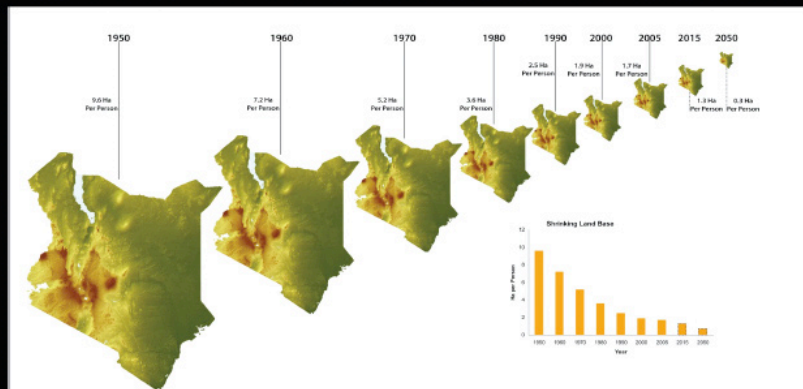


Towards a National Biodiversity Conservation Framework

Policy Implications of Proceedings of the International Conference on Biodiversity, Land-use and Climate Change

Shrinking Kenya



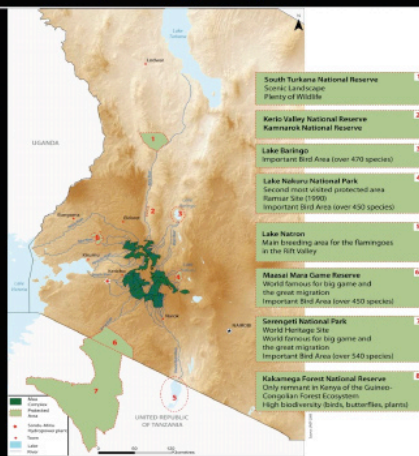
From a population of 8 million in 1960, Kenya's population is projected to reach 51 million by 2025.



KENYA: Atlas of Our Changing Environment



Mau Complex: Supporting major tourism destinations



The rivers flowing from the Mau Complex are the lifeline for major tourism destinations including the Maasai Mara Game Reserve and Lake Nakuru National Park.



KENYA: Atlas of Our Changing Environment



By
 Judi W. Wakhungu, Lucy Waruingi, Bernard Agwanda, Patricia Awori, James Isiche,
 Steve Itela and Steve Njumbi

List of abbreviations and acronyms

| | |
|---------|---|
| ACC | African Conservation Centre |
| ACTS | African Centre for Technological Studies |
| AWF | African Wildlife Foundation |
| BIONET | Global Network for Taxonomy |
| CBD | Convention on Biological Diversity |
| CONABIO | The National Commission for the Knowledge and Use of Biodiversity |
| DRSRS | Department of Remote Sensing and Resource Surveys |
| EAWLS | East African Wildlife Society |
| EOL | Encyclopedia of Life |
| ETI | ETI Bioinformatics, Netherlands |
| GBIF | Global Biodiversity Information Facility |
| GDP | Gross Domestic Product |
| ICIPE | International Centre of Insect Physiology and Ecology |
| ICRISAT | International Crops Research Institute for the Semi-Arid Tropics |
| ILRI | International Livestock Research Institute |
| INBIO | National Biodiversity Institute of Costa Rica |
| IRRI | International Rice Research Institute |
| IUCN | International Union for Conservation of Nature |
| KMFRI | Kenya Marine and Fisheries Research Institute |
| KFS | Kenya Forest Service |
| KTB | Kenya Tourism Board |
| KWS | Kenya Wildlife Service |
| MDG's | Millennium Development Goals |
| MEMR | Ministry of Environment and Mineral Resources |
| NEMA | National Environment Management Authority |
| NMK | National Museums of Kenya |
| PES | Payment for Ecosystem Services |
| RCMRD | Regional Centre for Mapping and Resources Development |
| REDD | Reducing Emissions from Deforestation and Forest Degradation |
| UNEP | United Nations Environmental Programme |
| WWF | World Wildlife Fund |

