Promoting the Integration of Agroforestry in Urban and Periurban Kisumu

The dramatic increase in the urban population of Kisumu demands corresponding attention to food, fuel and shelter. Improving the quality of life thus calls for design strategies which include agroforestry.

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Transportation is a major constraint to urban tree product traders- transporting Eucalyptus poles to the Market from a peri urban location in Kisumu

Kisumu is the third largest city in Kenya and a growing commercial, fishing, industrial and communication centre in the Lake Victoria basin. Kisumu city covers an area of approximately 417 km^2, with an estimated population of 345,312 (GoK 1999 census), which is growing at a rate of 2.8% per annum. The city lies at a height of over 1100 metres above sea level and has a humid climate with an average annual rainfall of 1245 mm.

URBAN AGRICULTURE IN KISUMU

Urban and periurban farming practices in Kisumu largely include small-scale rain-fed mixed farming, small-scale river-irrigation, wetland farming, fish farming and free range livestock keeping. The most intensive agriculture is practised along the lake shore in the lower-lying flood plains of Nyalenda and Dunga, and in the wetlands to the south of the city. Larger plots under agriculture are found along the foothills to the east bordering the periurban fringe. There is no data showing the extent and coverage of urban agriculture in Kisumu city.

Agriculture in the larger Kisumu district is still characterised by mainly small-scale subsistence plots, consisting commonly of maize, groundnuts, beans and sorghum. Rice and sugar cane is also common in the smallholder irrigation schemes. Cultivation of crops such as kale, tomato and local vegetables for the urban market is reported to be increasing.

A common feature in all these farming practices is the progressive elimination of tree and shrub cover to allow maximum space for cultivation, inadvertently exposing the soils to natural forces of degradation. Over-cropping has resulted in degradation of the once highly fertile soils in the region. Most poor urban farmers are unable to afford the high cost of fertiliser, and they sometimes apply household and livestock waste directly on the fields. Farmers around the city's Nyalenda sewerage ponds have been noted to apply wastewater from the dysfunctional ponds to fertilise their crops, oblivious of the associated health risks.

The present urban agriculture land use practices often result in high crop failure owing to hitherto poor farming practices, unreliable rains, drought and frequent floods in the flood-prone areas of Kadibo. Kisumu city is thus a net food importer and suffers from a food deficit.

The present municipal policies pay little attention to agroforestry practices and to urban agriculture, even though incidences of dust storms and wind destruction of property have increased in recent years (SoE Report 2003). Poor urban planning that doesn't incorporate urban tree planting as a means to earn a livelihood, lack of a policy framework and institutional support for urban farming and institutional perceptions all constitute constraints to urban farming. Kisumu district has neither gazetted forests nor any forest on Trust land. No area in the district used public utility has been set aside for afforestation purposes. However, pockets of privately owned forests and woodlots are present within the district (SOE Report 2003).

BENEFITS OF AGROFORESTRY

Urban and periurban agriculture could benefit from including agroforestry technologies ready for application in limited intra-urban spaces as well as open areas characteristic of periurban areas. For example, ICRAF has been working with tree nursery operators who produce a diverse range of tree species on small urban spaces for a diverse range of clientele. The operators have been trained in better nursery practices, marketing and entrepreneurial skills. They now conduct their activities in the form of an association, which helps solve the common challenges they face while conducting their businesses in the Kisumu urban setting.

In addition, food and non-food products from diverse trees and shrubs can improve the nutrition and incomes of poor urban farming households. This could be

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POSSIBLE SPECIES AND THEIR USES FOR URBAN AND PERIURBAN KISUMU

FRUITS	FODDER	MEDICINAL PRODUCTS	TIMBER, POLES FUEL WOOD
Grafted mango *(Mangifera indica)* varieties	*Calliandra calothyrsus*	*Warburgia ugandensis*	*Gevillea robusta*
Tree tomato *(Cyphomandra betacea)*	*Leuceana trichandra*	*Azadirachta indica*	*Giant Bamboo Dendrocalamus giganteus*
Grafted avocado *(Persea Americana)* varieties	*Morus alba*	*Moringa oleifera*	*Eucalyptus spp*
Tamarindus indica	*Glericidia sepium*	*Mondia whytei*	*Trichilia emetica*
Zizyphus mauritiana	*Desmodium sp.*	*Salvadora persica*	*Albizia species*
Syzingium cuminii			*Acacia species*
			Casuarina equisetifolia

realised by better integrating diverse fast-growing tree species and shrubs in the urban and periurban areas. Already tested and proven tree species that provide fruit, medicinal products, timber and fuel wood could be popularised to enrich existing farming practices.

