

Urban Green Spaces: A Sustainable Approach

POLICY BRIEF





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Mombasa City cannot breathe without trees.

Background

Urban green spaces are areas with parks, gardens, and even street trees within the city. They provide resources and habitats for a range of species, creating distinct eco systems that support biodiversity and offer both ecological and economic benefits. Urban wildlife helps preserve ecological balance while enhancing human well-being in cities.

Trees support a range of ecosystem services, including air and water purification, flood regulation, and climate regulation, as well as providing recreation, education, and a connection to nature. They also support biodiversity, including birds, primates, and bats, which help in the pollination and dispersal of seeds.

These hidden values are far greater than direct products such as timber, fruits, and other materials harvested from trees. Urban development has a huge impact on the natural environment. As cities grow, natural habitats become fragmented, degraded, or lost, leaving animals with limited spaces and resources. Effective management of urban habitats is necessary to ensure the needs of both nature and humans.

- ♦ **Green spaces in urban areas are more than environmental assets.** They deliver tangible economic, health, and social benefits for coastal cities and their residents.
- ♦ **In Mombasa, urban expansion, new settlements, and infrastructure projects are placing** mounting pressure on already limited and fragmented parks, gardens, and street trees. Uncoordinated tree removal risks causing long-term environmental, social, and economic harm, slowing the city's progress toward sustainability.
- ♦ **To secure these benefits, Mombasa must urgently adopt management practices** that enable mature and young trees to thrive alongside urban development. Public awareness and community consultations before any tree removal or substitution will foster ownership, build trust, and ensure decisions are both scientifically sound and socially accepted.



Urban green spaces in the coastal city of Mombasa are limited, fragmented, and facing increasing threats from settlement and infrastructure developments. The recent removal of trees at Uhuru Gardens has generated significant public concern regarding the decision-making process and management of urban nature.



While public safety is important, unplanned removal of trees jeopardises biodiversity values, undermines climate resilience, particularly concerning air temperature, and even compromises community health and cultural values. Such actions reduce the green spaces available for people to sit quietly in nature, meet up with others, or engage in physical activity, more so for the young and the elderly.

Public awareness and consultations will create ownership of management plans and measures such as tree removals, replacements, or substitutions. Each person in Mombasa has less than 3 m² of green space, far below the 9 m² recommended by the World Health Organization (WHO). Informal and peri-urban neighbourhoods are the most underserved, lacking accessible parks or green corridors.

The city needs urgent measures to promote management practices that encourage the coexistence of nature and humans in intra-urban, urban, and peri-urban areas.

Urban Green Spaces in Mombasa

GREEN SPACE	APPROX. SIZE	STATUS / VALUE
Uhuru Gardens (CBD)	~3 ha	Central cooling, informal commerce, biodiversity hub, human physical and mental wellbeing
Mama Ngina Waterfront	~8 ha	Coastal public promenade, recreation
Tononoka Grounds	~2 ha	Sports field, local gatherings
Kengeleni & Kongowea Grounds	< 1 ha each	Informal recreation, shade
Jomo Kenyatta Public Beach (open green space)	~5 ha	Shoreline buffer, community events, and landing site
Haller Park (private, rehabilitated quarry)	~80 ha	Nature sanctuary, carbon sink
Kibarani Eco-Park (former dumpsite)	~20 ha	The restored urban park and mangrove zone are a major success story in land reclamation and greening.
Burhani Gardens (CBD, next to Treasury Square, Old town)	~1 ha	Urban Cooling, biodiversity, aesthetics, exercise,

Environmental and Climate Value of Urban Trees in Mombasa

ECOSYSTEM SERVICE	IMPACT
Urban Cooling & Heat Reduction*	Trees reduce local surface and air temperatures by 2–4°C through shade and evapotranspiration. This is crucial in countering the Urban Heat Island (UHI) effect, where built-up areas, such as Mombasa's CBD, Likoni, Nyali, and Kongowea, experience temperatures 3–7°C hotter than green or coastal areas. Trees cool tarmac surfaces by up to 19°C (through shading and transpiration). Trees near buildings can reduce need for air conditioning.
Carbon Sequestration	One mature tree stores 20–50 kg of carbon dioxide (CO ₂) in a year. A hectare of trees holds 30–50 tonnes of CO ₂
Flood Mitigation*	Trees intercept 7,000–12,000 litres of rainfall per year through canopy cover and root absorption. In a city like Mombasa, where rainfall events are becoming more intense and unpredictable, tree loss worsens flooding.
Air Quality	Trees filter 1–1.4 kg/year of inhalable airborne pollutants like fine particulate matter (PM _{2.5}) and nitrogen dioxide (NO ₂). Trees, therefore, support public health by reducing the incidence of respiratory diseases and cardiovascular problems.
Biodiversity, Habitat, and Ecosystem Services	One urban tree can support over 80 species of birds, insects, and small mammals, with indigenous trees supporting more diversity than exotics and mature trees providing more ecosystem services such as shade, windbreak and interception of rain than young trees.

