

Urban Agriculture in Kampala, Uganda: Reviewing Research Impacts¹

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Abstract

The paper identifies, documents and analyses the areas of impact attributable to two projects. In the first men and women involved in crop and livestock production, and non-farmers were interviewed. This was the first survey of its kind in Uganda and results show 36 percent of all Kampala households farmed, the majority being women. The second project explored the significance of urban agriculture in the economic strategies of urban households, the question of access to land for a practice considered illegal at the time, and the nutritional aspects provided by UA. The reasons for engaging in farming by different people were identified as being: 1) commercial 2) food self-sufficiency 3) food security and 4) the sole means of daily survival available to the household.

The remainder of the paper outlines the project's impacts. The project team benefited from training in research techniques and health status measurements. The research institute gained experience in a new field and showed leadership by bringing together several diverse stakeholders to discuss project findings. Partnerships were formed with both academics and the city councillors who were interested in the comparison between the baseline data in the first study and those from the later one. The gendered division of income, labour, control over resources and household roles were recorded. The key scientific discovery was the extent to which UA improved household food security and nutrition status in farming households. The Kampala City council took direct action after the project findings were made public at a seminar: they recommending changing the status of UA from illegal to legal, agreeing to promoting it with certain regulations. The city's long-range plan, the Kampala Structure Plan, has since incorporated urban agriculture.

Introduction

This paper identifies, documents, and analyzes the areas of impact attributable to two research activities supported by IDRC on urban agriculture in the city of Kampala -- both a district and the capital of Uganda. According to the national census, the city's population in 1991 stood at 774,241 within an area of about 201 km² (average gross density of 39 persons per hectare). At an annual population growth rate of 5.7 percent, the district was expected to have doubled its population by the year 2000, when it should hold some 1.5 million people.

Kampala's rolling topography is characterized by steep slopes and wide swampy bottom lands. Local precipitation ranges between 1500-2000 mm per year and is distributed in two peaks: March until May, then August-September until November-December, separated by two short dry spells. The city's relief and seasonal rainfall pattern gives rise to a varied habitat for both flora and fauna. While most of the district can be termed rural, the more central locations have been deprived of much of their natural vegetation to give way to urban activities.

Land and urban agriculture

Land tenure can be defined as the institutional (economic, social, and political) arrangements through which individuals and groups gain access to land. Kampala exhibits a multiplicity of land tenure systems, including Mailo, freehold, leasehold, and customary, all of which evolved mainly under British influence during the country's colonial period.

Farming in Kampala is carried out under all the aforementioned land tenure systems. However, regimes of access to land for agriculture do not correspond directly to land tenure systems in Kampala. The former vary from formal, legal occupancy to a range of informal and technically illegal forms of occupancy. For instance, land used for agriculture may be accessed through owning (titled or leasehold), "tenancy at sufferance," renting, borrowing, or squatting.

MISR's urban agriculture research activities in Kampala

The two research activities discussed in this paper were carried out under the auspices of Makerere Institute of Social Research (MISR), Makerere University. IDRC supported one research project and a seminar on urban agriculture in Kampala. The project, carried out between 1988 and 1989 by Daniel Maxwell and Samuel Zziwa, is referred to in this paper as the first study. It attempted to learn about the practice of agricultural production within the city. Data collection included in-depth, case study interviews. The interview subjects were men and women involved in crop and livestock production (for trade, self-consumption, or both), hired agricultural labourers, and members of non-producing households. A survey was also conducted among 150 producer households. Key informants such as urban officials and local elected authorities were interviewed. Relevant legal documents were also reviewed. The study was the basis for two publications, among them one book (Maxwell and Zziwa 1992, 1993).

The first study (Maxwell and Zziwa 1992) indicated that 36 percent of all Kampala households were engaged in some sort of agricultural production in the city, with women prevailing among the producers. The majority of respondents (69.3 percent) were found to produce for self-consumption, that is, growing food directly for household consumption. Only 7.3 percent of the respondents were engaged in commercial production (for trade). Nearly one out of four producers (23.3 percent) produced primarily for self-consumption, but also sold a significant amount of their harvest in order to supplement their income.

