, security, noise, cost, topography and soil were then discussed in relation to the old tannery's location. A decision was then made on the suitability of the old tannery for a conversion project by examining the key technical requirements and how they capitalized on existing assets in the area. Finally, construction and design plans were begun and documented. When finished, the *Mazingira Yetu* Education Centre will comprise a large classroom, a multi-media area, an education office, storage room, accommodation for the CEO, CEA, housekeeper and cook, kitchen and dining area. A second phase of construction will include accommodation for up to six visiting researchers or academics, who will interact with visiting groups of children and adults.

In Year 2 (calendar year 2023), *Mazingira Yetu* will deliver a series of Conservation Celebration Days (CCDs) in the villages surrounding Borana Conservancy: large community events/campaigns that will allow for dialogue and wide-spread engagement with conservation. These CCDs provide a context for message multiplying, spreading awareness and enabling wider action. In an effort to increase the scope for participatory design processes, local teachers from *Mazingira Yetu*'s target schools will be engaged to co-design the CCD content and planning. The various school sites will act as community hubs during the CCDs, providing a space for school learners and adult participants of *Mazingira Yetu* to showcase their projects and progression along the 6-step framework.

Monitoring and evaluation

The programme has created a monitoring and evaluation (M&E) plan that will find out whether *Mazingira Yetu* is meeting its objectives and test whether the participants benefiting. The project team began by carrying out a pre-evaluation study or needs assessment in the schools and communities, which will be used to enrich the curriculum and the delivery of activities.

Year 1 of the project will involve trials of five different evaluation techniques, allowing the education team to gain feedback on these tools from learners and make an informed decision as to which methods work best for the Borana context. Year 1's M&E will include: a summary of accomplishments for Year 1, followed by discussion of the components of the programme: education centre construction; *Mazingira Yetu* Express acquisition and adaptation; the development of the programme's framework; the creation of the 2-year rolling curriculum; the hiring of the education team; consultant's field trips; needs analysis; analysis of the conservancy trips for the 10–12 year-old learners, and for adults; and the trial of the different M&E methods.

Year 2 will see an expansion of the activities and evaluation methods, exploring both what sharing and learning has taken place and why/how certain teaching methods were effective. To guide this deeper Year 2 exploration, a more comprehensive theoretical model will be developed which explicitly links context to outcome: a Participatory realist impact model.

Conclusion

Mazingira Yetu's development has highlighted the importance of context for community conservation education. By paying close attention to the needs of its stakeholders, Borana Conservancy has capitalised on its strengths and assets to develop a pedagogy that increases access to important conservation sites and creates a space for community action. By expanding participatory and collaborative planning processes, it is hoped that the Conservancy's education efforts will, over time, contribute to a healthy, functioning ecosystem, in which people, livestock and wildlife can co-exist in harmony.

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