

Effects of Climate Change on the Natural Resource Base of the Valley Bottoms of Central Kenya

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Background Information

- The Central Kenya Highlands have been a dominated cornerstone for Kenya's economy and culture due to their past favourable climate. Together with Western highlands they support over 75% of Kenya's population.
- Climate change has altered their fortunes due to reduced rainfall amounts and reliability, increased temperatures and drought frequency
- The affects of climate changes has significantly compromised the region's natural resource base and by extension its ecosystems functions and productivity.
- This poster takes stock of trends in climate changes that affect river valley resources, their use and sustainability.
- It seeks to discuss possible adaptation strategies in the face of worsening climatic regime

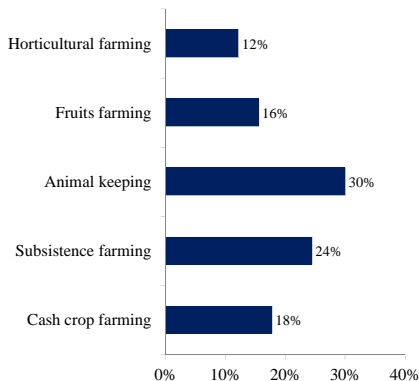


Fig 2. Main types of community livelihoods, which compete for the dwindling water resources and other generally degraded natural resources like soil and wetlands

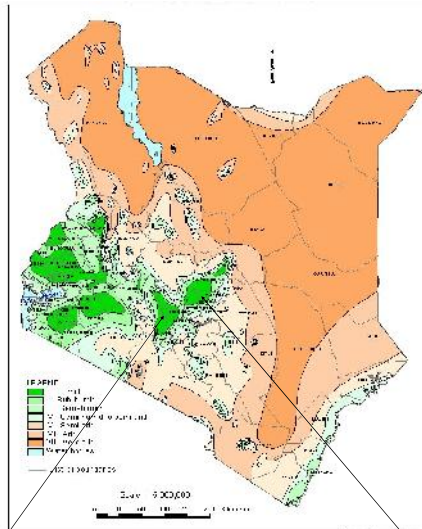


Fig 1: Central Kenya Highlands



Fig 3: Declines in stream flows makes utilization of valley bottoms a major challenge due to conflicting interest. While pastoral groups graze even on wetlands, agriculturalists are cultivating up to the river bank hence encouraging riverbank erosion

Area of study and Methods

- The Valley bottoms of the central Kenya Highlands (Fig 1)
- Sites were purposively sampled
- Transect walks along stream valleys
- Literature review and document analysis
- Key informant interviews and
- Focused group discussions



Figs 4 and 5 show competing land uses in valley bottoms within central Kenya region, most of which are now dry valleys after rivers have dried up in the face of emerging harsh climatic regimes in the region

Observations effects of CC on livelihoods (II)

- **Maize:** high variable temperatures creates pollination problems and water stress due to rapid evaporation
- **Wheat and small grains:** extreme events, frost during flowering, water stress
- **Rice:** temperature extremes during pollination, water scarcity and related stress as well as poor management and conflicts
- **Pasture and rangeland:** water stress and declining land taken up by irrigation
- **Fruit trees:** chilling requirements not met, high temperatures during fruit development
- **Specialty crops** like horticulture: water stress, high temperatures

Conclusion and Recommendations

- An integrated approach in the management of valley bottom land uses and adaption strategies in Kenya is needed in order to preserve ecological vitality of river valleys as integral parts of the development and resource use landscape
- There should be promotion of a fair resource distribution and adaptive sustainable development

Observations on Trends in Natural Resource Base (I)

- Natural resources such as soil, water and biodiversity have experienced enormous transformation due to effects of climate change
- Their quality and quantities have declined significantly as a result of
 - reduced rainfall and increased drought frequency
 - Soil degradation and poor crop productivity
 - Some streams have dried up and the base flows of many streams has declined, with significant reduction on water availability for various uses
 - Increased over use by different interest groups has reduced resource viability in the face of scarcity, which have resulted to land use conflicts in the area.

Challenges to Sustainable Natural Resources Management in the Region:

- Negative battering by and Impact of climate change on the Natural resource-based economy of Kenya
- Unequal vulnerabilities, coping capacities and resilient levels of local communities
- Unequal access to and unproductive utilisation of natural resources, including land and water
- Poor synergy in the cultural and political decentralisation processes needed for the promoting responsible self-resource use governance for equity, acceptability of agreed practices and resource sustainability.
- Lack of human capacities on all levels and sectors but specifically on regional, local and communal level