The study showed that the most common enterprises were those growing staple crops. These included, in decreasing order, cassava, sweet potatoes, beans, maize, matooke (banana), and cocoyams. Poultry keeping was the most common form of livestock production. The study also found that city farming was carried out by households of all socio-economic groups: high, middle and low-income.

Table 1. Income level by type of production

Income level	Type of production			
	Subsistence	Combination	Commercial	Total
High	0	4	1	5
Middle	17	12	7	36
Low	87	19	3	109
Total	104	35	11	150

Notes:

Chi Square = 29.19

Significance = 0.000

Source: Maxwell and Zziwa (1992)

On the whole, while agriculture was practiced as a commercial activity by a few households, it was found to be primarily part of a survival strategy among low-income and, to a lesser extent, middle-income households (Table 1).

However, farmers did say they were experiencing some problems. For 41 percent of farmers, land tenure insecurity was mentioned as their biggest problem. Lack of access to land for farming was their second most significant roadblock. Another problem that emerged was the official view of farming as an undesirable activity in urban areas. According to the city advocate and other Kampala City Council (KCC) staff, urban agriculture was being practiced in contravention of legal city statutes. Some 27 percent of respondents admitted they had been harassed by authorities (mainly city enforcement officers) and had had their crops slashed. Interestingly, legal

documents showed that while urban authorities did have the power to ban agriculture in their jurisdiction, they also had the power to legalize it .

The other UA research activity funded by IDRC in Kampala was production of a background paper and support for a one-day public seminar. The seminar was held at the end of a second study -- following up on the first study -- that counted funding from the Fullbright Foundation and other sources. Fieldwork for the second study was carried out between October 1992 and October 1993. It was conducted by Daniel Maxwell in partial fulfilment of the requirements for the degree of Doctor of philosophy. The dissertation was written in 1995 (see Maxwell 1995). Research assistance during and after fieldwork was provided by the author of this paper.

The second study had three broad goals: (a) to understand the incorporation of agriculture into the economic strategies of urban households; (b) to explore the formal and informal means of access to urban land for an activity that was technically considered illegal; and (c) to measure the impact of urban farming, particularly in terms of food security and nutrition status, including a comparison of the nutritional status of children in farming and non-farming households.

Data collection methods included a two-round survey among 348 randomly selected households (121 farming households and 227 non-farming households), and case studies of 44 households selected according to farming status, reasons for farming, land tenure, household composition, income level, age and education of adult members, employment, and means of access to land for farming. Other methods used were focus group discussions in each of the enumeration areas and in other parts of the city, and key informant interviews (78 in number) conducted with a variety of individual stakeholders on various topics related to urban agriculture. These stakeholders included farmers, non-farmers, urban planners, nutritionists, city council authorities, and local council leaders at various levels. A search for documents about the legal status of urban agriculture was unsuccessful, but interviews with relevant officials, plus a review of broader legislation on urban administration and land management, yielded useful information.

The second study undertook to verify and further elaborate on first-study findings. It found that in just over one third (34.8 percent) of the households sampled someone engaged in farming. Four major categories of household engagement in urban agriculture were identified: (a) commercial activity; (b) food self-sufficiency; (c) food security; and (d) the sole means of daily survival available to the household.

Table 2. Farming category by income group

Household Category	Income Group				
	Very Low	Low	Lower Middle	Upper Middle & High	Total
Commercial	0	0	3	0	3
Self-security	0	5	0	2	7
Food security	11	62	19	6	98
No other means	9	4	0	0	13
Non-farming	35	148	31	13	227
Total	55	219	53	21	348

Source: Maxwell (1995)

Access to food was reported as the most prevalent reason for farming by almost all non-commercial farming respondents. Once again, the majority of agricultural activities were found to be carried out by women. Most of the farmers engaged in farming to achieve some measure of food security. Income from urban farming was realized mostly in the form of cash savings from self-provisioning or income-in-kind. In some cases, urban farming was an important source of cash income in its own right.

Assessing how people get access to land for farming was among the objectives of the second study. Inquiries revealed a confusing array of land tenure systems and occupancy rights in contemporary Kampala. In fact, farming was being practiced through virtually every possible combination of tenure and occupancy right. However, the majority of farmers' parcels had been accessed through sub-division, borrowing, "squatting," or the informal purchase of use rights. Again, access to land was confirmed as the major problem faced by farmers. Next came tenure insecurity due to evictions for development. Harassment by authorities was not regarded as the biggest problem faced by farmers.

