



Incentives for conserving and greening our cities

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Jangwani wetland (open grounds) in Dar es Salaam city increasingly attracting birds

CONCERN for sustainability has been at the forefront of biodiversity conservation efforts worldwide. "Biodiversity" has been defined as the variety of all living things and their many interactions with each other and their environment.

For decades, the focus of biodiversity conservation in Tanzania has been largely on wilderness especially in the National

Parks, Game Reserves and other protected areas (PA). Little attention has been given to conserving biodiversity in areas where people live and work.

One negative consequence of this skewed conservation (SC) approach is that there is less appreciation by the local communities of the biodiversity and only a handful of local Tanzanian population can stand to protect the wildlife when threatened. The struggling domestic tourism is partly a consequence of under-appreciation of the

value and the contribution of nature to humanity.

Studies have shown that conserving wildlife under protected systems is not a lasting solution for population declines as many PAs have recently demonstrated a significant loss of large mammals. However, a shift from the current (SC) approach to a more inclusive wilderness and urban conservation (WUC) could, in the long-run improve conservation of biodiversity in our country.

Such a paradigm shift is important for nurturing urbanites to appreciate the importance of nature. Transforming urban communities into conservators needs clear understanding of the values that nature provides to humanity especially in urban environments where the people live and work.

In this contribution, I draw examples from the world cities to identify the values of nature to humanity and their implications for biodiversity conservation in urban areas. Finally, I describe the ways through which our cities can improve their conservation potential. Primarily, urban habitats include urban forests, rivers, gardens, city parks, walls, zoos, backcourt,

This has led to more plants being grown, therefore increasing birds and insects in the region. Additionally, in Stockholm city trees can lower summer temperature to as below as 0.60C outside the city compared to downtown.

Secondly, urban biodiversity provides opportunity for recreation and cultural values. Amongst the ecosystem services most appreciable to urban citizens is how the ecosystem provides them with chances for play and rest after work stress. Stressed people experience relief when in close contact to nature. Research has shown that people's stress decreased rapidly when exposed to natural environment and increased even higher in urban environment.

environmental leadership of people in cities, their donations and votes from poor urbanites as a result of their nature experience culminated through contact with urban nature.

Thirdly, urban biodiversity helps people get rid of local financial poverty. This benefit is achieved through making tradeoffs with ecosystem products like gardening, herb medicines, ecotourism,



Dar es Salaam City's famous and only recreation park (Mnazi Mmoja) serves over 3 million people but is increasingly shrinking to urbanisation.

ledge, etc., that make home to most birds, reptiles, invertebrates, amphibians, native plants and mammals found in urban.

Through the provision of ecosystem services, urban biodiversity is critical to the landscape health and human existence. Ecosystem services are benefits human population derive from ecosystems functions. This includes natural regulation of water quality and water flow, for example, in New York, Sydney and Dar es Salaam, modification of microclimate, and assimilation of wastes have been done. Further, urban vegetation helps reduce air and noise pollution and regulate temperature to bearable levels.

For example, in Sweden, 85% air pollution can be filtered out in a park and 70% in a street with trees. Similarly in Chicago, 5,500 tons of air pollutants have been removed by trees providing saving of US\$9 million of air quality during one year.

A different study on the recovery of patients in a hospital showed that patients with rooms facing a park had 10% faster recovery and needed 50% less strong pain-relieving medication compared to patients in rooms facing a building wall. In another study, clinically anxious psychiatric patients responded positively to wall pictures of natural environments, but negatively, occasionally even violently, to most other decorations containing abstract art.

These values have implications for conservation in cities especially on how we design our hospitals and gardens. Overall, participation in environmental activities such as restoration in urban areas strengthens morale and concern toward conservation. It adds social, ecological and environmental concerns among participants, who potentially influence conservation decisions. In the long run, nature conservation will depend on future

zoo and farming of plants and animals. Tree cover in particular, reduces air temperature, resulting in energy saving for city residents, can increase property values and protect roads and building against landslide and floods.

