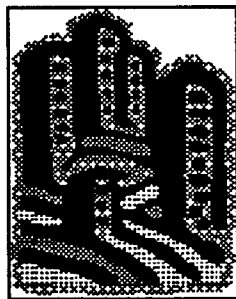
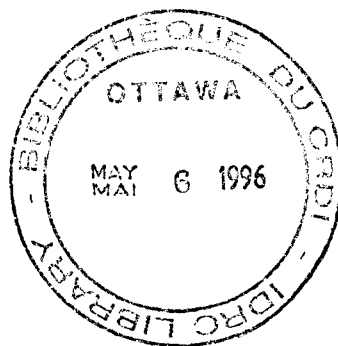


Urban Agriculture Research in
East Africa: Record, Capacities
and Opportunities

by
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Mazingira Institute¹
1993



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URBAN AGRICULTURE RESEARCH IN EAST AFRICA: RECORD, CAPACITIES AND OPPORTUNITIES

INTRODUCTION

This background paper on Urban Agricultural Research in Eastern Africa Region has been prepared for IDRC to facilitate the specifying of the general agenda of its Urban Environment Management Program (URB) in the region. The paper is intended to serve as a reference for implementing the research agenda after the review workshop in Ottawa this May (1993).

The paper has been laid down in conformity with a standard format for all the papers commissioned by IDRC on the various elements of URB Program, for ease of review and cross-referencing. It thus consists of three sections: regional research record on urban agriculture; appraisal of research capacity, and future research opportunities.

The section on regional research record on urban agriculture looks at the aspects that have been best researched on; contributions underlying results for science, technology and policy making; the aspects and specific objectives that deserve further research; and the interrelations between urban agriculture, water, waste and disaster in cities.

The appraisal of research capacity section deals with research institutions which could be interested in studying the issues addressed. It includes the available expertise, record and facilities of the institutions and their institutional partners.

The section on future research opportunities suggests research ideas that could be supported in the region by IDRC itself or in conjunction with other donors.

Until recently, research on urban agriculture and reference to it in the literature on African urbanization and development has been sparse; farming activities were considered unworthy of serious study. They were assumed to be economically unimportant and detrimental to urban and economic growth by researchers to an extent that they were usually considered illegal and scarcely deserving mention, notably in

studies of informal sector in African cities, even though farming activities share most of the characteristics of the informal sector (Memon and Lee-Smith, 1992).

This paper is a cursory overview and has been prepared using contributions from researchers in the region: Dr. Axumite G/Egziabher, Urban Planner (Ethiopia); Ms. E.J. Chagu, Ardhi Institute (Tanzania); Mr. Daniel Maxwell, Makerere Institute of Social Research-MISR (Uganda); and, researchers at Mazingira Institute (Kenya).

The study in Ethiopia (Addis Ababa) was conducted by Dr. G/Egziabher as part of her doctoral work. The researches in Kenya, Tanzania and Uganda were largely supported by IDRC. The Tanzania and Uganda explorations focused on the capital cities (Dar es Salaam and Kampala). The Kenyan study was countrywide; it covered six towns and is one of the most extensive urban agricultural research undertaken so far.

1. REGIONAL RESEARCH RECORD: STRENGTHS AND WEAKNESSES

This section describes, by country, the aspects of urban agriculture that have been well researched, the contributions underlying the most outstanding results, the aspects that deserve further research, and the interrelations between urban agriculture, water, waste and disaster in cities.

1.1. Aspects which have been best researched

ETHIOPIA

Food security: In Ethiopia, urban agriculture has been shown to be a final stage by households in their sequence of survival strategies. Households in the urban areas respond to the extreme threat of poverty and food insecurity by carrying out urban farming on any vacant space available. Urban agriculture is also practised because of shortage of income and unemployment in the urban centres.

Nutritional aspect: Urban agriculture has also been studied as a contributor to improved nutritional levels among the urban poor in Ethiopia. Vegetable production has been very important in most of the studies. Most of the urban population in Ethiopia consists of the poor who cannot afford to buy high-valued food stuffs.

Access to land: In Ethiopia, urban agriculture is carried out on land in transitional use where usufruct rights are at issue. This problem leads to low investment in urban agriculture and hence poor productivity.

