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Urban Agriculture, Household Food Security and Nutrition in Southern Africa

by

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1. Introduction

Urban and Peri-urban Agriculture (UPA) is observed in varying degrees in both developing and developed countries worldwide. Its contribution to urban food security and poverty alleviation has recently become a subject of attention for policy makers. UPA appears to expand during economic crises, such as those induced by armed conflicts and structural adjustment, highlighting its use as a coping mechanism. UPA contributes to food availability in cities and therefore to the diet of urban consumers. It also generates income for urban households involved in production, processing, marketing and distribution of these foods, allowing them to buy food and face other expenses, therefore contributing to household food security and nutrition. On the other hand, negative health impacts – in particular linked to poor food quality - may have a detrimental effect on nutrition.

At present, the information that is available on the opportunities and constraints of UPA for household food security and nutrition is extremely limited, and it is hoped that this meeting will fill some of the information gaps for this region. An e-mail conference, "Urban and Peri-urban Agriculture on the Policy Agenda" has recently been completed in which "Food Security and Nutrition" was one of the three central themes. This paper will essentially draw upon the outcomes and contributions to the e-mail conference from the point of view of nutritionists and focus on small-scale production in urban and peri-urban areas, enriched with experiences from Southern African cities and Mozambique in particular.

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In Southern Africa, urban food security has increasingly become an area of concern. Some of the early warning systems and food security monitoring initiatives, such as FEWS in Zimbabwe, FHANIS in Zambia or the FAO-supported Household Food Security and Nutrition Information Network in Mozambique, are broadening their original rural focus to include urban areas. Data on household food security and nutrition for Southern African cities are, however, still scarce. According to the 1994 Nutrition Country Profile for Zimbabwe, acute under-nutrition or wasting among children under three years was already slightly higher in urban than in rural areas, which contradicts the well-established assumption that malnutrition rates are higher in rural areas and clearly indicates increased urban poverty. Recent FEWS reports indicate steep price increases for basic commodities in urban areas, resulting in a 45% increase of the basic food basket from one year to the next. The high frequency of micronutrient deficiencies, such as vitamin A, iron and iodine, is also reported, while over-nutrition among women is increasing especially in the urban areas (40.4 % versus 16.7% in rural areas in 1994, Zimbabwe).

In view of this situation, it is important to understand the potential relationship between UPA and nutrition in order to enhance positive effects and minimise negative ones on household food security and nutrition.

2. UPA and food security

UPA contributes to urban food security through increased food availability, stability and, to some extent, accessibility. Urban and peri-urban agriculture (inasmuch as it produces food), increases food availability and contributes to the overall urban food supply. The general picture emerging from the e-mail conference distinguishes between the production of perishable, nutrient-rich and essentially commercial foods, such as vegetables, fruits, eggs, milk and poultry, on the one hand, and of staple foods and other subsistence foods, on the other.

An important part of the commercial production of fresh products takes place in peri-urban areas, which have a comparative advantage in terms of market and distance. UPA therefore makes a significant contribution to the supply of fresh foods (horticulture, fruit, eggs, milk and poultry) in urban areas although this contribution varies from city to city. The contribution of vegetables grown in urban and peri-urban areas thus ranges from 20% in Windhoek and Gaborone, 30% in Lilongwe and Blantyre, to 50% in Nampula and 50-90% (according to the type of vegetables) in Dar es Salaam.

The production of staple foods in urban areas is seen as a coping mechanism in situations of severe food insecurity and is geared to household consumption in most regions of the world. The situation in most cities in Southern Africa appears to be somewhat different, however, as in both urban and peri-urban areas, families have traditionally had access to a small plot and to engage in small-scale food production for their own consumption and to increase the family income. In some towns and cities in Mozambique, even in the third largest city of Nampula, most families have fields, and staple crops are actually more important than horticulture crops. In Harare, Lusaka and Kampala, most urban and peri-urban food production (maize, groundnuts, cassava, plantains, potatoes, cocoyams, beans) is geared to self-consumption. This may initially be due to the prevailing socio-cultural characteristics and resulting urbanisation patterns but has been considerably boosted by the worsening economic conditions in the region. Fifty per cent of Harare's urban farmers initiated production activities in the early 1990s when maize became the main crop. At this time, since access to land was insufficient, these urban farmers began using public land. Thus, approximately 75% of the open spaces of public land were utilised for maize cultivation, and 25% used for sweet potato. Today, 94% of farming households in Harare grow maize and 25% grow sweet potato.

The situation is similar in Malawi and Tanzania, where staple crops are grown "in season" in the cities while vegetables are grown year round. Although UPA production is, of course, influenced by seasons, it has also developed as a means of reducing seasonal gaps in fresh foods due to climatic differences with the main production zones, as well as more reliable access to water, access to non-flooded areas, and availability of labour. It therefore contributes to the stability of urban food supply.