1.0 Introduction

Proceedings of the Biodiversity, Land Use and Climate Change conference, held on 15th to 17th September 2010 at Nairobi, Kenya, placed global biodiversity at US\$ 33 trillion, measured as natural capital. This is higher than the world's national products added together. Kenya hosts some of the world's top-class biodiversity hotspot ecosystems (IUCN & UNEP 1986, Groombridge 1992, Burgess et al., 1998, Rathbun 2009). The country is home to some 35,000 described species that provide livelihood to 80% of its human population. To put this into context, an area such as the Taita Hills which is part of East African Arc Mountains is rated as world top 25 biodiversity hotspots (Burgess et al., 1998). Recognizing the importance of our natural capital, the Ministry of Environment, Ministry of Wildlife and Forests and twenty conservation bodies, businesses and donors sponsored this conference on Biodiversity, Land Use and Climate Change. The conference marks Kenya's participation in the United Nations International Year of Biodiversity 2010.

As a national capital resource, biodiversity underpins Kenya's national development pillars particularly agricultural, tourism, industrial and health sectors. In the agricultural sector alone, it forms the capital resource upon which the livelihoods of 70% of the 38.6 millions Kenyans in the rural areas depend. In the latest economic estimates, wildlife based tourism contributes 10% to Kenya's GDP and is the third largest foreign exchange earner after tea and horticulture (National Tourism Policy, 2006). In the power sector, 51% of the country's electricity is derived from hydro generation that is dependent on our water towers and rivers (Kenya Vision 2030). Like other developing countries, over 80% of people in Kenya rely on plants as primary source of medicine while over 57% modern medical drugs are biodiversity derivatives (AMNH-CBD 2003).

The assessments of these four sectors alone suggest that the attainment of MDGs and realization of Vision 2030 will very much depend on biodiversity conservation. Essentially therefore, strategies for achieving Vision 2030, and other national economic recovery programmes should be preceded by prudent biodiversity conservation strategies.

Although the term biodiversity has been increasingly used by both experts and lay people over the last two decades, common understanding on its meaning has remained elusive even among experts. This lack of common understanding is a threat to development of a common stand among various stakeholders to conserve it for its intrinsic and socio-economic value. Kenya is by no means an exception to this and hence the need for an acceptable definition of the term.

Indeed, to compound the matter, the widely held perception that species and ecosystems must be directly linked to immediate socio-economic benefits may also be viewed as a threat to biodiversity conservation due to the potential it creates for over reliance and use of resources.

Furthermore, the absence of a National land use system to guide appropriate land use activities is also responsible for haphazard habitat alterations and degradation thereby undermining biodiversity conservation and food security. Our national parks made a good start in protecting the most famous of our wildlife herds, but they fall far short of conserving the wealth of Kenya's animals, plants and ecosystems. No national park is large enough

to conserve the migrating herds of large herbivores, let alone elephants, lions and wild dogs. Only one third of all wildlife is found in our national parks and reserves. We have lost almost a half the wildlife of our parks in the last 40 years. And that was before last year's catastrophic drought when Amboseli lost 70 percent of its wildebeest, zebra and buffalo, and hundreds of elephants. The drastic loss resulted in starving lions and a sure of attacks on livestock.

The conference reviews the wealth of Kenya's biological diversity, looks at the challenges of a growing population, expanding land use and climate change. It also considers how to improve livelihoods and sustain economic growth through better conservation policies, tools and techniques.

The good news is that the conference will show that East Africa is the richest biodiversity region on the entire continent and among the richest in the world. Kenya, sitting at the confluence of Africa's forests, deserts, grasslands, woodlands and oceans, and spanning the great lakes and mountains, has extraordinary diversity of landscapes, biodiversity and cultures.