KENYA

Access to land and crop security: In Kenya, it was found that urban farming takes place on land in transitional use or in marginal quarters where crop security and usufruct rights are at issue (Lee-Smith, D. et al., 1987). The study suggested the need to support local authorities, NGOs and community organizations in devising creative and flexible solutions for improving access to land. In the same study, urban agriculture was seen to be a neglected area among the others in the informal sector. It does not receive support commensurate with its contribution because it is dominated by women and is considered economically marginal (Lee-Smith and Lamba, 1992).

Food production: Fresh vegetables have been shown to improve the diet in urban centres of Kenya. About 77 per cent of urban farmers in Kenya produce entirely for domestic consumption (Memon and Lee-Smith, 1992). Crop growing is more common than livestock keeping although nearly half of the livestock die because of lack of veterinary services and starvation.

TANZANIA

Crop production and livestock keeping: In Tanzania, few people can live on a single source of income; most of them must seek additional income sources. As long as this prevails, crop production and livestock keeping will continue to provide additional sources of livelihood in the towns. It was shown in most of the studies that food production and livestock keeping are quite important in urban areas.

Supplementing the incomes of urban employees: Urban agriculture was shown to supplement incomes that otherwise could not support the urban population. Some of the produce in urban Tanzania is sold for cash in order to buy other commodities. This sustains the livelihood of those holding down-low paying jobs even in a situation of rapid inflation.

UGANDA

Urban food production: In Uganda, Maxwell and Zziwa (1992) found that urban farming was practised to produce food and to diversify and strengthen the income sources of the households. The two researchers describe urban farming as a significant

component of the survival strategy of middle and lower-income households developed during the past 20 years amid harsh economic circumstances. Jamal's study also concentrated on food production in Kampala. He estimated that Kampala is now twice as self-sufficient in calories as it was in 1972. Bigsten and Kayizz-Mugerwa (1992) count both food production and cash crop production as categories of income generation in Kampala. Most of the food was produced for domestic consumption. Selling surplus production was at a very low-level through local or neighborhood markets.

Access to land: This is another important aspect that has been studied in Uganda. It was shown by Maxwell and Zziwa (1992) that land is held in freehold with a title, but it can also be held in the form of *kibanja*, which entitles land use and inheritance rights as well as ownership of improvements to the land but not the actual ownership of land itself. The use of public land for farming is illegal.

1.2. Contributions of those studies for science, technology and policy-making

ETHIOPIA

- Urban development planning has tended to neglect urban agriculture over the years. This has led to lack of supportive services to the sector.
- Urban agriculture has helped improve production and food security for the urban poor in Ethiopia.
- Urban agricultural practices are underdeveloped. They have not been developed to suit the changing demands for better technology.
- Urban agriculture has not been encouraged and given its rightful place in the economy. For example, there are no extension services available to the urban farmers.
- Presently there is no stated policy regarding urban agriculture in Ethiopia.

KENYA

- Agricultural practices are very basic and dependent on hand labor with only a few simple and inexpensive tools (pangas, jembes or hoe). It should be noted that there is extensive use of organic inputs and even informal trade in these inputs in Nairobi.
- There is need to build on present practices to increase recycling urban biological

wastes through methods which can be maintained with low investment and operational costs. Other organic waste such as sewage sludge can also be treated for purposes of aquaculture.

- The majority of urban households in Kenya are unable to feed themselves adequately due to their meagre earnings. Those who are able to do so, cultivate land in backyard spaces, on roadside verges, or on other publicly owned vacant land. These farmers are not represented by any organizations even though they constitute a substantial group amongst the urban population.
- Urban farming in Kenya is not planned for and is often prevented or harassed.
- Technical advice and/or agricultural extension services are lacking in Kenya's urban farming environment.
- The urban poor are the most disadvantaged of all the groups with serious nutritional deficiencies. Yet there are no specific programmes targeted to improve the nutrition of the urban poor in Kenya (Memon and Lee-Smith, 1992). Even famine relief efforts ignore them.