Vegetable gardens increase and guarantee available household food, fuel wood from local forests helps to reduce household energy costs and timber can be used for basic household furniture. Further, nature tourism in urban areas contributes to earning of currency, hence enhancing people's livelihood. For example., in Hong Kong one third of the city's revenues come from urban nature tourism. As a result, the city defends its natural park against pollution and degradation.

Although urban nature can improve the human wellbeing; humans have continued to threaten urban habitats. There is no single best starting point to enhancing

conservation potential of the urban as both local and regional actions are equally important.

Urban conservation by can be raised by public awareness and participation to create conservation constituencies among urban societies. The success of biodiversity conservation depends on broad-based public support. Increasing understanding amongst decision makers and the public about the value of biodiversity to individual lives may improve turnovers to conserving wildlife and habitats. Because threatened species in cities mostly occurs on privately owned lands, a participatory approach would offer conservation sustainability in urban areas.

Studies point out that joint community works in Australia and Chicago offer conservation sustainability of native species remaining and restore degraded and heavily fragmented agricultural areas. Moreover, educating and involving the public especially urban school children in conservation projects has greater impact on their future conservation attitudes. If we are to grow and produce competent environmental leaders and pro-active conservation community, we must ensure that children have access to nature. By creating an informed community over biodiversity, conservation would trickle from community own initiatives.

Increasing gardens and green spaces and

improve their potential for supporting biodiversity. City gardens are important for many reasons. One, they harbour diverse biotic species which are nationally or regionally rare or scarce and secondly, city gardens harbour high proportion of species and density which have experienced severe declines in the countryside as a consequence of intensive agriculture and urbanization process. Wildlife gardening seeks to enhance the presence of native plants, butterfly, birds, and amphibians. For example, a research conducted in Sheffield-UK to assess the biodiversity potential of gardens and semi natural habitats found that gardens contained more than twice as many taxa as those from other habitat type.

The conservation potential of gardens and other green spaces can be improved by combination of supplying artificial nest sites for solitary bees and wasps; providing artificial nest sites for bumble bees; building of small ponds in gardens and green areas to attract frogs and other aquatic organism and provide patches of nettles *Urtica dioica* for butterfly larvae and encouraging trees and artificial structures for birds and other species. Several birds inhabiting cities are cavity or cliff nesters and their success are more likely limited by availability of nesting structures. Artificially provided nesting sites would certainly add their reproduction potential in our cities.

Other conservation measures can be to increase native tree planting in streets and open public spaces and encourage urban forests in Tanzanian cities. Trees are not only important for shade and controlling noise pollution but also provide habitat for animals. An area covered by vegetation has been observed as good indicator of species of mammals, amphibians, reptiles and insects. For example, in some Canadian cities, planted trees (*Sorbus americana*) along streets have attracted large number of Bohemian waxwings (*Bomby-cilla garalus*) and wintering-Merlin, a secondary colonizer as a consequence of increased food within the city.

Retaining, creating and restoring systems and native species in managed and ruderal habitats such as Jangwani grounds would improve urban biodiversity. Retaining pre-existing vegetation as remnant natural habitats during urban development, have been recognized to support high species richness. Therefore, urban planners should collaborate with ecologists to identify potential areas for biodiversity including recovering areas already destroyed, and incorporate them in city planning strategies.

Advocating green roof construction plans in cities to increase habitat for wildlife survival are another way of greening cities. Green roofs are crucial tools for invertebrates conservation and provide links among the existing wildlife habitats in urban. Furthermore, they facilitate wildlife movement and dispersal and serve as refuge for declining and rare species.

In the UK and Switzerland, green roofs have been observed to provide good habitats for biodiversity; as a consequence city construction law is being amended so that green areas are mandatory on flat roofs. Therefore, considering the importance of urban biodiversity to the lives of urban dwellers, city planners should strive for more green spaces to make our cities better places for live in.

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Dar es Salaam green space at Jangwani grounds threatened with human habitation and refuse disposals.