The study also analyzed the impact of urban farming on the household food security and nutrition status of children. As stated earlier, the largest group of farmers in the city grew food to achieve some measure of food security. But the relationship between farming and improvements in either nutrition status or food security was strongest among low and very low income groups.

Table 3. Height for age by income group and farming status (Round 1: unadjusted height for age Z scores (HAZ), confirmed birth dates only)

Income Group	Farming				Non- Farming			Group Means
	n	HAZ*	n	HAZ*	N	Diff	T-test P-value	
Very low	29	-0.561	26	-1.918	55	1.357	0.001	-1.202
Low	71	-0.468	100	-0.900	171	0.432	0.010	-0.721
Lower middle	21	-0.161	23	-0.727	44	0.565	0.079	-0.457
Upper middle/high	7	0.549	16	0.962	23	-0.413	0.548	-0.836
Group Means	128	-0.383	165	-0.856	293	0.473	0.002	-0.650

ANOVA F = 1,980 F = 20.697 F = 15.692
 p = 0.119 p < 0.001 p < 0.001
 df = 3 df = 3 df = 3

*HAZ refers to Height for Age Z- scores (standard deviations above or below a reference median)
 Source: Maxwell (1995).

As table 3 indicates, a bivariate analysis of the nutritional status of children under five indicates that children in farming households had significantly lower levels of stunting (defined as low height-for-age) when compared with counterparts in non-farming households. During both rounds of the survey, this finding was particularly evident in the lowest and second lowest income groups. Data from both survey rounds showed a statistically significant difference in rates of stunting between farming and non-farming households, a finding that held true both in the lowest income group and in the entire sample. On the whole, the study found a clear relationship between urban farming and nutritional status, particularly the measure of longer-term nutritional status.

Areas of impact

Human resource development

The project team consisted of nine people (seven women and two men), including the principal researcher. A full-time research assistant and seven enumerators were recruited. They were trained in general interviewing principles (although all had previous survey interviewing

experience), in anthropometric measurement of children and in estimating land area using basic geometric principles and pacing methods. The day-long training and practice session in anthropometric measurement was provided through the child nutrition clinic at Mulago Hospital.

After the data collection exercise, the research assistant was trained by the researcher to use the basic Epi-Info software package. Thereafter, the research assistant was able to assist in data entry and in cleaning up the data.

Institutional capacity strengthening

The studies on UA represented a new research area for MISR, one that provided the Institute, other institutions, and individuals with access to the literature that resulted from the research activities. The results of the preliminary study were disseminated to MISR researchers and other academicians in the university during a MISR research seminar -- at which time the proposal for the second study (1995) was also discussed.

On completion of the second study, the findings were shared with the residents of each enumeration area that had been surveyed. This dissemination exercise was coordinated to take place at one of the monthly general Local Council (village) meetings. Residents expressed their appreciation for the researchers' concern about their plight and asked the researchers to speak out on the issue of prohibition of urban agriculture by Kampala City Council.

Another significant forum where study findings were disseminated and discussed was the final one-day public seminar, organized by MISR and the National Agricultural Research Organisation (NARO), with financial support from IDRC. Among the 100 seminar participants were members of the research community, NGOs and international organizations, Kampala political leaders, Local Council executives from surveyed areas, and others who had participated in the research, including respondents. Policy makers were also present from Kampala City Council and several government ministries including Lands, Housing and Urban Development; Local Government; Agriculture, Animal Industry and Fisheries; and Health. Among the issues discussed were the implications of the study for understanding urban agriculture, how existing policies harass UA, and what information is needed to formulate better policies.

Effective local partnership

The research produced impacts in the area of partnerships with local institutions and organizations. The first study involved an agro-economist from the Faculty of Agriculture at Makerere University. The second study was largely an academic initiative and, apart from MISR -- the research project's host institution, did not involve other institutions. However, relevant institutions and individuals were consulted on several issues throughout the field research. For example, the Child Nutrition Unit of Mulago Hospital, the main referral hospital in the country, was approached to train the field research team in basic concepts of child nutrition and in

methods for gathering anthropometric data. This expertise was needed for assessing the relationship between urban farming and child nutrition. The Nutrition Unit and the Child Health and Development Centre (CHDC) of Makerere University's Medical School provided the research team with the required measuring boards and weighing equipment. Nutrition specialists from both the Nutrition Unit and the CHDC became interested in the study and awaited eagerly the results on the status of the children in the study sample.