TANZANIA

- Urban agriculture assists a big proportion of the unemployed and under-employed urban dwellers. For instance, in Songea a secondary town, about 59 per cent of the residents have farms; the climate in the region is favourable for farming. The crops grown both for food and income generation include: maize, cassava, beans, rice, sweet-potatoes, finger-millet, peas and coffee. The livestock kept include goats, sheep, pigs, poultry and dairy cattle (Songea Master Plan, 1990).
- Urban farmers experience low level of agricultural technology; exhaustion of the natural fertility of soils; inadequacy of authoritative guidance on the appropriate uses of river valleys which transverse the towns; and, inappropriate regimes of rains.
- Labor is abundant in urban areas and the built-up area is not extensive, so for the time being, there is the potential to use vacant areas for agricultural activities.
- About 23 per cent of the land in Dar es Salaam is used for agricultural production with 11 per cent of the population engaged in farming. Crops grown are for

consumption and income.

UGANDA

- Urban agriculture in Uganda revealed reliance on indigenous practices; low-cost inputs and limited ownership of tools (Maxwell and Zziwa, 1992).
- Although urban farming is technically illegal, its contribution to food production is recognized by urban authorities. Researchers have shown that urban agriculture has the potential to supply the city of Kampala with certain vegetables and milk.
- The major constraint to urban farming was found to be lack of access to capital and land. Theft of crops was also quite high in Kampala. Other constraints included harassment, nonavailability of tools, high production costs, and marketing bottlenecks.
- Urban agricultural producers in Kampala span a wide spectrum of socioeconomic groups. While urban farming is a commercial activity to a few, it is a significant component of the survival strategy of middle and lower-income households; it provides a stable source of food and is seen as a preferable allocation of both financial and human resources provided there is some access to land.
- Urban agriculture has flourished in Kampala due to both cultural and economic causes and the lack of enforcement of zoning regulations and other municipal by-laws. The study by Oloya (1988) concludes that all three are causal factors.
- Urban agriculture was also seen as an activity that could easily make a greater contribution to public health if certain incentives were offered to recycle urban wastes.

1.3. Aspects and specific objectives deserving further research

ETHIOPIA

Equity aspect: In Ethiopia, no study has been carried out to consider equity. There is need to carry out an analysis of who will benefit from the expansion and improvement of urban agriculture especially with regard to gender and ethnic inequities.

Health risks: This is another very important area that has not been considered. The aspect of health risk is important from both the food production and air quality point of view. Most of the food is produced in urban areas without taking into account the

effect of contaminants especially in the industrial sites.

Economic, legal and policy aspect: There is need to develop some accounting system for analyzing the cost-benefit ratio of using urban land for agriculture to include social and health benefits. It is inadequate to consider economic benefits only; the costs of low nutritional levels may be worse than low levels of income.

Measures to assist women: There is need to carry out research so that women can have greater economic status through urban agricultural activities. This will ensure that women are involved in the management and decision making of the overall production and distribution process.

Improvement of agricultural techniques: There is need for research to be carried out on government support in the provision of extension workers, agricultural inputs and credit facilities. This will improve productivity of urban farms.

KENYA

Equity aspects: In most urban centres, the majority of the urban farmers are women and yet this is a sector that is ignored in terms of research and supportive services. No specific attention to gender and ethnic inequities has been addressed by researchers in Kenya. There is need to focus on gender and ethnic inequities under urban agriculture for the benefit of women and the poor.

Credit: So far, the most commonly mentioned problem facing urban cultivators across all income levels is access to capital. There is need to assess the possibility of giving credit to urban farmers. Credit is an area which is under-researched in the urban areas. It appears as if the credit needs of urban farmers has not been given the emphasis it deserves.

Health risks: The question of people feeding on food grown largely on untreated sewage is under-researched. Even air quality has not been considered when growing food crops. This is, however, an important research area as feeding on food crops grown on untreated sewage can be a health hazard.

Planning: This can be a productive tool to aid the harmonious integration of urban farming with the rest of the informal economy. Urban farming is a complementary and competing form of urban land use which needs to be well planned for. In particular,

management and regulation of all forms of urban land use as well as the provision of facilities in the parts of the city where the informal sector operates is a matter of concern.

Food production: This is a complex area which needs a specific study if appropriate policy response are to be formulated. A particularly important aspect is the extent to which urban agriculture is dominated by women. This has important ramifications for gender relations regarding the composition of household labor and income. A distinction needs to be made between food produced for domestic consumption and food produced for sale. The destruction of commercial crops means only loss of income but destruction of subsistence food can mean malnutrition at best and starvation at worst.