2.0 Decline of biodiversity

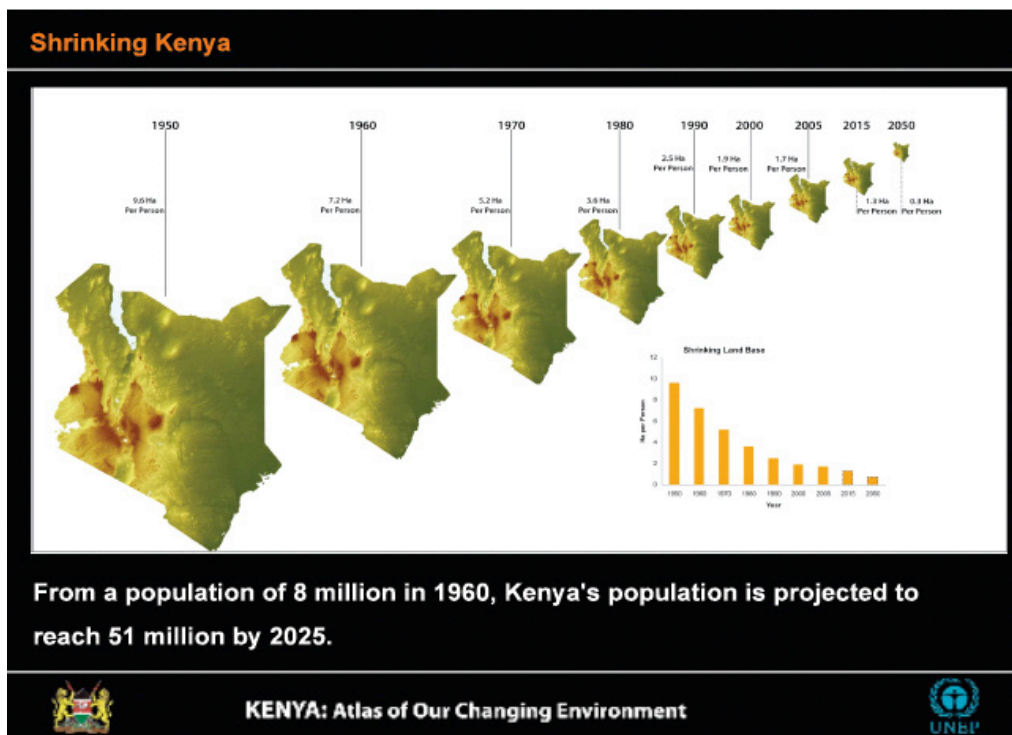
In spite of its importance to human wellbeing, human-induced biodiversity loss continues to be wide spread from rivers to seas, from mountains to valleys from forests to arid scrublands

Kenya's human population, currently estimated at 38.6 million (Kenya Census 2010) and increasing at the rate of 1 million people per annum is exerting enormous pressure causing loss of this magnificent biodiversity. Forests are hardest hit with cover amounting to less than 1.7% , which is a 50% decline from that of 9 years ago (UNEP 2001: Fourth Kenya CBD report of 2009). This percentage cover is far below the globally accepted minimum cover of 10%. At this rate, there will be no forests by the time we set for Kenya's Vision 2030.

Only 25% of the land surface is arable and hence encroachment and expansion of agriculture to the remaining fragile 75% that is semi-arid and arid, leading to detrimental effects on wildlife conservation and the integrity of ecosystems. One of the consequences of this trend has been observed where a number of indigenous species in the IUCN Red List bracket continues to increase as their habitats are converted to farms, settlements or industrial sites. Human invasions into natural habitats has also lead to invasions and the spread of alien species causing further displacement and extinction of native species.

Only one third of all wildlife is found in our national parks and reserves. We have lost almost half the wildlife of our parks in the last 40m years. Non-migratory wildlife in Mara National Reserve declined by 58% between 1977 and 1997. Wildlife populations declined by 63% in Tsavo East and West between 1977 and 2000, and in Meru by 78% in the same time frame. Studies have shown a decrease in wildlife in Kenyan rangelands of 32% between 1977 and 1994.

