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Kenya's Natural Capital - Tertiary Institutions

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Natural capital underpins Kenya's prosperity

Kenya is endowed with rich natural capital¹ and biodiversity². Its diverse landscapes range from the Chalbi Desert in the north to the snow-clad peaks of Mt. Kenya, from the white beaches of the Indian Ocean to the shores of Lake Victoria, and from the rolling plains of Maasai Mara to the floor of the Great Rift Valley. The interactions between topography, soils, hydrology, plants, animals and peoples within each eco-climatic zone create locally distinctive ecosystems, including different types of forests, woodlands, shrublands, grasslands, deserts, wetlands, lakes and rivers, montane, afro-alpine and marine ecosystems. Kenya ranks among the world's richest biodiversity nations and hosts over 35 000 species, including more than 7000 plant species and many endemic, rare, endangered and threatened species.

- 1 The stock of living and non-living natural resources (e.g. plants, animals, air, water, soils, minerals) yielding a flow of benefits, such as ecosystem services, to people.
- 2 According to the Convention on Biological Diversity, biodiversity means the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems. Biodiversity represents the foundation of ecosystems that, through the services they provide, affect and critically contribute to human wellbeing.

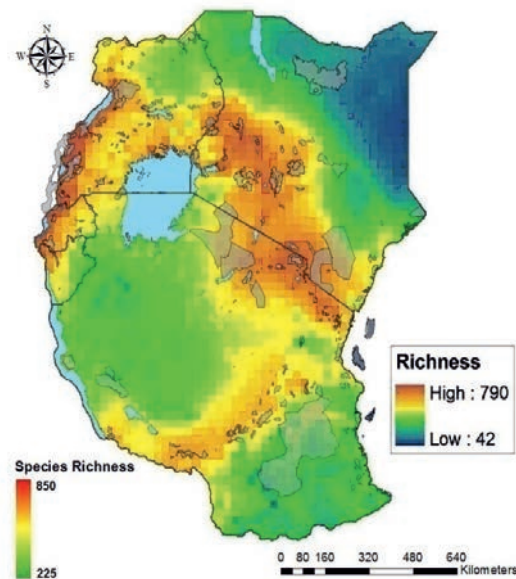


Figure 1: (a) Vertebrate species richness in East Africa and (b) the structure and distribution of Kenya's major ecosystems reflecting local climate, topography, soils and biota, modified by human activity.

Kenya is also home to over forty ethnic groups with varied cultures and lifestyles rooted in the productivity and diversity of its landscapes. Kenyans from every walk of life depend on ecosystem services for their livelihood and well-being. The services include wild and cultivated foods, medicinal plants used by 80 percent of Kenyans, soil erosion control, crop pollination, and cultural services such as the spiritual kayas of the coastal Mjikenda, outdoor recreation and enjoying nature. Kenya's forests and woodlands provide timber, fibre and fuelwoods to urban and rural communities. Acting like water factories, forests are the main source of water for industry, farmers, beverage producers, and supply over half the country's electricity from hydropower. Wetlands support fisheries, control floods and decontaminate polluted water. The diversity and abundance of Kenya's world renowned wildlife is the main lure of the US\$1.3 billion tourist industry.

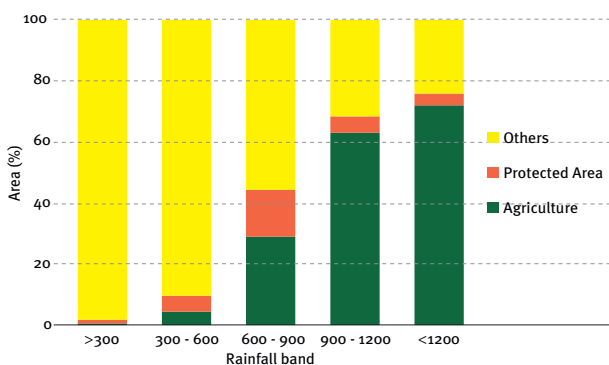


Figure 2: How rainfall effects land use patterns in Kenya

In short, natural capital and biodiversity underpin Kenya's economic growth and the wellbeing of its citizens.