The project had close collaboration with the Kampala Urban Study Group (KUSG) in Kampala City Council. At the time, this group was conducting several studies to support the city's new structural plan. The group was part of the First Urban Project, funded by the World Bank. The KUSG used information from the first study to show that UA was productive, necessary, and inevitable. The KUSG also perceived that information from the second study would shed more light on UA conditions after 1988, which is the year that fieldwork for the first study had taken place. Therefore, the KUSG suggested that the sample areas selected by MISR for the second study should be the same as those used by the KUSG. This perfect overlap would enable comparison of UA data with other baseline data being collected in these areas. The KUSG had selected seven parishes deemed representative of the city at large in terms of population density, wealth, land use, services, and economic activities. Owing to financial and other logistical limitations, the second study on urban agriculture could not encompass all seven parishes. Hence, three parishes out of the seven were randomly selected.

Gender-sensitive analysis

The studies included households headed by both males and females as well as female and male respondents. The preferred respondent was the person in the household responsible for the provision and preparation of food, and who was engaged in agriculture. In the majority of cases this person was a woman (71 percent of the respondents in the main study's survey were women). A total of eight focus group discussions were held and of these, four consisted of women only while the other four were mixed.

The gender balanced interviews and discussions provided a clear understanding of the opportunities, benefits, and constraints related to urban farming. It also revealed the gender division of income, labour, control over resources, and responsibilities within urban households.

Scientific and methodological advances

A commonly held view among urban planners is that urban agriculture poses a public health risk by, for instance, harbouring rodents in crops or providing a breeding ground for mosquitoes. Maxwell (1995) explains that the main practical reason for the inclusion of food security and anthropometric measurement in a study of urban agriculture was that when questioned about the legality of farming in the city, urban authorities often cite public health risks. Therefore, the main study sought to establish whether there are public health benefits from urban agriculture. It

assessed the relationship between urban agriculture and improved household food security and nutrition status of children in farming households, particularly those in the lowest income groups.

After reviewing studies on urban malnutrition, Maxwell notes that while urban agriculture had not been completely ignored in some previous studies, it had not been systematically considered. At the same time, while previous studies on urban agriculture had presumed that increased nutrition benefits result from the practice of UA, none of the studies measured these benefits, or undertook a comparative analysis of farming and non-farming urban residents.

Maxwell's study used scientific and methodological techniques to empirically show that there is a health benefit from urban farming.

Result utilization by non-research entities

Officials from KCC and Resistance Council leaders were among those who attended the seminar where research findings from field work of the main study were presented and discussed. The consensus arising from the seminar was that the legal status of urban agriculture was unfair and should therefore be changed. The final report of the KUSG indicates recognition of urban agriculture and cautions that as the city grows, and if uncontrolled development is allowed to continue, terrain destabilization and erosion are likely to escalate, causing decreases in productivity.

According to an environmentalist in KCC, the research seminar recommended that urban agriculture should be promoted, but at the same time be subjected to regulation like other economic activities. The environmentalist also commented that the research findings of both studies prompted his office to reflect on the impact of urban agriculture on the urban environment. He said that interventions to regulate urban agriculture would be meaningful and effective only after a thorough investigation into all problems related to urban agriculture such as environmental degradation, nuisance in the form of odours from animal waste, and tall crops on road verges that obstruct people's vision. He further noted that the Kampala District Environment Office ought to work hand in hand with the agriculture office in addressing environmental problems associated with urban agriculture. This individual also suggested that opportunities such as use of urban waste in urban agriculture could be assessed. In his view, none of these issues had been addressed by studies on urban agriculture up to that time (Rwandume, personal communication, May 1998)³.

Discussion of selected impacts

Human resource development

³M. Rwandume, District Environment Officer, Kampala District

Although the project did not specifically develop human resource capacity at MISR to carry on research in urban agriculture, the then research assistant (and author of this paper) for the project benefited from the knowledge and skills acquired. She has maintained an interest in the subject and is part of the MISR team preparing to implement an action research project on gender and urban agriculture. She has also written papers and participated in regional workshops on urban issues. For example, much of the information presented at the regional workshop in Nairobi on Urban Food Production (organized by the Regional Land Management Unit (RELMA) and the Population and Development Program (PROP) University of Lund, Sweden, along with the Mazingira Institute in Nairobi) was drawn from these IDRC-funded projects.