Urban Heat Island Effect in Mombasa

On 29 July 2025, surface temperatures in tree-covered Uhuru Garden measured 26°C, compared to 41.5°C in the unshaded asphalt parking lot at Treasury Square. This heat difference intensifies heat stress and related health risks, particularly for children, the elderly, and outdoor workers. It increases electricity demand for cooling and makes walking less viable as a mode of transport.

Flooding in Mombasa

From 2020 to 2023, urban flooding increased, especially during the short rains (October–December). Heavy rainfall displaced over 200 households in Tudor, Bangladesh, Kaa Chonjo, and parts of Kisauni, and blocked key access roads. Tree removal in flood-prone areas like Uhuru Gardens, which also serves as a water retention basin, reduces stormwater absorption and buffering. The impacts include greater stormwater runoff due to the loss of permeable surfaces, overloading of Mombasa's ageing drainage system, and reduced soil stabilisation and erosion control.

Urban tree cover, especially in parks and riparian zones, is critical for flood mitigation, climate adaptation, and community safety.

Biodiversity in Mombasa's Urban Green Spaces

A botanical inventory of Uhuru Gardens in June 2025 found important indigenous tree species including landmark coastal species *Azelia quanzensis* (Mbambakofi); four threatened tree species; *Mkilisa fragan*, *Cynometra suaheliensis*, *Milicia excelsa* (Mvule), *Encephalartos hildebrandtii*; **and four indigenous fig species** *Ficus sycomorus* (Mukuyu), *Ficus bubu*, *Ficus bubei*, Coastal fig *Ficus sansibarica*.

Such tree species are rarely seen across the city, yet there is a strong need to diversify its urban forest.

The more diverse an urban forest is in its species, the more resilient it will be to pests, disease and climate shocks.

Green space management needs to focus on caring for what is there, with new planting bringing in diverse species, starting a slow shift away from common exotics such as Neem (*Azadiracta indica*).

The following are some indigenous and naturalised tree species that, among others, would be advantageous in Mombasa

Indigenous Trees

- **Mvule (*Milicia excelsa*)**
Tall, shade-giving, supports nesting and canopy, excellent carbon sink.
- **Mkwaju (*Tamarindus indica*)**
Fruit-bearing, habitat-supporting.
- **Mtomoko (*Annona senegalensis*)** – Pollinator-friendly.
- **Mikoko (*Rhizophora spp.*, *Avicennia spp.*)** – Mangroves protect coastlines and nurture marine life, particularly in low-lying areas like Tudor Creek and Port Reitz.
- **Mtondoni (*Xylocarpus granatum*)** – Coastal hardy, mangrove-adjacent.
- **Ficus species (*Figs*)**: Provide shade, fruits for birds and monkeys, nectar for butterflies and bees, hosts pollinator wasps, ants.
- **Bauhinia mombasae, Rauvolfia mombasiana, Fernandoa magnifica, Markhamia zanzibarica**: Small, flowering, rare, culturally significant coastal trees that merit urban planting.

Naturalised Trees

- **Mwembe (*Mangifera indica*)**
Deep roots aid in water absorption and soil stability; fruits and flowers provide nectar for pollinators like bees and butterflies. Mango trees are common in Likoni, Changamwe, and Jomvu, forming a traditional coastal agro-urban landscape.
- **Msambarau (*Syzygium cumini*)**:
Medium-sized tree 10-30 m providing fruit and shade.
- **Mstafeli / Sourcop (*Annona squamosa, A muricata*)**: small fruit trees suited for urban planting, especially around homes.
- **Jackfruit (*Artocarpus heterophyllus*)**: An underutilized food tree in Kenya, provides nutrition, roost, shade and eventually timber.



Wildlife & Pollinators



“Of utmost concern for wildlife is that removing additional trees at Uhuru Gardens would result in the loss of a critical roosting site used by thousands of straw-colored fruit bats.”

Eidolon Helvum



• Birds:

African Golden Oriole, Speckled Mousebird, Pied Crow, White-browed RobinChat.



• Pollinators:

African Honeybee (*Apis mellifera*), Carpenter Bees (*Xylocopa* spp.), Monarch Butterflies.



• Mammals:

Bush Squirrels, Four-Toed Hedgehogs, Insectivorous Bats, and Fruit Bats.



Straw-coloured fruit bats are ecological keystone species, playing a crucial role in seed dispersal, pollination, and forest regeneration across sub-Saharan Africa. The species is designated as “Near Threatened” by the IUCN Red List, attributed to significant population declines.

