Resilience in East African Landscapes (REAL) ITN

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Undoubtedly, one of the biggest questions in human-environment research today, concerns the ability of human populations to sustainably manage natural resources that they depend upon, as well as adapt to environmental degradation and climate change.

These concerns are identified in several of the UN’s Sustainable Development Goals, to which the European Commission is a major contributor. Projects that prioritise the preservation and management of natural resources command around 40% of the EU budget for 2014.

Yet this is a complex task, which requires that natural and human histories are understood as a whole, merging science with society, and past-, present-, and future-oriented research/ers.
Resilience in East African Landscapes (REAL) ITN

- A Marie Curie Initial Training Network – FP7
- Four Year Programme – Sept. 2013 to Aug 2017
- Seven Partner Organisations – these provide training for Early Stage Researchers (ESR - PhD candidates) and Experience Researchers (ERs - Post-doctoral researchers)
- Three ‘Non-Academic’ Partners
- Eight Associate Partners from Kenya & Tanzania
- Advisory Board – European & E Africa representatives
Aims & Objectives

• Integrate available records of past environmental change (from different sites a diverse range of indicators) to accurately document past ecosystem dynamics in East Africa.

• Develop methods to extrapolate site-scale data on past ecological and environmental conditions to the landscape scale.

• Apply models to link ecosystem distributions in the past, present and future under alternative climate-change and human-interaction scenarios.

• Quantify the rate and timing of ecosystem shifts due to changing population growth, migration and human/ecosystem interactions.

• Unravel the connection between ecosystems, livelihoods, conservation and climate change.

• Use results to assess impacts on livelihoods in the vital economic sectors underpinned by ecosystem resource planning and policy, both within the research area, and more generically across Africa.
Resilience Thinking

Resilience: “to tolerate disturbance without collapsing into a qualitatively different state controlled by a different set of processes”
Holling and Gunderson [2002]

Different Spatial & Temporal Scales & Rates of Change
a) Basic build-up of adaptive cycles – from growth/exploitation, conservation, release/collapse and re-organization/renewal
b) nested cycles in time with threshold values
c) cycles and climate fluctuations

After Gundersson and Holling 2002
Research Questions

- **R1**: What magnitude and spatial pattern of natural, climate-driven ecotone change has occurred in East Africa at different temporal scales over the last c. 1500 years?
- **R2**: How much variability were East African social-ecological systems able to accommodate without reaching potentially crippling tipping points or thresholds?
- **R3**: What is the temporal scale at which climate change becomes a major driving force for societal change?
- **R4**: At what point do changes in ecological and social boundary conditions become so significant that [radical] restructuring of society is needed?
- **R5**: Which past and present adaptation and mitigation practices can fruitfully inform decision-making and governance structures to result in sustainable resource use?
Work Packages

- Implementation
- WP 1 - Coordination, Management and Training
- WP 2 - Past Scenarios, c. AD 900-1930
- WP 3 - Present Scenarios, c. AD 1930-today
- WP 4 - Future Scenarios, today to 2100 AD and beyond
- WP 5 - Dissemination & Capacity Building for Sustainable Ecosystems and Livelihoods

In order to implement successful environmental management projects and to elicit effective public and political responses to issues of environmental change, appropriate research must be carried out that can guide policy makers.