Two of the former enumerators on the project have continued to do research work in different fields in other organizations. As for other individuals who worked on the project, their current employment is unknown.

Institutional capacity strengthening

With respect to institutional capacity strengthening, urban agriculture has become an additional research area that falls within the interests and overall vision of MISR. It is the goal of MISR to attract researchers of various disciplines to promote the work of the institution and at the same time facilitate the efforts of social researchers to carry out their research.

During dissemination of the results of the preliminary study and presentation of the proposal for the main study, the MISR community and the university community at large had a chance to hear about the research and to deliberate on the issues proposed for the next study. This was the first occasion where people were brought together to talk about urban agriculture in Kampala. Since then, there has been growing interest in the issue of urban agriculture.

One of the broad goals of MISR is to collect, store, and disseminate information. A published copy of the study by Maxwell and Zziwa (1992) was provided to the library. The book has been a major source of information on urban agriculture and a recognized reference point for various scholars. Some publications that resulted from the main study are also available in the MISR library. They include Maxwell and Atukunda 1993; Maxwell 1993a; Egziabher et al. 1994; and Maxwell 1995.

The above-mentioned publications produced literature on urban agriculture in Kampala that had not been available previously. The literature has been widely utilized by various academicians, university students, researchers, and government officials. The evidence is found in their works (see Azuba 1996; Nuwagaba 1996; Nuwagaba and Mwesigwa 1997; UNFA 1997; Van Nostrand 1994; Musimenta 1997; Nakijoba 1996; Atukunda 1998).

Reports from the two research activities were also delivered to Kampala City Council and the Child Health and Development Centre. Since the completion of the main study, some individuals at MISR and other institutions expressed interest in carrying out follow-up research. However,

owing to logistical constraints, the proposal could not be completed. But the idea has been revived and a concept paper for action research has been submitted to IDRC for funding consideration. The proposed project would take a multi-disciplinary and inter-sectoral approach by establishing partnerships and involving various stakeholders in urban agriculture such as the Kampala District Agriculture Office, the Department of Welfare and Community Development of the KCC, community-based organizations, the Kampala district branch of the Uganda National Farmers Association (UNFA), and local councils. The project intends to assess gender dimensions of urban agriculture. Assessments would be made for the viability of interventions for sustainable livelihoods that specifically target women, since they are directly involved in agricultural production. Interventions would be intended to support access to productive resources, technology generation, extension services, agricultural skills development, access to information, marketing, export promotion, and food and income security.

Local partnerships with other institutions

MISR's research policy is geared toward promoting policy-oriented and academic research. The new mission of MISR is to conduct research and provide knowledge and skills that would enable the public to incorporate relevant cultural parameters and dynamics in all its national or local planning. In this way, it is envisaged that there will be genuine dialogue among donors, policy makers, scientists and local communities (MISR 1998).

It is against this background that MISR intends to be involved in the proposed project described above. MISR would implement the project, coordinate the various activities, and provide institutional support in the form of office space. Although the earlier studies involved other institutions such as the faculty of agriculture at Makerere University, the scope of their collaboration was limited. Particularly with the preliminary study, if efforts had been made to involve some key individuals from KCC, urban agriculture would have received recognition and support earlier. Nevertheless, as already mentioned, the study made a great contribution in providing information about urban agriculture that had never been available. Commenting on the preliminary study (Maxwell and Zziwa 1992), a KCC official in the planning section said it was the first such study to document the practice and significance of urban agriculture in Kampala City, and to bring it to the attention of City Council authorities.

The main study by Maxwell was purely a scholarly work for the award of a doctorate. Thus, it did not directly involve persons from other institutions. Nonetheless, as was noted earlier, the KUSG requested the researcher to draw his sample in such a way that the research results could be incorporated in their long-range planning exercise. Their suggestion was adopted and some of the information helped to define the different activities that may be carried out in various urban land use zones.

