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Resilience in East African Landscapes: Identifying critical thresholds and sustainable trajectories – past, present and future

Reporting

Project Information

REAL

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Final Report Summary - REAL (Resilience in East African Landscapes: Identifying critical thresholds and sustainable trajectories – past, present and future)

The strong temporal dynamics of the East African landscape and natural-resource distributions have always encouraged people to innovate and adapt to changing conditions. However, increasing population growth, changes in patterns of land tenure, industrialisation, weak systems of governance, and global climate change have exacerbated previously localised environmental problems such as soil erosion, depletion of water catchments, loss of forests and grazing land, falling soil fertility and declining biodiversity. Novel approaches for resolving these challenges are thus urgently needed. Based on the premise that the past is a key to understanding the present and planning for the future, the REAL Marie Curie Initial Training Network (ITN) aimed to establish a preeminent European training network devoted to combining state-of-the-art research methods to tap into under-appreciated knowledge of how indigenous peoples have previously adapted to East Africa's intrinsically unstable climate and land/water resources.


The ITN ran from September 2013 to August 2017. The project comprised a consortium of senior researchers from seven European universities/research institutes (Uppsala (coordinating institution), Stockholm, Cologne, Ghent, York, Warwick and EHESS-Paris/CNRS) as full partners, two non-academic industrial full partners (U&We, Stockholm, and Bayer East Africa, Kenya), and nine East African Associate partners (Palynology Department, National Museums of Kenya; School of Social Sciences, Mount Kenya University; Northern Rangelands Trust, Kenya; Institute for Research Assessment, University of Dar es Salaam, Tanzania; Department of Archaeology and Heritage Studies, University of Dar es Salaam; Department of Land Resource Planning and Management, Kenyatta University of Agriculture and Technology, Nairobi; the African Conservation Centre, Nairobi; the French Institute for Research in East Africa; and the British Institute in Eastern Africa). Its work was also overseen by an external Advisory Panel of international experts in relevant fields.

Aims and Objectives: The focus of the REAL ITN was on researching the temporal, spatial and social dynamics of human-landscape interaction in East Africa over the last fifteen hundred years, with particular reference to the Laikipia Plateau, Ewaso Basin and the Eastern Rift Valley in central Kenya, Mount Kilimanjaro and the Pangani Basin in north-eastern Tanzania, and the adjacent Amboseli catchment in south-eastern Kenya. A core consideration was on how societies, landscapes and ecosystems have responded to climate change both currently and in the past under different conditions, so as to better understand how they may respond to future climate change. The project was overtly cross-disciplinary in nature and design, and aimed to integrate archaeological, palaeoecological, historical, geographical, anthropological and ecological data within a political- and historical- ecology framework.

Project Structure: The ITN consisted of three research work packages (WP2-4), and two cross-cutting work packages dedicated respectively to management and training (WP1), and dissemination and capacity building (WP5). Work Package 2 - Past scenarios, c. 500-1930 AD, contained archaeological and palaeoecological sub-projects. These focused on collection and analysis of time-series data concerning human-environment relationships in and around the Eastern Rift Valley and the Amboseli-Kilimanjaro catchment over the last c. 1500 years. Work Package 3 - Present scenarios, c. 1930 to the present day, focused on the present and very recent past. It comprised four distinct sub-projects, one with an ecological focus and three with more of an anthropological, geographical and/or historical focus. These all aimed at better understanding the nature, direction and drivers of recent and on-going socio-ecological transformation arising from changes in land use in East Africa connected to urban growth, globalization of

the horticulture industry and rapidly emerging national and global markets for diverse natural resources. Work Package 4 - Future scenarios, today to c. 2100, aimed at developing predictive scenarios to define possible future environmental, social and economic changes across the region, the expected changes in ecosystem service provisions that might arise and their implications for societal development targets. A key feature of the sub-projects in this work package was modelling the possible effects of different climate change, land-use transformation, population growth & migration, and global environmental policy parameters, and their potential variable effects on livelihoods, vulnerability and socio-ecological resilience. (Figures 1-3).

Training and Dissemination Activities: Twelve full-time Early Stage Researchers and two full-time Experienced Researchers were recruited to the project, all of whom received cross-disciplinary training across the historical disciplines and the social and environmental sciences, delivered by the different network partners, as well as the opportunity to work on their own individual research project. All twelve Early Stage Researchers were registered as PhD candidates at their host institution. Over the course of the four years, the project organised and hosted eleven research training meetings, and eight transferable skills training events. By the end of the project two Early Stage Researchers had been awarded their PhD. Nine of the remaining Early Stage Researchers are expected to have completed by mid-2018.

Dissemination activities: These included the production of a project magazine (People and Land) aimed at a general readership and a series of Field Diaries about doing research in Africa and elsewhere. These were written and edited by the Early Stage Researchers, and published in both print and digital formats. Another key dissemination activity, designed and coordinated by ER2, was the preparation of a travelling exhibition about the project. Entitled 'The Melting Snows of Kilimanjaro and Other Stories: Of People, Land, and Climate Change in East Africa', this will be exhibited in Kenya, Tanzania, Sweden and Germany over the course of 2018. Other dissemination activities included numerous academic conference and workshop presentations, public lectures, a poster exhibition, community information days, and school visits as part of individual research projects, and the production of a web documentary (CHANGES) about the project aimed at a general audience (<http://webdocs-sciences-sociales.science/real/> ). A concluding conference about the project was held in Moshi, Tanzania in July 2017 (Figure 4).

Results : The combined, cross-disciplinary research results highlight how detailed awareness of the complex history of human-environment interaction in East Africa is central to well-founded and ecologically sustainable resource management. These results also illustrate the importance of indigenous knowledge and practice for devising development policies and climate-risk management suited to addressing future challenges in specific areas. They further highlight the value of long-term perspectives for understanding and addressing contemporary environmental and societal challenges. By bringing together ecologists, archaeologists, anthropologists, geographers, historians and agronomists the ITN provided cross-disciplinary training to a new generation of twelve Early Stage Researchers and two Experience Researchers drawn from across Europe, East Africa and Canada, enabling them to interpret data relating to past and present socio-cultural and ecological dynamics from the perspectives of the environmental and social sciences and the humanities. The network and individual project members co-operated closely with academic counterparts, private-sector stakeholders, NGOs and local communities in East Africa (Figure 5), and is working with some of these to develop suitable policy guidelines and information sheets.

For more information, please consult the project website: <http://www.real-project.eu/> 

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