UPA therefore improves physical accessibility. One would also expect UPA products to be cheaper, since most of the fresh products are sold immediately following the harvest, the distance between producers and consumers is shorter and the number of intermediaries is more limited than for the rural production areas. However, the assumption that UPA facilitates access by poor urban consumers to a cheaper supply of fresh products could not be confirmed in the conference. Some UPA products on the market may be accessible to the poor, but, in most cases they are too costly and can only be purchased by middle class consumers. Therefore, low-income households only benefit through their own production, i.e., producing foods that they would or could not otherwise buy, or from their involvement in processing and distribution activities.

Exhibit: Urban Agriculture in Mozambique

In the case of Mozambique², the population in urban areas grew from 13% in 1980 to 20% in 1997. Of this urban population, 62% can be classified as poor (per caput expenditure below poverty line) and 34% as ultra-poor (per caput expenditure below 60% of poverty line). Fifty-four per cent of the urban households have agricultural land, ranging from 75% of ultra-poor families to 41% of non-poor families. The (ultra-) poor are more involved in agriculture than the non-poor. Disaggregated data show that land holding is more common for families in smaller towns and peri-urban areas of bigger towns and cities (80-100%). The percentage of families having agricultural land is much lower in Maputo city than in the other cities. Up to 40% of urban families have some livestock, mainly poultry. As for crop cultivation, these percentages are highest for the small towns and lowest for Maputo city. Matola (the twin city of Maputo) is the exception with almost the highest percentages.

Studies in the cities of Beira and Nampula show that 90% of the families involved in UPA do have formal employment, but need to grow crops as their salaries do not cover basic living costs. In less deprived areas the poorest population groups do practise UPA on open spaces of public land as part of their livelihood system.

Despite the large number of families having agricultural land in Mozambique, on average only 7% of the total food consumed (expressed as monetary value) comes from their own production, ranging from 13% for ultra-poor to 3% of non-poor. Once again these shares are bigger in the smaller towns and peri-urban areas and smallest in Maputo city. The main crops grown are maize, cassava, beans, fruit and horticultural crops. Only a small proportion of these crops are sold. Urban food security and nutrition profiles (unpublished) show that household production is an important source of staple food for urban families in high productive areas (north and centre of the country) and in peri-urban areas or smaller towns, and far less important in low productive areas, with a lowest share in total consumption for Maputo city.

Crops are mainly grown around the house, in the green belts and on bigger portions of agriculture land further out of town (up to 30 km for the bigger cities). Small plots in town or in the green belts are mainly used for horticultural crops, and fields out of town for staple crops. One can, however, see small plots of maize plants in the middle of the city and cassava is grown inside Nampula city in the north of Mozambique (Mulenga, unpublished). Maputo green belts are an important supplier of lettuce and different types of cabbage for the local market, whereas other vegetables are produced out of town or imported from South Africa.

Urban farming households can use their production for their own consumption, for sale or as gifts to family and dependants. Since urban areas do not have any real comparative advantage for commercial staple food production, staple foods are usually produced mainly for own consumption. The situation

² Sources: Ministry of Planning and Finance (1998); Population Census 1997.

is different for vegetables. Green leaves used for the preparation of relish may be grown for the household consumption but exotic varieties are usually grown for income-generation purposes (the surplus is, however, consumed). For example, a study in Harare showed that families used their maize harvest mainly for their own consumption, while a smaller part was sold or given away. Of the vegetables they produced, half were consumed and the other half sold. In general, poor families grow much more for their own consumption, whereas a relatively small number of less poor families are involved in commercial production.

In general the urban poor spend 60-80 percent of their income on food. UPA contributes to poverty alleviation both through a reduction of expenditures and through an increase of income. The income earned is usually spent on non-food items (e.g. transport, housing, school fees, health costs) and to a lesser extent, and especially by female producers, on food items. Either way, UPA plays a significant role in household food security.

It is, however, important to understand who does what, who decides, who controls the resources and the income generated and how this income is allocated. Therefore, gender aspects are clearly crucial. Women often have the responsibility for food procurement for the household and might see UPA as a way to gain a foothold in the urban economy, as their traditional skills in food production, processing and distribution can be put to good use and since they have less access to formal sector jobs (which may demand literacy skills they may not have). In Harare and townships of the Cape Town Metropolitan area, most of the urban farmers are women. However, involvement in UPA does not always guarantee women access to the urban economy. In Dar es Salaam, for instance, women grow food for their family's own consumption in home gardens, whereas men grow food for the market in the open spaces. In Malawi, women do most of the work on the fields and might even sell the crops, but the income is still controlled by the men.

Few paid jobs are created/exist in UPA with the exception of commercial horticultural production in peri-urban zones as farming households generally sell the products themselves. No information on post harvest handling or processing was made available, apart from an occasionally reported link to the street food sector.