Gender-sensitive analysis

At the public seminar held after completion of the second study, debate was vigorous about why

it is primarily women who engage in farming in Kampala. Some men suggested that it is because women are less educated, or have nothing else to do with their time -- a view that was vehemently contested by several women farmers present. They argued that more women engage in UA because women are responsible for feeding the family and, therefore, must work harder to ensure this food security. The study findings also indicated that some women engage in urban agriculture not only to attain some level of household food security, but also to earn income through the sale of surplus produce.

Gender analysis in the studies on urban agriculture clearly revealed that any interventions in urban agriculture should specifically target women because they are the group most directly engaged in the practice. Discussions between the author of this paper and officials from the Uganda National Farmers Association (Kampala District Branch) and the Kampala District Agriculture Office indicated that their new approach is to target not only large-scale commercial farmers -- mainly men --, but also women engaged in both subsistence and commercial farming. However, the officials mentioned that they still find it easier to deal with groups and not individual women. In the seminars they hold, individual farmers are encouraged to consult group leaders or to attend special seminars conducted at selected farms.

Scientific and methodological advances

The innovation of assessing the impact of farming on children's nutritional status contributed significantly to the overall impact the study made toward recognition of the significance of urban agriculture by city authorities.

Care was taken by the researcher to ensure that high-quality anthropometric data was obtained in both rounds of the survey to enable valid analysis. A two-round survey was used to capture elements of seasonality. Apart from obtaining correct measurements of height and weight of the children under five, enumerators were cautioned to obtain correct birth dates. The dates reported by mothers were corroborated by birth certificates, baptism certificates, or other documentary evidence.

Data were entered into the Epi-Info database and analyzed. Nutrition measures of height-for-age (stunting) and weight-for-age (wasting) were the main measures used in presenting the results. The analysis was done for both farming and non-farming households and for all income groups.

The results represent a major breakthrough in measuring the impact of urban farming, particularly in terms of food security and nutrition status. By making an explicit comparison of the nutritional status of farming households against that of non-farming households, a clear relationship was found between urban farming and nutritional status, particularly in longer-term measures of nutritional status.

When the research results were presented at the public seminar following the second study, it was generally accepted that the preliminary research paper (Maxwell and Atukunda 1993) had sufficiently documented the impact of urban farming on food security and nutrition (Maxwell 1993b).

Utilization by non-research entities

The research provided new information and literature on UA that included gender analysis, and opened up opportunities for MISR to collaborate with other institutions in the field of urban agriculture. Apart from these contributions, the most significant impact of the urban agriculture research studies has been the use of the findings by non-research entities, especially Kampala City Council.

Kampala City Council had long regarded urban agriculture as an illegal activity, even when the practice was growing in a context of occasional crackdowns by city enforcement officers that often led to the impounding of livestock and the slashing of crops. The same negative view of UA had been held by the head of Welfare and Community Development, KCC. But this same bureaucrat said that the results of the study presented at the public seminar greatly improved the appreciation by city authorities of the importance of urban agriculture. In turn, this new understanding led to the cessation of “unrealistic” enforcement practices such as crop slashing. However, the official did say that unconfined livestock found roaming the streets are still being impounded.

From discussions held with the Assistant District Agriculture Officer, Kampala, the author of this paper learned that urban agriculture is now fully recognized by KCC and that it features in almost all of its departmental meetings. The major constraint on the activities of the office is now considered to be inadequate financial support by KCC and the Ministry of Agriculture.

Following the decentralization of the District of Kampala, the District Agriculture Office, officials at the division level, and local residents are now free to initiate projects in urban agriculture that are deemed appropriate with regard to the size of land parcels accessible to farmers and environmental health considerations. The Kampala District Agriculture Office now considers it necessary to collaborate with a social research institution like MISR to investigate issues such as the information needs of farmers (especially women farmers), farming practices that yield higher production, and “clean” agriculture and environmentally healthy practices in general (Azuba, personal communication, May 1998)⁴.

The research seminar where preliminary findings of the main study were presented for discussion (Maxwell and Atukunda 1993) was a basis for new attitudes toward urban agriculture on the part of many city council officials. An interview with the senior planner in KCC also revealed that the

⁴M.S. Azuba, District Agriculture Officer, Kampala District.

studies by Maxwell, and especially the seminar on Farming in the City, provided evidence that owing to the benefits of urban agriculture, the practice could not be denied (although it is still regarded by city planners as an undesirable activity). He further noted that during the seminar, urban agriculture was unanimously accepted and that the District Agriculture Office was charged with ensuring that regulation will prevent the practice from becoming a nuisance in the city.