Many urban residents in Kisumu and indeed other cities in the developing world rely on biomass fuels for cooking and heating. The scarcity of wood in the entire district has indeed led to rapid fuel wood commercialisation.

It is important to note that trees do provide food and non-food needs and also help in correcting urban challenges ranging from impairment of human health, nutrient cycling, damage to the ecosystem and economic losses.

Agroforestry fertiliser trees that are useful especially for the periurban fringe are available to support soil enrichment options. Some species that also offer additional benefits such as traditional vegetables, fodder and firewood include *Crotalaria brevidens*, *Sesbania sesban*, *Leuceana trichandra*, *Calliandra calothyrsus*, *Glericidia sepium* and *Tithonia diversifolia*

A PILOT INITIATIVE

Recognising the emerging dynamics of urban agriculture, a multidisciplinary and multi-institutional team from the Municipal Council of Kisumu, Ministry of Lands and Settlement and the World Agroforestry Centre (ICRAF) highlighted the potential benefits offered by urban agroforestry and selected Kisumu City for a pilot urban agroforestry project. The pilot project focuses on research, physical planning and policy issues on urban agroforestry and agriculture in Kisumu. The aim is to further promote and integrate agroforestry technologies into present periurban and urban farming practices in Kisumu. This pilot programme attempts to characterise and investigate the dynamics and map typologies of existing urban and periurban land tenure and agroforestry practices.

Initiatives by the World Agroforestry Centre (ICRAF) to introduce high-value trees within close proximity of the city boundaries appear to have triggered some minimal introduction of such species.

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Selling of traditional vegetable in a peri urban market in Kisumu city.

Other initiatives include integration of environmental management plans by the Ministry of Land settlement in collaboration with the Green towns' movement.

Several initiatives are currently underway in Kisumu that give strategic consideration to urban agriculture. Some of these are included in the City Development Strategy (CDS), a compilation of priority development concerns and an investment framework reached through a highly inclusive and democratic consensus-building process involving grassroots communities and all development sectors in Kisumu. The environmental report for Kisumu (MCK, SOE 2003) highlighted various priorities to address current environmental challenges in the Kisumu district. The national land policy developed in Kenya provides yet another platform upon which to build consensus on more robust national urban land planning that pays keen attention to a healthy urban environment.

Many partners are already working together with ICRAF around Kisumu, including Kisumu Consortium (CoSoFaP), Urban Agriculture and Livestock Forum for Kisumu, Municipal Council of Kisumu, Ministry of Planning, Ministry of Agriculture (NALEP), Kenya Forestry Research Institute (KEFRI), Farm Africa, nursery operators, local NGOs and CBOs.

Make tree planting a priority at the design level, rather than a fill up activity for building sites

The majority of the partners have provided support on project planning and implementation, and have helped to build a common understanding of the possibilities of urban agroforestry. Workshops, seminars and networking will be further used for information sharing and for defining the roles partners can play in more scaled-up project activities expected in the near future. Policy recommendations are likely to emerge on how to incorporate urban agroforestry in land-use plans, strategic plans and master plans developed by the local authorities and the city inhabitants. This project seeks to make tree planting a priority at the design level, rather than a fill up activity for building sites and other urban projects, and by extension to include a social dimension in urban planning. Urban planning has to take into account the dynamics of land use and uncontrolled expansion in the cities. Currently, trees have to be fit in after everything else is included in a proposed design. Newly developed layout maps will also be useful in planning strategies for city development and in sorting out ownership and management rights.

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