Farming for income and food security: The least researched aspect of urban agriculture is the fungibility benefit it provides farming households by freeing income for non-food essentials (such as health care, education, clothing, housing, fuel and transportation) that would otherwise be spent on food. Within a large proportion of Kenyan towns, more than 50 per cent of the total family expenditure is on food. Further research is needed on whether protein from livestock and livestock products is more crucial to human nutrition than crop production.

TANZANIA

Animal husbandry: This needs to be studied so that animal products can supplement the incomes of the urban employees and improve their nutritional intake. Also employment will be generated in the urban centres. The study should also consider ways in which animal refuse can be used to improve crop production. Despite its informal status, the activity should not be ignored; many people stand to benefit from it.

Urban gardening: This should be studied as it is practised within the built-up areas and on plots and farms in the fringe areas. This type of farming can help generate income and employment to the urban poor. It also stands to improve the nutritional standards. However, urban gardening may cause pressure on urban water supply network. Besides, there is need to sort out the conflict on land use —between this type of agriculture and other forms of land uses.

Crop production in salt and fresh water: This can be a health hazard to the consumers but can generate income and employment to the poor section of the urban

community if proper technology is utilized.

Mixed farming: This is mostly practised in urban fringe areas and is likely to be a better way of utilizing land and urban wastes (which can act as manure for the crops). Moreover, several agricultural products will be made available and more income and employment opportunities will be generated.

UGANDA

Economic, legal and policy aspects: As in most places, urban agriculture is technically illegal in Kampala. It would be pointless therefore to research on how to improve upon urban agriculture as long as this situation prevails. Having access to land for cultivation may improve food security and nutritional status. Although a better accounting system for analyzing the cost-benefit ratio of using urban land for agriculture is necessary, the nutritional evidence ought to be apparent.

Health risks: No researcher has so far looked at the health risks which may arise from both the food production and water quality perspective. People in urban areas may be feeding on food grown largely on untreated sewage.

Equity Aspect: Most studies on urban agriculture in Uganda have not come out clearly on who would benefit if it was improved. Except for Maxwell and Zziwa who mention the middle and lower-income groups as the majority, no mention of gender and ethnic inequities is made by any study.

1.4. Interrelations between urban agriculture, water, waste and disaster in cities

ETHIOPIA

The problems of waste disposal in the major towns of Ethiopia may be reduced by encouraging urban agriculture; wastes can be used as manure and consequently increase agricultural productivity. Urban agriculture can also improve the health of the people through the reduction of wastes and an increase in the nutritional status. On the other hand, if wastes are left unused, they become a health hazard especially in the slums.

KENYA

Urban agriculture can help reduce water, waste and hazard problems in the large towns of Kenya. Proper urban farming can increase returns on water bodies. With cultivation on home plots, there is a possibility to reuse domestic water (the "grey" water

from homes). Also, by recycling urban wastes into production inputs, it can reduce urban demand for resources and minimize pollution.

Extensive open water degradation by urban organic wastes affect fisheries, public health and employment.

A growing share of Kenya's urban population lives or works in degraded and hazardous environments. If urban farming can be practised in those areas, the environment can improve a great deal. Water and waste management are worsening exposure of people, facilities and activities to disasters. Most of the urban populations have no access to adequate sanitation and very few are connected to sewerage systems. However, urban farming that uses some of the wastes can improve both the productivity of the urban areas and the health of the people.

TANZANIA

Pollution from industrial firms will affect the quality of agricultural products if not properly addressed. However, urban agriculture and waste can still be integrated to make the urban system sustainable. Dirty water from other domestic uses can be used to grow crops after treatment. What is needed is improved technology so that urban agriculture, water and waste can help to increase food production and the income of urban dwellers. Water and wastes from industries and households can be disastrous if not put to some use after treatment.

UGANDA

In Uganda, urban agriculture can help reduce the problems of waste disposal in major towns. Urban agriculture would also help reduce environmental hazards and water shortages. To carry out this form of agriculture new farming techniques that take into account the health of the people and the resource constraints are required.

2. APPRAISAL OF RESEARCH CAPACITY

There are very few institutions in the Eastern Africa region with any record of urban agricultural research. Further work is needed to identify institutions that could be interested in this field; and their institutional partners in the country or the region whether governmental, nongovernmental or private, in terms of relevant expertise, record and facilities. This task is beyond the scope of this paper.