Diagram 1: Illustration of increasing human population against shrinking land base resources. In 1950 Kenya had 9.6 hectares per person, at projected rate of growth we will have 0.3 hectares per person



3.0 Shortcomings of existing measures to curb biodiversity loss

Biodiversity conservation at the macro-economic level is concerned predominantly with natural resource management for development. Competition for meager financial resources between different government sectors invariably leads to the prioritization of issues that pertain to basic needs of education, health, and security to the detriment and marginalization of biodiversity conservation.

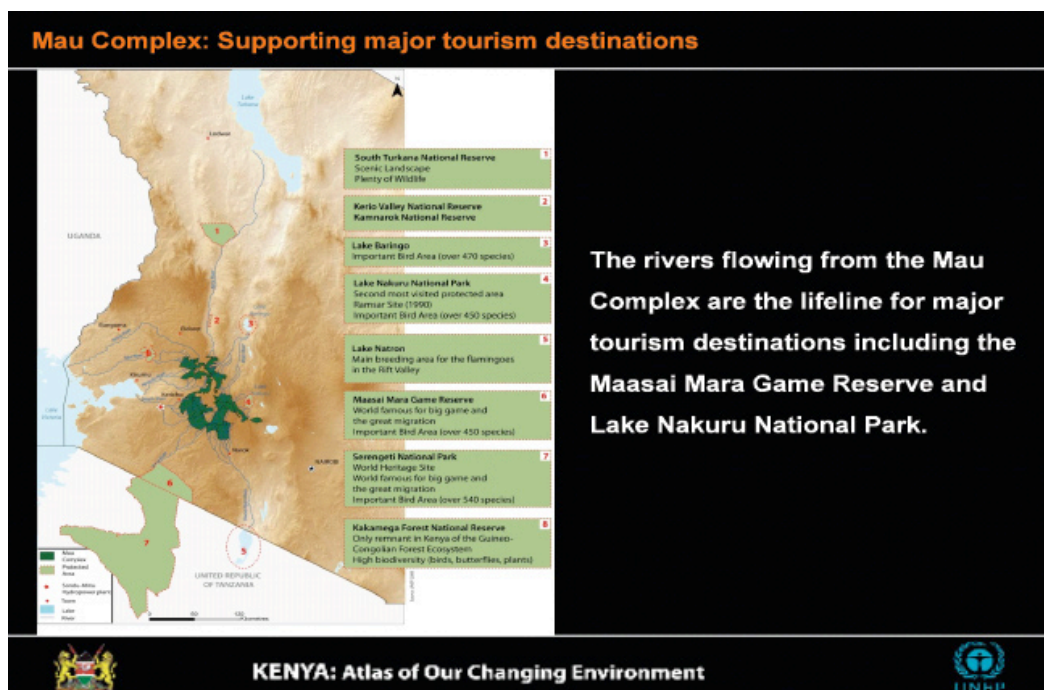
Furthermore, conflicting policies and laws across sectors undermine biodiversity conservation. For instance, the introduction of irrigation schemes under the auspices of the Agricultural Act in semi-arid regions adjacent to protected areas, has been undertaken without giving due consideration to the needs of migratory species and their habitat requirements. Unless checked, these contradictory sectoral policies will continue to play out as Kenya seeks to achieve Vision 2030 goals.

Private sector involvement in conservation has not been harnessed to its full potential. This is despite the fact that private sectors (e.g. agriculture, and energy firms) depend and benefit considerably from biodiversity resources. Their involvement in conservation of ecosystems that support their production is both ethical and good business practice. The total economic value of biodiversity is measured by its use value and non-use value. Use value is divided into direct use, such as timber or indirect use, such as the value one obtains from burning firewood. This can be heat for cooking food. Therefore, if one takes

into account the benefits of sustainable forestry, one would consider the forest as a habitat for species, a source for medicine, energy use in household activity etc., showing how total economic value accrues and its contribution to the GDP increases.