Factors that negatively affect the contribution of UPA to household food security are land tenure problems, high water cost in many urban areas and theft. In Nairobi, over 70% of UPA takes place on public land, along roads, rivers, etc., without any tenure security. In Dar es Salaam most farmers use land through informal agreements or completely without agreement. In Nampula city (Mozambique), over 40% of families borrow land, mainly from relatives, sometimes with payment in kind. Tenure security lasts only until the harvest is completed, after which the owner can reclaim the land if he needs it for other purposes. Other families cultivate unused public or private land without permission and often without knowing to whom it belongs, risking being evicted from it at any moment with no compensation. Urban farmers are however getting organised. In the Maputo green belt farmers are organised in associations holding official land titles (Mulenga, unpublished).

Access to water, and in particular to clean water, is a major constraint for urban farmers in most Southern African cities where there is either a lack of water or costly tap water must be used. Water prices have also increased as structural adjustment policies have aimed to ensure that they reflect real costs. In Botswana, for instance, water represents 40% of total production costs. Yet another major problem for urban farmers is theft. In one of the neighbourhoods of Nampula, farmers confirmed that: "no week passes without someone reporting theft of his crops" (Mulenga, unpublished). On the Cape Flats, theft was also mentioned as one of the important problems.

All of these problems will likely worsen if the economic crisis deepens. The pressure on land is likely to increase as a larger part of the population will be looking for coping strategies, of which UPA is one. The poorest households (and in particular those headed by women) might lose their access to public land for cultivation, as the less poor and middle-income groups become involved. This has already been noted in Harare, where relatively better-off families claim the open spaces around their houses that are being used by poorer families to grow food, and in Malawi where land rental prices are rising. People will have increasing difficulties in accessing a clean, reliable and affordable supply of water, and criminality will likely increase with increased poverty.

3. UPA, health and care

Urban and peri-urban agriculture also have environmental implications that have positive or negative effects on urban health, and thereby on urban nutrition. The increase in breeding grounds for malaria mosquitoes has been well documented. Malaria, which leads to iron depletion and therefore aggravates anaemia, is a serious public health problem among women and children in developing countries. Other related negative environmental effects are contamination of drinking water, degradation of natural resources (soil erosion, loss of vegetation, siltation) and depletion of water sources. Contamination by pathogenic organisms, disease vectors, or residues of agrochemicals³ might also occur during agricultural production. It is argued that these risks are higher in urban areas through improper use of wastewater and agricultural inputs combined with high population density and limited land space. This is the case in particular for zoonotic diseases (infectious diseases transmitted through contact of human beings with animals during production processes, or ingestion of contaminated water or animal products). In northern Mozambique latrines are not customarily utilised. In Nampula city, for example, the lower areas and small streams, where most of the crops are grown, are used for this purpose (Mulenga, unpublished). In Dar es Salaam environmental contamination of UPA crops was reported around latrines, pathways and industrial wastewater outlets. Unsanitary practices all along the food chain (production, processing, distribution and food preparation) can cause contamination of products and affect the health of consumers.

On the positive side, UPA also contributes to a healthier living environment by reusing organic waste and urban-waste water. The "greening" of open land spaces through horticulture and urban forestry may also improve the quality of life as well as providing an easier access to fuelwood.

At the household level, women engaged in UPA activities close to home will be able to organise their time better and combine productive and domestic activities in a more satisfactory way than women that work far from their homes. They will save time on transport, have more time with their children and will be able to carry out a series of tasks which are essential to good health and nutrition (ensure hygienic environment and encourage healthy practices, take appropriate care of small children, sick and elderly relatives, take them to health facilities when needed, etc.).

4. UPA, diet and nutritional status

Although few studies investigated the impact of UPA on urban diets, its potential contribution to the quantity and quality of food intake is widely acknowledged. In cities such as Lusaka and Harare, the production of maize provides a significant contribution to the diet in terms of energy content. A study among urban farmers in Harare indicated that they grow on average sufficient staple crops for four months of the year. In a Soweto case study, UPA was found to be a successful strategy for the immediate relief of hunger and malnutrition. The increased availability of fresh products also improves the quality of urban diets through diversification, by adding horticultural and animal products to the basis of staple food. This allows urban dwellers to consume a more balanced diet, that

³ Mougéot (2000) argues that these are less prevalent than commonly believed, because poor people usually cannot afford them. In Maputo the farmers producing horticulture crops for the market use pesticides and fertilisers, which they buy at the informal market (Mulenga, unpublished).

is not only sufficient in energy, but also in protein and micronutrients required for body growth and maintenance. Literature confirms that urban farmers consume more vegetables than urban non-farmers, but an assessment of the impact on their vitamin and mineral status has not been carried out. This direct impact of UPA on diet through consumption of the foods produced is increased when the income raised through vending UPA products is used to buy food items, such as cooking-oil, which can further improve the quality and quantity of the diet.

