

## Are mangroves sustainable as peri-urban forests? A case study of Mombasa, Kenya

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### Abstract

Mangroves are robust life support systems in the tropics and the subtropics, endowed with appreciable level of resilience to disturbances. The emerging peri-urban nature of coastal areas is gradually becoming the norm, with little attention from researchers. The Tudor creek mangroves in Kenya represent a typical peri-urban mangrove system. Our studies through questionnaire and field surveys reveal that the mangroves have been exposed to raw domestic sewage for decades, subjected to unregulated wood exploitation and impacted by natural climatic events – the abnormal rains of 1997-98 and 2006 associated with the El Niño Southern Oscillation (ENSO) causing significant siltation in mangrove forests. We establish that in an urban setting, no link or bond exist between the resource user and the resource or the natural system. Under these circumstances resource exploitation is intense and “efficient”, driven by short term economic benefits. This greatly undermines traditional or customary resource and biodiversity values and compromises the indigenous management principles, promoting destructive unsustainable harvesting or exploitation practices. The outcome is the under-valuing of ecosystem goods and services in addition to degrading the ecosystem structure, function and the capacity to recover after disturbance. Therefore management of mangroves for wood extraction in urban settings may not be a viable or sustainable option. This conflicts with functions of mangrove ecosystems, otherwise important in ‘resource limited’ urban environments. It is recommended that a *participatory* and *adaptive management* approach, accounting for and considering multiple uses and users is the viable way to manage peri-urban mangroves. This will ensure social and ecological resilience in the long-run. However, this may require specific legislative, education and institutional interventions, scaling up and allocating costs as all levels of management.

### Keywords

firewood, utilization, exploitation, harvest, peri-urban, sustainable