To summarize this section, perhaps the most damning legacy is that biodiversity has never been fully appreciated for its quantitative contribution to the national economy in the same manner that other sectors such as agriculture have been. Part of the reason is that Kenya has never comprehensively assessed its biodiversity capital in terms of its richness and economic value. Yet a Comprehensive National Biodiversity Inventory is a basic tool essential for national planning for biodiversity conservation and general development.

Diagram 2: Value of forest ecosystems: Case study of Mau Complex



4.0 Conference highlights

- i. The conference drew wide participation of about 450 participants from both public and private sectors. There were participants from Uganda and Tanzania, as well as individuals from local communities from all corners of Kenya. This regional and diversified participation ensured wide input and dissemination of information and views.
- ii. There was also a considerable support and goodwill from government and NGOs. In particular Ministry of Environment and Mineral Resources, Ministry of Forestry and Wildlife and key departments and parastatals (NEMA, DRSRS, KFS, KWS, NMK, KTB) supported organization and the conference itself. Together with support from NGOs (ACC, EAWLS, AWF, WWF, ACTS) multilateral agencies (UNEP, IUCN, ILRI, RCMRD) and funding agencies (Royal Netherlands Embassy, J.R.S Biodiversity Foundation & Japan Society for the Promotion of Science), they all showed concern for biodiversity loss and need for intervention.

- iii. It was noticeable however, that certain key sectors and agencies were not represented, such as the Ministries of Agriculture, Finance, Lands, Livestock, Water and Irrigation, Energy, Regional Development, Tourism, Planning, Fisheries and Forest Department. In addition, research institutes such as ICIPE, ICRISAT, KEMFRI and IRRI were absent. This was a limiting factor given that these sectors and institutions are key in biodiversity conservation and their absence in such a forum can undermine coordination efforts of the biodiversity strategy and action plan.
- iv. The presentations at the conference were reflective of the knowledge and expertise available on biodiversity. Information shared included drivers of biodiversity loss, case studies on contemporary approaches to ecosystem conservation such as Minimum Viable Conservation Area and Population (MVCA/MVP), benefit sharing and improvement of livelihoods. Other topics were land use change and planning, Payment for Ecosystem Services (PES), climate change and its impact on biodiversity, endangered species conservation strategies, biofuels and renewable energy sources. In terms of biodiversity informatics, much of our current knowledge as a nation has been built opportunistically, leaving us with information that is too patchy and selective for optimal long-term planning. Improved knowledge, better analysis and synthesis at different spatio-temporal scales are critical in measuring biodiversity for sustainability and conservation goals. They are also essential in setting up pragmatic national socio-economic and conservation priorities and targets. To obtain data some institutions have entered into MOUs to share valuable information and data. For instance, ACC and NMK have recently signed an MOU to share biodiversity data to be used in climate change modeling. The conference also noted that there are a growing number of local, regional and global initiatives attempting to improve access to biodiversity data (e.g. GBIF, EOL, ETI, Barcode of life, BIONET, InBio, CANABI).
- v. However, time for interaction between presenters and participants regarding the many topics that were shared at the conference was inadequate thus denying an opportunity of sharing of views.
- vi. It was apparent that there was a lot of information available in the various institutions. However, though some of the institutions already have information sharing platforms, it was generally accepted that there are major gaps in terms of information availability and access.
- vii. It was also noted that there was a lack of follow-up of past initiatives regarding development and implementation of biodiversity strategies and action plans.
- viii. The conference recognized that there was a conducive environment to stem the loss of biodiversity arising from the promulgation of a New Constitution, Kenya's Vision 2030, the development of the Land Policy and the existence of a new Wildlife Policy and Bill.
- ix. At national level, responsibility of biodiversity conservation is vested within a variety of government agencies ranging from departments, institutes to parastatals (Table 1 below). They have considerable overlap in mandate, policies and other

operational frameworks (World Bank Report N40659-KE). The coordination of their conservation efforts or lack of it, is a function of the mandating legislations and policies. Their number and diversity all the same, serves to underscore the multi-disciplinary approach required in biodiversity management. It also underscores government commitment to Agenda 21 that requires integration of social, economic and environmental goals to be highlighted as a national policy strategy.