Urban agricultural research is a multidisciplinary area. It is wide in scope and presents an opportunity to researchers in several fields: agriculture, social sciences, environmental and urban planning and so on. Therefore, the range of institutions that could be interested in urban agricultural research is fairly large. Criteria needs to be agreed in order to make a judicious selection for further work in this area.

ETHIOPIA

In Ethiopia, the major study on urban agriculture was conducted by an individual researcher (A. G/Egziabher, 1992). The academic institutions and specialized research institutes particularly in the field of agriculture have not shown any interest in urban agriculture. They have the capacity, expertise, record and facilities for research.

KENYA

Mazingira Institute has a track record on urban agricultural research and can make further contributions in this field, in the country and the region —using its networking operations in the urban field.

So far, hardly any research on urban agriculture has emerged from the academic institutions' or specialized research institutes, particularly in the field of agriculture. There is the needed capacity, expertise, record and facilities in these institutions.

TANZANIA

In Tanzania, researchers at the University of Dar es Salaam and Sokoine University have been involved in urban agricultural research. Ardhi Institute has also indicated an interest in this issue. The contact person at Sokoine, which is an agricultural university, is Mr. Camilius Sawio and at Ardhi Institute, Dr. Jossy Materu. These institutions have the capacity, expertise, record and facilities for research.

UGANDA

In Uganda, Makerere Institute of Social Research (MISR) has interest in urban agricultural research. Mr. Daniel Maxwell who is currently conducting a study is affiliated to MISR. Interested institutions in Uganda may require additional support for strengthening capacity and facilities as the country is undergoing a phase of reconstruction.

3. FUTURE RESEARCH OPPORTUNITIES

In Eastern Africa, urban agriculture is prevented or harassed and has not been given any consideration in the urban development plans. In the whole region, there is no specific policy to encourage urban agriculture despite its contributions to food and income levels of the poor urban households. So far, the governments have not seen urban agriculture as a policy issue.

Urban farmers do not enjoy the same support from the governments as do their rural counterparts. There are no urban extension services for crop production and livestock keeping; such services are needed to prevent loss of livestock and improve productivity and farming methods and minimize any associated health risks. Also, credit facilities for urban farming, including other inputs, are not yet available hence the investments in urban agriculture remain low.

Equity is another important issue. Who will benefit from improvements in urban agriculture? Poor urban farmers produce food entirely for their own consumption. The important question is whether such subsistence activities, carried out mainly by women, should be dismissed as irrelevant and economically unimportant. It is important to note that recent interest in the issue of urban agriculture has been "spurred by the UN declaration of International Women's Year and the attention this focused on the activities of women, especially as regards food production, in the Third World" (Freeman, 1991).

The following are some research ideas that could be supported in the region in the near future:

3.1. Topic: Legality, official attitudes and access to land

The urban poor, particularly women engage in urban agriculture for survival. In most countries informal urban agriculture is seen as an illegal activity, and the urban planners, managers and health officials have little time for it. Improving access to land for cultivation may improve food security and nutrition. However, reactions of governments to urban farming and livestock keeping have been proscriptive and uninformed. The issue of legitimisation of urban agriculture needs to be addressed.

3.2. Topic: Technical constraints related to urban agriculture

Urban agricultural practices need improvements through inexpensive approaches like: waste recycling, intercropping, better animal health and husbandry management and so on. Research on removal of such constraints would help to improve productivity of urban agriculture both for subsistence and income generation purposes. Where already higher productivity of urban agriculture exists, it should be enhanced by building upon the good practices of urban farming such as intensive use of organic inputs including waste recycling.

3.3. Topic: Credit and extension services for urban agriculture

Access to credit and extension services are essential for promotion of urban agriculture. Extension services are needed to improve productivity, prevent loss of livestock —which happens in many situations and minimize health risks. High animal death might also be alleviated through less harassment, allowing the livestock themselves to get better nourishment.

Such interventions are very suited to action-research (learning by doing), particularly by nongovernmental organizations. It also provides an important opportunity for governmental agricultural institutions to transfer the rich experiences they have accumulated from the rural areas to the urban areas.

NOTE

1. This paper has been prepared by Davinder Lamba, Executive Director, Mazingira Institute, with the assistance of Dr. Edward Nyongesa and researchers from the region: Dr. Azumite G/Egziabher (Ethiopia), Mr. Daniel Maxwell (Uganda) and Ms. E.J. Chagu (Tanzania). Their contributions are gratefully acknowledged.

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