The Kampala Urban Study recognizes urban agriculture as one of the informal activities in the city. This recognition is contained in the Written Provisions, whose purpose is to set out a comprehensive code governing administration and enforcement of the Kampala Structure Plan. Drawing upon information produced by the two research studies, the Kampala Structure Plan (1994) incorporated urban agriculture. Although no specific by-law has been put in place to legalize urban agriculture, the KCC structure plan of 1994 indicates that urban agriculture is a recognized urban land use. The final report of the Structure Plan promotes urban agriculture but suggests that further studies are required to assess the appropriateness of various crops and to establish some guidelines to ensure the environmental sustainability of the activity.

The Written Provisions indicate that agricultural activities can be carried out in areas zoned as residential and potential industrial. In areas zoned environmental, limited agricultural activities are allowed, provided that:

- they do not adversely affect natural drainage patterns, soil conservation, or the protected resources; and
- they are approved by Kampala City Council and Division and Parish Councils (KUSG 1994).

As for other zones (commercial, industrial, institutional), any other land uses apart from those stipulated in the Written Provisions are allowed as long as they are acceptable to the local Parish Council.

Although the studies and the Written Provisions indicate promotion and regulation of urban agriculture, the Community Development and Welfare Department in KCC has not done much to apply the recommendation, owing to limited funds for investigating certain issues and mapping out procedures for the exercise. According to the district agriculture staff, sensitization is being carried out among farmers on issues of environmental degradation related to crop production and nuisances from livestock. Noticeable changes are taking place in farmers' attitudes and practices, although these changes are still in their early stages. With clear guidelines and policies to reach farmers, these changes would likely develop further.

Overall evaluation of major determinants

On the whole, the research projects yielded positive results to all stakeholders, including Kampala City Council, and especially the urban farmers themselves. The major determinants for

this positive result are that the studies were relevant and timely since they were carried out before the new structure plan for the city had been elaborated. During this period the KUSG was reviewing the urban legislative framework, urban environment, urban economy and the general urban social and physical infrastructure. Therefore, results from the research projects combined usefully with the KUSG findings on various socio-economic issues pertinent to the city.

The two studies were crucial in providing some vital information on the above issues. The urban agriculture studies dealt with an issue that had never been investigated and that clashed with city planners' ideas of a modern city, ideas that did not include poor urban farmers struggling to eke out livelihoods. The findings of the studies contributed to resolving these differences.

The fact that the data were collected from appropriate sources also meant that the findings were relevant and acceptable. The findings were disseminated in a variety of ways to concerned individuals and officials. One important forum was the public seminar in which the findings were presented. The seminar brought together authorities who had participated in earlier discussions and who now realized the importance of urban farming and the need to accept it. Thus, we can state that the studies contributed to the policy debate leading to acceptance of urban agriculture in Kampala City and the subsequent incorporation of the practice in its physical planning activities.

Needless to say, the availability of funds for carrying out the studies, and particularly for the seminar, was instrumental in creating awareness about the significance of urban agriculture.

Conclusion

Kampala's rapid population growth is leading to competition among land uses for residential and commercial development. The implication for farmers who are to some extent dependent on urban agriculture is that they may not have enough land to cultivate in future. The current debate on land access and tenure issues throughout Uganda -- but especially in the Central Region -- may also have negative consequences for urban farmers. But given the recognition that urban agriculture has acquired, plans now need to be considered so that urban farmers do not lose their survival strategies. Some potential approaches have been proposed in the MISR action research on urban agriculture such as activities that seek to maximally utilize limited land and recycling of urban waste for use in urban agriculture.

Although some farmers still face a problem of insecure land tenure and lack of access to sufficient land, they now carry out their farming activities without undue fear of harassment by city enforcement officers. The issue at hand is establishing guidelines for carrying out environmentally friendly agriculture and for productively using limited land. It is hoped that when funds have been secured, concerned institutions such as MISR, KCC, and UNFA -- together with the urban farmers -- will carry out action research using participatory techniques to establish appropriate guidelines and assist farmers to follow them.

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