It is listed under the Convention on the Conservation of Migratory Species of Wild Animals (CMS, Appendix II), to which Kenya has been a signatory since 1999.

In 2024, Kenya ratified a CMS Concerted Action for straw-colored fruit bats, highlighting the importance of protecting their roosting sites.

Protecting the historically used roost site at Uhuru Gardens is therefore crucial for ensuring the continued survival of this colony.

Economic Aspects of Urban Trees in Mombasa

Urban trees are a savings for Mombasa’s economy. They are vital economic assets that deliver benefits far beyond their aesthetic value. They sequester carbon, filter pollutants, and provide food, timber, and shade, with the non-market value of their climate and health services far exceeding the market value of wood or crops.

In Mombasa, protecting and expanding tree cover reduces infrastructure costs, boosts tourism and property values, and supports livelihoods.

Every KES 1,000 invested in urban forestry yields KES 2,000–6,000 in avoided costs, savings, and increased revenue.

Benefits

- **Cultural and Tourism Value:**

Mombasa’s coastal identity is tied to its tree-bao-babs, frangipanis, neem, mangoes, and palms. Green, walkable areas enhance tourist appeal.

Kibarani Eco-Park, once a toxic landfill, now attracts hundreds daily with tree cover, mangroves, and biodiversity and recreation spaces like Mama Ngina Drive and Haller Park benefit nearby vendors, boda boda riders, and public transport operators.

- **Public Health Benefits:**

Trees cut healthcare costs by improving air quality and reducing heat stress. In East African cities, green spaces save up to KES 2,000 per person annually in health costs.

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- **Shaded, accessible spaces encourage physical** activity, reducing the risk of non-communicable diseases like heart disease, diabetes, and hypertension.

- **Jobs and Livelihoods:**

Urban forestry supports youth and women in nursery production, landscaping, park maintenance, and ecotourism. In Mombasa, activities like urban beekeeping in Jomvu and Port Reitz depend on native canopies such as mvule and fig trees.

- **Higher Property Values:**

Homes near green spaces or tree-lined streets, such as in Nyali, Tudor, and Kizingo, command 5–20% higher rents and resale prices compared to similar areas with minimal greenery.

- **Stormwater Management Savings:**

A mature tree can absorb up to 200 litres of rainwater during a storm, reducing pressure on the city's drainage system. In 2023, Mombasa spent over KES 50 million on emergency drainage and flood response—costs that could be reduced with more urban tree cover.

- **Cooling and Energy Savings:**

Trees lower indoor and outdoor temperatures, reducing cooling costs by 20–50%. A shaded home or shop in Mombasa can save KES 500–1,200 monthly on electricity, adding up to millions in city-wide energy savings each year.



Policy Recommendations

Legal Protection for Public Green Spaces:

Designate areas like Uhuru Gardens, Kibarani Eco-Park, and Mama Ngina Waterfront as Urban Biodiversity and Cooling Zones under County Law to safeguard them from encroachment and unsanctioned tree removal.

Survey:

Conduct a comprehensive tree survey to determine canopy cover, green space distribution, and species diversity. Use the global target of 30% tree cover as a benchmark.

Tree Management Framework:

Require Environmental Impact Assessments (EIAs) and community consultation before tree removal in public green spaces. Adopt a 1:5 tree replacement policy focusing on native species.

Develop official urban tree management guidelines for planting, maintenance, and integration into urban planning and landscaping projects.

Urban Greening Master Plan:

Expand and link green spaces to form urban ecological corridors. Prioritize underserved areas like Kisauni, Likoni, and Changamwe to ensure equitable access to nature's benefits.

Integrated Landscaping and Public Art:

Combine urban forestry with public art to create vibrant, multifunctional spaces that foster civic pride, attract tourism, and strengthen community cohesion.

Community-Based Stewardship:

Engage schools, youth groups, and community-based organizations in tree planting, maintenance, and biodiversity monitoring to promote a culture of environmental care.

Scale the Kibarani Restoration Model:

Support an analysis of the decommissioned landfill, document success story and replicate it in other degraded areas such as disused quarries and abandoned road reserves.

Annual Green Spaces Day:

Set aside the last Saturday of February as a day for Mombasa to celebrate progress, set new greening targets, and honour green champions in every sub-county.

Activities on this day may include community tree planting, art, poetry, music competitions themed "Green Mombasa," and public dialogues with planners and policymakers.





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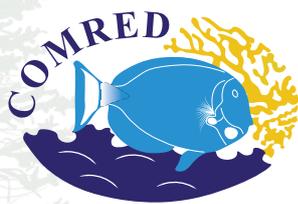
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