- x. The conference has highlighted the need to establish mechanisms for developing agile biodiversity databases that can be shared by different users including resource use planners and decision makers; the need to develop and/review legislations on wildlife, environmental and forestry mechanisms to incorporate biodiversity conservation principles; the need to mobilize financial resources for biodiversity management; the need to develop a common vision on biodiversity conservation by establishment of mechanisms for integrating natural resources planning and data sharing; to ensure compliance of conservation plans with the New Constitution and to develop strategies for enhancing tourism value through premium perks and product diversification initiatives in diverse ecological settings.
- xi. However, with such a diverse group of government, non- governmental agencies on board coupled with diverse groups of structured and unstructured local communities, coordination emerges as a huge challenge to success. To solve this, realignment of these sectoral policies and a coordinating centre for biodiversity is recommended.
- xii. In Kenya over 70% of wildlife is found outside protected areas, yet this has not been prioritized in the conservation and management of wildlife in the country. The absence of clear policy guidelines to conserve critical habitats outside protected areas ought to be the impetus that guides the development of collaborative management.

5.0 Way forward

In view of the continuing decline in biodiversity amidst many existing policies, the conference recognized the need for a biodiversity-specific policy framework. Acknowledging this predicament, we propose a National Biodiversity Council (NBC) which would then develop a national framework for biodiversity conservation. Kenya's new constitution has not provided for the establishment of such a commission. This omission will make it difficult to coordinate conservation of biodiversity, despite the fact that Articles 71 and 72 make provisions for legislation to be developed with regard to natural resources and environment, respectively. Ideally, the commission ought to be composed of experts from land, forestry, wildlife, water, marine, livestock, economics and law drawn, from the public and private sector. The mandate of the commission shall be to set the national biodiversity agenda that will be the supreme legislation in as far as biodiversity conservation is concerned. Such an approach will serve three important purposes: First it will protect biodiversity from competition emanating from other purely economic land use activities at County level. Second, it will ensure involvement

Table 1-Some Government departments, institutes and parastatals in charge of biodiversity conservation

| Government agencies | Focal biodiversity area |
|--|--|
| Ministry of Land | Bedrock to all biodiversity elements/land use |
| Ministry of Agriculture: <ul style="list-style-type: none"> • Kenya Agricultural Research institute (KARI) • Kenya Plant Health Inspectorate and Services (KEPHIS) | Research on Agro biodiversity Plant health |
| Ministry of Water and Irrigation | Water ecosystem |
| Ministry of Fisheries: Kenya Marine and Fisheries Research institute (KMFRI) | Genetic resources, population and species Research on Fish species |
| Ministry of Culture & Social Services: National Museums of Kenya(NMK) | Research & Management of genetic resources to ecosystems |
| Ministry of Livestock: <ul style="list-style-type: none"> • Department of Veterinary Services • Kenya Tripanosomiasis Research institute (KETRI) | Livestock development, ranching, animal welfare Genes Species and Genes |
| Ministry of Local Government | Municipal and county councils, species and ecosystems, |
| Ministry of Forest and Wildlife: <ul style="list-style-type: none"> • Kenya Wildlife Service (KWS) • Kenya Forest Service (KFS) • Kenya forest Research institute (KEFRI) | Species and ecosystems Management of wild species and ecosystems Management of species & Ecosystem Research on Floral species |
| Ministry of Environment and Mineral Resources: <ul style="list-style-type: none"> • National Environmental management Authority (NEMA) • Department of remote sense resource survey (DRSRS) | Species, ecosystems and natural resources Cross-cutting: Ecosystem, habitats Research/ mapping of species and ecosystems |
| Previously under The Ministry of Science & Technology: National Council for Science and Technology (NCST) | Coordination of Research on cross-cutting biodiversity |

of all relevant sectors. Third, it will draw attention to the central government to allocate the resources specifically for biodiversity conservation.

