

**U N I K A S S E L
V E R S I T Ä T**



A survey on urban and peri-urban agriculture in Niamey, Niger

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1 Introduction

The present study aimed at documenting the *status quo* of Urban and Peri-urban Agriculture (UPA) in Niamey, the capital of the Republic of Niger. The term UPA thereby refers to all agricultural activities in and around cities, which are judged to actually contribute or have potential to contribute to the livelihood of urban residents.

In Niger the urban population rose from 10.6% in 1975 to 21.6% in 2002, and it is estimated that by the year 2015 29.7% of the country's population will live in urban agglomerations (Human Development Report, 2004). At present the urban population grows at three times the rural rate (Schnitzler et al., 1998). For Niamey, which has today around 900,000 inhabitants, the population is estimated to increase to 2-2.5 Mio in 2025 (Maurice, 2003). The administrative area of Niamey comprises 239 km², of which 16,258 ha (68%) are agriculturally used (Issoufou, 2001, cited in Borrell and Beaumont, 2003). The Niger River crosses the town of Niamey on a length 15 km and constitutes its most important water source.

At a global level urban agriculture is estimated to produce 10% of the worlds' food supply (Schnitzler et al., 1998) and an increased interest is shown by organizations dealing with international agricultural research, such as "Urban Harvest", which is a CGIAR system-wide initiative on UPA. A positive correlation between urban farming and the nutritional status of children, particularly among lower socio-economic status groups, was found (Maxwell, 1995; Maxwell et al., 1998). Often mentioned hazards in the context of urban agriculture are the contamination of the urban environment by animals and the over-use of pesticides and inorganic fertilizers, as well as contaminated water sources for crop irrigation. However, agricultural activities have also a tremendous potential to help maintain a city clean, in particular through the recycling of organic waste (Bryld, 2002).

This case study was undertaken as a first step towards a broader project that aims at the quantification of nutrient fluxes and production efficiencies in UPA. Its aim was to collect basic data through interviews about UPA activities in Niamey, in order to better understand the functioning of this system and the rationale of the urban farmers that are involved in it.

4 Concluding remarks

The interviews confirmed the suspected diversity and interconnectedness of crop and livestock activities in the UPA of Niamey. Animal husbandry seemed to be the most diverse and flexible of these activities, as it depended less on land, water resources and land tenure than the cultivation of vegetables and millet. The most limiting factor for animal husbandry seemed the availability of fodder, which cannot be produced at sufficient quantities in the urban setting and was therefore extremely expensive during distinct periods of high demand such as the late dry season or the time just before religious feasts such as Tabaski.

Whereas millet cropping was mainly practiced for self-consumption, the produce of vegetable gardens was largely destined for the local market. Livestock keeping was practiced to earn cash and for meat auto-consumption during the religious feast of Tabaski. Even if the available quantitative data may be limited, the interviews clearly indicated that vegetable gardening had a higher land productivity, was more labor intensive and obtained a higher market value than the production of staples. Market-oriented vegetable production yielded the highest revenues, followed by livestock and millet with cowpea hay, commonly cultivated together with millet (Table 13).

Table 13. Revenues from different UPA-activities in Niamey

| | Livestock | Garden | Millet |
|--------------------------------------|-----------|------------|-----------|
| Total number of households | 106 | 55 | 76 |
| Households selling goods | 43 | 33 | 32 |
| Total revenues (FCFA) | 5,851,500 | 10,047,500 | 1,480,600 |
| Average revenue per household (FCFA) | 136,081 | 304,470 | 46,269 |

In this preliminary study it was not possible to assess the contribution of UPA to the overall monetary income of a household, the food requirements at the household level and its role in poverty alleviation. In this context it also remained unclear whether urban UPA activists are among the poorest city residents in Niamey. Nevertheless the percentage of privately owned UPA land was higher than expected and most UPA activists were natives or older migrants who lived in the town for over 15 years.

Besides the need for further quantification of UPA's socioeconomic implications, the results of the interviews suggest that future process-oriented research should address the quantification of nutrient fluxes connected to the different production systems as well as the effects of simple approaches to improve nutrient cycling and plant-animal interactions. Analyses of irrigation water from Niamey's sewage systems showed very high

concentrations of N (104 mg l^{-1}), P ($7,5 \text{ mg l}^{-1}$), K (98 mg l^{-1}) and copper ($0,9 \text{ mg l}^{-1}$) which should be included in nutrient balances to elucidate the potential of nutrient savings and leaching losses. On the other hand losses from denitrification and ammonia volatilisation during uncontrolled manure storage in intensive animal backyard systems are likely to be high. The application of techniques such as the addition of saw dust or bedding material, better composting strategies and a closer integration of manure production with vegetable gardening may lead to substantial reductions of losses and increased nutrient use efficiencies. As their size depends on the production setting and environmental conditions, the quantification of possible nutrient leaks will require detailed monitoring and eventually process-oriented modeling which will be the subject of a subsequent project.