Kenya's capital is under threat

Although Kenyans depend on natural capital for their livelihoods, human impact is rapidly depleting our natural resources and biodiversity. The main causes of loss are:

Habitat conversion to cropland, urban areas and other human-dominated landscapes. More than

60 percent of land with 900mm and more annual rainfall has been converted to agriculture;

Overexploitation and illegal offtake of renewable resources such as water, forestry, fisheries and wildlife. Forest and woodland cover has been severely depleted by cutting for fuelwood and charcoal. Fisheries stocks are falling due to unsustainable offtake and wildlife due to poaching, leading to a loss of range and migratory routes;

Water, soil and air pollution, especially in urban and industrial areas of Nairobi and Mombasa;

Invasive species such as water hyacinth, Nile perch, cactus species and Lantana.

Several factors acting in tandem drive the loss of natural capital. They include a growing human population, poverty, inequality in access to resources and lack of regulatory capacity. The rates of biodiversity loss are not the same for all counties. Counties with higher human population densities and rainfall are particularly affected.

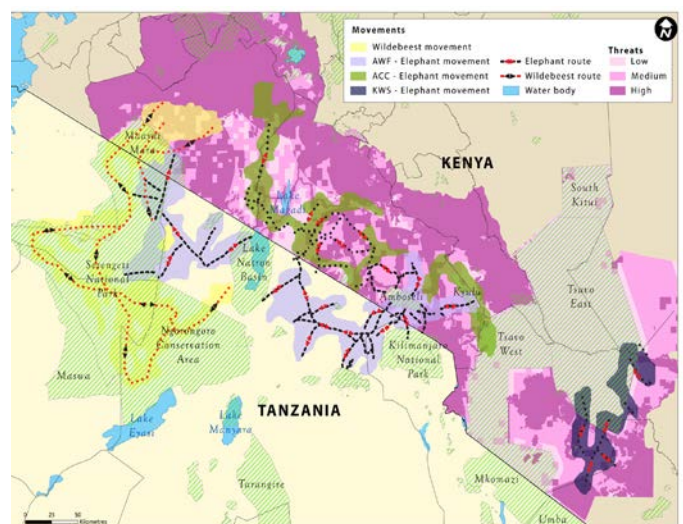


Figure 3: Distribution of wildlife, wildlife corridors and the relative intensity of threats they face in the southern Kenya rangelands.

Changes in production and consumption patterns, human population and settlement as well as environmental deterioration all contribute to the decline of natural capital and affect livelihoods and

business. Simply put, Kenyans are no longer living off the dividends of natural capital and are eroding the natural capital assets themselves.

The Kenya Government recognizes that the sustainable management and conservation of natural capital and biodiversity is essential for maximizing production of natural resources and sustaining growth. To this end, Kenya drew up the Environmental Management and Coordination Act of 1999 and other legislation after extensive public consultation in order to integrate environment and development plans. Kenyan legislation falls in line with international treaties such as the Convention on Biological Diversity (CBD), the Convention on International Trade in Endangered Species, the Ramsar Convention and the Migratory Species Convention. Although much progress has been made in the way of a protected area network, the conservation of threatened and endangered species and reforestation programs, much more needs to be done to draw up policies and strategies to encourage public and private sector activities and investments in sustaining natural capital and biodiversity as a shared responsibility.

Addressing the threats to Kenya’s natural capital and biodiversity is a shared responsibility among the public sector, the private sector and civil society. Universities and other institutions of higher learning also have a critical role to play through research, training, capacity building and generating the knowledge and knowhow for planning the use, conservation and restoration of biodiversity and natural resources.