This commission will also coordinate the implementation of the National Biodiversity Strategy and Action Plans. We recognize the existence of Government Agencies that are charged with the coordination role of Kenya's environment. They include the National Environmental Council, Directorate of the Environment, NEMA, National Environment Action Planning Committee and IMCE – Inter-ministerial Committee on Environment (see websites of Kenya MEMR and Planning: www.environment.go.ke and www.planning.go.ke respectively).

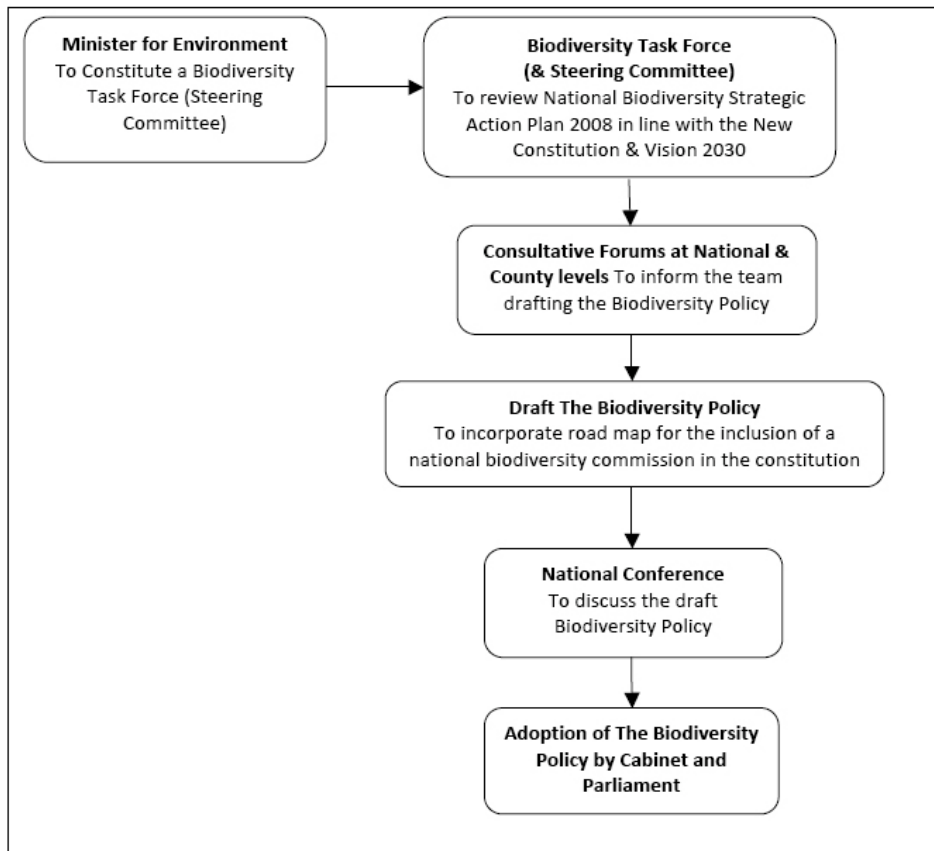
However, it is observed that despite the existence of these bodies, the coordination of environmental matters, and in this instance biodiversity conservation, remains elusive. Hence, the recommendation of a biodiversity commission preferably anchored in the Constitution.

Because of the challenges of time, political quorum needed to review the constitution to accommodate NBC, a legislation to establish a multi-disciplinary taskforce is proposed in the interim, as a precursor to NBC. Ideally, the National Biodiversity Taskforce (NBTF) would draw its membership from experts from key sectors in public and private realm but coordinated by the Ministry of Environment and Mineral Resources so as to:

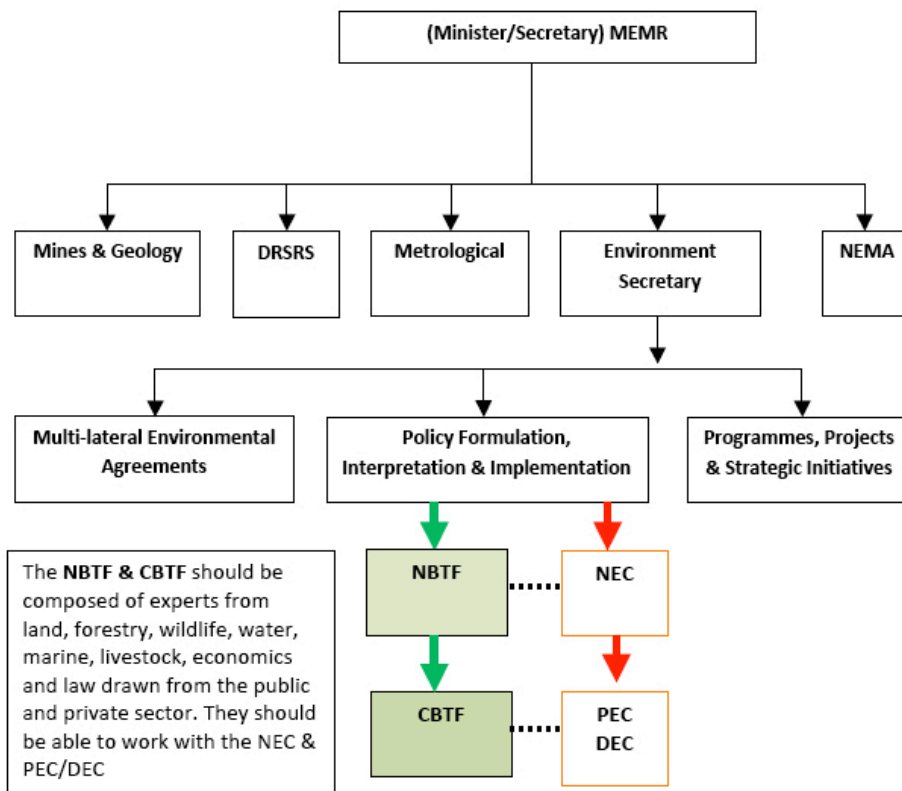
- Initiate the process of developing and legalizing the national biodiversity commission in the Constitution.
- Take lead in the revision of the existing national biodiversity strategy and action plan, in alignment with Kenya's New Constitution (devolved governments), and Vision 2030.
- Conduct periodical biodiversity status and make results public.
- Constitute a national biodiversity convention resulting from a series of participatory County fora.
- Review and harmonize sectoral laws to incorporate biodiversity conservation
- Oversee biodiversity conservation at county level through supervision of county biodiversity secretariat.
- Strengthen the Kenya Environmental Information Network (www.nema.go.ke/index.php) to enable it serve as a national environmental database, inventory and status report. It is acknowledged that the National Museums of Kenya established a centre for biodiversity in 1991 and this also should be strengthened together with the ongoing biodiversity informatics project, and the newly set up Kenya node of the Global Biodiversity Information Facility (GBIF) to serve the national biodiversity database. This centre will form the national platform for information access and sharing.
- Coordinate inter-ministerial meetings involving the relevant sectors.
- Analyze financial costs for review and implementation of a national biodiversity strategy and action plan, including identifying potential sources of funding both within the public and private sectors. In so doing, recognition should be given to the emerging opportunities of global funding schemes such as carbon stocks, PES and REDD.

In the formulation and development of a biodiversity framework, reference must be made to lessons learnt from countries that have an effective biodiversity policy/act. For instance, South Africa and Angola in Africa, the UK, Costa Rica, Japan and Australia. It will be noted that in all these countries, the policy process was extensively consultative and participatory between government, experts, private sector and local communities. Inevitably, this means that development of an acceptable biodiversity policy is inherently time consuming, but worth the effort.

Schematic Illustration for a Process to Establish the National Biodiversity Policy/Taskforce



Existing and Proposed Ministerial Structure Anchoring Environmental Departments and National Biodiversity Task Force



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The views expressed in this policy brief are those of authors, and not necessarily the views of ACTS or ACC.

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For those who may be interested, the full conference proceedings are available on the web
<http://www.kenyabiodiversityandclimatechange.org/>