

Thesis submission for Master of Science (International Organic Agriculture)

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The gardens of urban and peri-urban Khartoum, the Republic of the Sudan



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14th February 2007

Chapter 1

The structure and function of urban and peri-urban gardens in Khartoum, the Republic of the Sudan

1.1 Abstract

A verdant strip of urban and peri-urban agriculture (UPA) lines the banks of the River Nile at Khartoum, the capital city of the Republic of the Sudan. Little is known of its agricultural potential and level of ecological sustainability. This study was conducted in 120 gardens, covering 160 ha at the urban locations of Tuti Island and Shambat and the peri-urban location of El Halfaya to determine the extent, composition and function of UPA gardens in Greater Khartoum, which includes the cities of Khartoum, Khartoum North and Omdurman. The survey identified 84 plant varieties from 35 plant families, of which 47 were utilised as crops predominantly for commercial production of fruits, vegetables, spices and condiments, grains, and fodder crops. Tuti Island, where production of limes (*Citrus aurantiifolia* (L.) Swingle) was widespread, had the lowest crop species diversity with a mean species richness of 1.7 and Shannon index of 0.4. Shambat, where leafy vegetables were common, had higher crop diversity levels with a mean species richness of 4.4 and Shannon index of 1.2. El Halfaya, which was the only location where the production of spices and condiments was recorded, had a species richness of 3.7 and Shannon indices of 1.0. However, all three study locations were characterised by monocultural commercial production and relied on external inputs. There were 21 ethnic groups involved in gardening activities. 46% of garden households rely on off-farm income and gardens supply 12% of household food. Economic and ecological benefits would be gained from increased crop diversity and enhanced structural complexity.