Researching and teaching natural capital studies

Kenya’s institutions of higher learning have a major role to play in reconciling biodiversity and development in the following ways:

1. Universities should develop curricula that forges the connections between biodiversity, natural resources, ecosystem services and natural capital as the underpinnings of human wellbeing and the economy.
2. The Natural Capital Atlas of Kenya identifies a number of research gaps that need attention, including:
 - Taxonomic studies of poorly described groups such as fungi, algae, lichens, bryo-

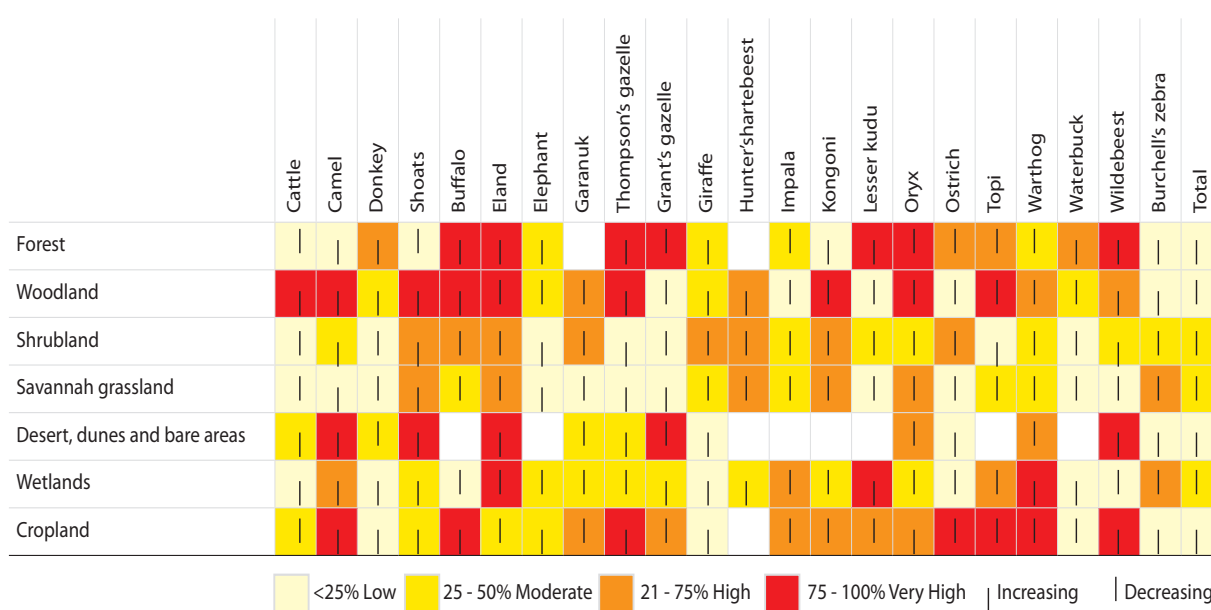


Figure 4: Wildlife and livestock trends (1990s–2000s) in relation to biomes/ecosystems. The largest declines of wildlife occurred in the forest, woodland and in the cropland biomes.

phytes, insects, crustaceans, molluscs and phyto- and zooplankton;

- Biodiversity surveys of poorly collected habitats and biomes, including the northern marine and terrestrial regions;
 - Research into the social, economic, cultural, land use, legal and institutional factors threatening biodiversity;
 - A quantitative analysis of the policies and traditional knowledge and conservation principles and practices that sustain biodiversity and natural resources;
 - Valuation methodologies and mapping techniques for assessing Kenya's stocks of natural capital and ecosystem services;
 - Research into policies for conserving biodiversity and natural capital at a local, county, national and regional level.
 - Development of a national framework for auditing and monitoring natural capital;
 - Development of ecosystem models for analysing and management complex natural and human-dominated ecosystems;
 - Development of green technologies for business, industry and household economies to ensure efficient and sustainable use of natural resources.
3. Teaching and training institutions should equip the graduate workforce with the skills to manage natural capital risks and develop new green economy technologies and solutions. This calls for biodiver-

sity and natural capital knowledge to be incorporated into an array of academic curricula, including economics, business, law and engineering.

The further loss of biodiversity will irretrievably damage the natural capital and biodiversity of counties, impoverish livelihoods and undermine the goal of creating the green economy outlined in Vision 2030. Taking action now to incorporate natural capital planning into the county policy, planning and budgeting process will increase the productivity of natural resources, ensure their sustainable use and conserve Kenya's unrivalled natural heritage underpinning its economy.

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