

# MANAGEMENT AND CONSERVATION OF **MT. KENYA FOREST** PARTNERSHIP FOR SUSTAINABLE

RESTORATION

# **Mt. Kenya Business Case**

The hydrologic services provided by the Mt. Kenya and the Upper Tana River ecosystem are of key importance for the Kenyan economy and environment. It is the most productive basin for agriculture in Kenya, provides water to key national parks, generates half of the country's total hydropower, and supplies 95% of Nairobi's water.

Rain-fed smallholder agriculture uses 36% of the water budget, mostly through transpiration from crops. Hydropower uses 33% of the Mt. Kenya water. Although hydropower use is non-consumptive, the business is seriously affected by low water levels and siltation.

Irrigated agriculture utilises about 4% of the water budget, while around 2% is abstracted for Nairobi's water supply. The Upper Tana basin supplies Nairobi city water through the Sasumua and Ndakaini dams drawing water from the Chania and Thika rivers respectively. Water quantity and quality is generally reducing. Sediment load into hydropower dams is threatening electricity production.

The cost of water treatment has increased due to pollution. Demand for drinking and industrial water use cannot be met. Taking immediate action is not a choice but an obligation.

## The Problem

The Mt. Kenya ecosystem is undergoing a serious degradation. Deforestation remains the greatest threat facing the Mt. Kenya forest. This threat has impacted negatively on the quality and quantity of water flowing downstream. Over the years there has been a decrease in water volume due to loss of forest cover. Hydro power and water abstraction reservoirs are getting silted with sediments from degradation, significantly raising water treatment costs. Rapid urban population growth and unprecedented industrial activity has given rise to increased water stress, further.

## **The Intervention**

Urgent action is needed. Down-stream water users including business, hydropower producers, crop farmers and water transfer companies need to provide incentives for upstream stakeholders and forest protectors to halt forest loss and restore degraded areas and promote sustainable land management and production.

## Aim

Public and private sector partnership sustain water flows from Mt. Kenya forest to meet the domestic and commercial needs of stakeholders.

# Goal

Strategic commitment and support from the business sector enhance water quantity and quality from Mt. Kenya due to sustained water catchment management by and for stakeholders.

#### Target

Annually provide Ksh 140 million to plant 2 million trees to restore 2,000 Ha of Mt. Kenya and upper Tana catchment landscapes to increase quantity and quality of water and keep clean water flowing for access and use by down stream users and ecology.



# Benefits to Participating Business Companies

- Business sustainability
- Reduced costs of operation
- Sustained raw materials: water, electricity
- Greening the economy
- Social responsibility and equity
- Visibility, branding and image nature friendly

# **Benefits to Government**

- Implement National Forest program
- Reduce impacts of climate change
- Promote Vision 2030 and reduce poverty
- Sustain water for industry, drinking, food production and downstream ecology
- Conserve biodiversity



# **Benefit to Community**

- Business sustainability for longer term job opportunities
- Market for local produce in the tourism and hotel industry
- Direct income through production and sale of tree seedlings
- Longer term supply of forest ecosystem services e.g. water, medicinal plants, fuel wood and construction timber
- Education of local children at Mt. Kenya resource center and schools





### Table 1: Main Characteristics of the Seven Forks Dams (Republic of Kenya, 2011a)<sup>3</sup>

Dam Characteristics	Masinga	Kamburu	Gitaru	Kindaruma	Kiambere
Catchment Area (km²)	7,335	9,520	9,667	9,807	11,975
Reservoir Capacity (million m <sup>3</sup> )	1,560	150	20	7	485
Average Discharge (m³/s)	75	97	98	99	112
Power Plant Capacity (MW)	40	94	226	44	168
Head (m)	50	82	144	37	150

Source; (IVM, 2016)<sup>1</sup>

#### **Table 2: Main Characteristics on the Water Transfer Schemes**

Water Source	Sasumua Reservoir	Thika Reservoir	Masinga Reservoir	Kiambere Reservoir	
Demand Centre	Nairobi & satellite towns	Nairobi & satellite towns	Kitui	Mwingi	
River	Chania	Thika	Tana	Tana	
Year of Commissioning	1968	1993	1981	1998	
Transfer volume (m³/day)	56,200	414,700	7,296	1,390	
Inter/intra Basin water transfer	Inter	Inter	Intra	Intra	
Transfer distance (km)	60	50	60	70	

Source; (IVM, 2016)1

### Table 3: Key Characteristics of the Existing Large-scale Irrigation Schemes in the Tana Catchment Area

Irrigation Scheme	Mwea	Kaggari- Gaturi-Kieni	Mitunguu	Bura	Hola	Tana Delta	Del Monte K. Ltd
Irrigated Area (ha)	7,860	700	600	3,000	1,000	2,000	8,000
Water Source	Thiba & Nyamindi	River Thuchi	River Thingithu	Nanighi pumping station	Makere pumping station	Tana River, 13 km north of Garsen	Thika River, Makindi, Samuru
Average water abstraction (1,000 m <sup>3</sup> / month)	43,034	555	485	2,379	793	1,095	11,718
Dominant Crop	Rice	Bananas	Horticulture	Maize	Maize	Rice	Pineapple
Year of Commissioning	1956	Unknown	2013	1982	1953	1997	Unknown
Executing Agency	NIB	NIB	NIB	NIB	NIB	TARDA	Del Monte K. Ltd

### Source; (IVM, 2016)<sup>1</sup>

<sup>1</sup>IVM Institute for Environmental Studies [2016]: *The Economics of Ecosystem Services of the Tana River Basin; Assessment of the Impact of Large Infrastructural Interventions.* 

# About Nature Kenya

Nature Kenya - the East Africa Natural History Society is a membership society formed in 1909 to promote the conservation of nature in eastern Africa. Our Mission is connecting nature and people for a sustainable future, we work with communities to improve their quality of life and as a result nature conservation. In pursuing this mission, Nature Kenya strives to:

- build a strong constituency for conservation across Kenya;
- enhance knowledge of Kenya's biodiversity; advocate policies favourable to biodiversity conservation;
- promote conservation of key species, sites, and habitats and encourage community participation in conservation through promotion of sustainable benefits.



To achieve these objectives, Nature Kenya educates, advocates, monitors and reports on conservation impacts at sites called Important Bird Areas (IBAs). Nature Kenya empowers local people through Site Support Groups (SSGs) that are nuclei of community change towards sustainable living in their local set up.

Nature Kenya has so far reached out to 57,000 pupils from 400 schools, and 75,000 adults, through environmental education.



Over 18,000 SSG and community members have been trained in a range of conservation and livelihood fields which include: feasibility assessment for nature-based enterprises; business management and marketing; soft loan schemes; agro forestry; bee-keeping; conservation agriculture; participatory forest management and biodiversity monitoring; tour guiding and hospitality; alternative energy sources and institutional strengthening.

## **How Nature Kenya Works**

Nature Kenya's work is based on science, action and partnership. We use up to date science to catalyse positive action for biodiversity by and for partners— Government, local communities and the private sector.

Our work to conserve biodiversity focuses on Important Bird and Biodiversity Areas. Birds are used as "first filters" to set conservation targets because birds are very good indicators of the health of the environment, as well as being important in their own right. Birds are popular, appealing and consequently exceptionally well studied and observed, providing an excellent scientific foundation for Nature Kenya's work. By saving the habitats and ecosystems important for birds, we effectively conserve a much broader array of biodiversity.



# CONTACTS

Nature Kenya-The East Africa Natural History Society Tel: +254 (0) 02 3537568 +254 (0) 739 200216 Email: office@naturekenya.org Website: www.naturekenya.org