In the few studies in Africa where energy intake of urban producers was compared to intake of non-producers, producers' diets were only slightly richer in kcal. Similarly, only small differences were found when comparing the nutritional status of children of urban farmers and non-farmers. In the harvest period, wasting (low weight for height, indicating acute malnutrition) was lower among the children in producing households in a Nairobi slum. For stunting (low height for age, which indicates chronic malnutrition), no differences were found between the two groups.

In Kampala (Uganda), on the contrary, stunting was significantly lower in children of farming families, in particular the poor, than in children of non-farming families, nor was any difference found in wasting among children in the two groups. This study also shows that mothers in farming families dedicate more time to direct child care than mothers in non-farming families.

In urban areas of Mozambique, stunting of children under five increases with increased landholding, which may reflect poverty and poor living conditions of urban families engaged in urban agriculture rather than a direct negative effect of urban agriculture on the nutrition status of children.

5. Making the best of UPA for better nutrition

Although UPA should certainly not be seen and promoted as the answer to urban food insecurity and malnutrition, the mere fact that people opt for this activity indicates that it is a viable coping strategy for individual situations. Urban authorities should be aware of the benefits and potential risks of such activities and assist urban farmers in producing safe and nutrient-rich products for both home consumption and city markets.

Research in the different areas previously mentioned is desperately needed in order to guide policy makers, local institutions and farmers.

Quality control along the entire food chain from production to consumption is essential so that urban consumers can have access to safe and healthy foods. But ensuring a better quality of urban agriculture products will also help producers obtain a better price from the sale of their production.

The organisation of urban farmer associations is a prerequisite to the improvement of urban agriculture. A participatory analysis of local constraints and opportunities is needed as the basis for an interdisciplinary approach to the design and implementation of required assistance. In addition to advice on land tenure issues, agricultural inputs and training (safe use of waste water, pesticides and fertilizers, organic waste)⁴, there is a role for nutritionists, food technologists, health workers and home-economists in the following areas:

- Selection of foods that are rich in nutrients and can adequately supplement the common diet, such as fast-growing crops and, where appropriate, small livestock, which should be culturally acceptable and easy to market;
- Preventing contamination of foods during and after production;

⁴ Agricultural services are almost non-existent in cities. In the participating countries only Tanzania (Dar es Salaam and Dodoma) and Mozambique (Maputo) have urban agriculture services. In Cape Town, and probably some other cities, non-governmental organizations (NGOs) support urban farmers.

- Exploring opportunities for processing of fresh products;
- Ensuring appropriate use of the food produced, through nutrition education, including general hygiene, child feeding, food safety, promotion of balanced and affordable diets; and
- Promoting appropriate household resource management.

Effective multi-channel communication strategies should be developed accordingly, in which health centres but also markets and street food vending points could play a key role.

This interdisciplinary approach should be facilitated by municipalities who should encourage collaboration between the various sectors and stakeholders involved (research institutions, agronomists, foresters, nutritionists, health specialists, food technologist/post-harvest specialists, home-economists, consumer organisations) in order to better address the needs of both small-scale urban producers and urban consumers. They have a clear role to play in the following fields:

- Consumer protection, through the establishment of food control systems;
- Linking nutrition needs of urban consumers with urban producers; and
- Ensuring sustainability and security of livelihoods of poor households through appropriate urban planning and tenure systems.

Policy makers should be aware of the benefits of UPA and should encourage (1) collaboration between practitioners and researchers, and (2) support to urban farmers to continue producing safe and nutrient-rich products for both home consumption and city markets. Policy makers should ensure that the needs and benefits of UPA are taken into account in physical planning (land tenure, water availability, drainage, etc.). They should investigate whether UPA is a viable strategy to improve food security among the urban poor who are not cultivating, and advise municipalities accordingly. Coordination among the various sectors involved should be encouraged from the urban, local level up to municipalities and the national level. Moreover, all sectors, as well as representatives of the producers themselves, should participate in policy research and formulation.

In summary, in order to maximise the benefits of UPA in terms of nutrition, the following issues should be addressed:

- Food produced in urban and peri-urban areas and offered to consumers should be safe;
- Specific assistance should be given to food insecure households engaged in urban or peri-urban agriculture activities, including food production – crops, trees, animals – but also processing and distribution, to help in achieving a more sustainable livelihood; and urban consumers, and particularly poor consumers, should be able to make informed decisions regarding food production, purchasing, processing, storage, preparation and distribution in order to make the best possible use of scarce resources, in cash or kind, for appropriate nutrition.

We look forward to receiving the results of your deliberations and encourage you to take into account these different points in the working groups.

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