

Urban Food, Fuel, and Shelter¹

by

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Abstract

This paper discusses the first urban agriculture research project in Nairobi and five other cities. The interdisciplinary team used data from a national household survey to document urban agricultural and fuel production, consumption, and the contribution to cash and subsistence. It was found that almost two thirds of urban households grew part of their food, one third of them on urban land. Most crops and livestock were both consumed at home and sold, and the majority of farmers were women.

The impacts of the project were several. Mazingira Institute's project team, containing a mix of specializations, worked together to produce a methodological design and later a critical review of findings. Their issue-based method intended to lead to debate and negotiation by stakeholders. The strength of the project was in the area of utilization of research results, although at the time urban farming seems to have been too new a concept for policy makers, researchers, and local government officials. The key issues identified were: land for crops, crop extension, space for livestock, veterinary services, woodfuel, organization, women farmers, marketing, and indigenous vegetables. Institutional capacity building was obtained primarily through training of project staff and the computerization of many operations, though in this area some negative impacts were noticed. Gender-sensitive insights that were unforeseen had far-reaching impacts as a result of the project.

A brief history of the project

The urban food, fuel, and shelter project was funded by IDRC in 1983 following the Mazingira Institute's discussions with Professor Yue Man Yeung of IDRC's urban program. It followed up the Institute's first major research project, a study of the Matatu mode of urban transport funded by IDRC in 1978, the same year that the Institute was established (Kapila et al 1982). The Institute's mission was to carry out environment and development research and action useful to low-income groups and economies, then make this information available to them.

Several of the Institute's founders were urban specialists, a disciplinary focus that fit with IDRC's urban program, housed in its social sciences division. Both the 1978 and 1983 projects reflected a concern on the part of IDRC and Mazingira for understanding informal sector activities. The two projects also reflected the Institute's interest in carrying out interdisciplinary, issue-based policy research to be applied through the involvement of stakeholders. Inclusion in the 1983 project of a support component for Settlements Information Network Africa (SINA) enabled Mazingira to link its research activities with dissemination and application through regional networking.

Mazingira's interest in urban agriculture arose both from its environmental mandate and its mission to carry out research on the activities of low-income groups. Diana Lee-Smith (1978) had treated urban agriculture and urban food production at some length in a paper for UNEP. Lamba (1979) contributed the paper "Human Settlements and Urbanization: Food, Fuel and Employment Scenarios" to the Environment and Development Project of the Kenyan government. And from 1982 to 1987 Mazingira ran its community agroforestry project, a rural experimental initiative on reinforcing or altering land use patterns for the combined production of food, fuel, and fodder. The project used advice from the International Centre for Research on Agroforestry (ICRAF), a centre established in Nairobi by IDRC in the late 1970s.

Casual observation had already revealed extensive farming activities within urban boundaries in Kenya. But the subject was virtually unknown and unresearched in the region except for Sanyal's doctoral research in Lusaka (Sanyal 1984). Agencies dealing with urban issues, including the research and development division of UNCHS (Habitat) and the urban division of the World Bank, considered the topic neither of interest nor importance at the time. However, conversations with Yue Man Yeung indicated that IDRC had a strong interest in exploring the subject.

Implementation, aims, and findings

Mazingira assembled an interdisciplinary team of researchers to carry out the research on urban food production and cooking fuel based on a national urban household survey. The shelter component of the project was handled by existing professional staff.

The aims of the research were to document the production of food and fuel on urban land, to document urban households' agricultural and fuel production and consumption activities and

their contribution to cash and subsistence, and to develop policy options. Although the project had been scheduled to begin in March 1983 and end in March 1985, only the shelter component followed this schedule. In fact, clearance from the Kenyan government for the food and fuel research component came only in March 1984 and the field work was carried out in 1984-85. The delays caused the project completion date to be extended to March 1986 and then to July 1987.

The main findings, that almost two thirds of urban households grow part of their food, while 29 percent do so on urban land, were a surprise to most people. The value of food crops produced in one season in Kenyan towns was estimated at US\$4 million and the total value of livestock at the time of the survey at US\$17 million. Most of the crops and livestock were produced not for subsistence but for sale, although livestock products such as milk and eggs were both sold and consumed by households. Almost no woodfuels were found to be produced in urban areas, although they were consumed by over 80 percent of urban households. The cost and availability of woodfuel was found to be as much a constraint on poor households getting enough to eat as lack of food.

The importance of the study lay in its status as the first national survey of urban agriculture (UA) and in the soundness of its quantitative findings. The study confirmed that UA is a significant economic activity -- although within the household subsistence economy rather than the cash economy. Its findings, including that the majority of urban farmers are women, have been corroborated by subsequent studies in Kenya and elsewhere. To this date the study remains the only national survey of urban household food production.

The research reports were published by the Mazingira Institute in August 1987 (Lee-Smith et al. 1987). The findings were disseminated in the *SINA Newsletter* and the issues identified were raised in numerous policy fora, NGO gatherings, and research meetings in Kenya, Africa, and internationally. But it was not until the early 1990s that policy and refereed scholarly articles on the research were published (Lee-Smith and Lamba 1991; Memon and Lee-Smith 1993). An article in the *Canadian Journal of African Studies* (CJAS) was also the basis for the Kenyan chapter of the volume *Cities Feeding People* published by IDRC in 1994. Thus, the entire cycle from research idea to dissemination took over a decade. In fact, follow-up work has continued -- a regional workshop was organized with Swedish support in May 1998 and a special issue of *SINA* on urban agriculture was planned for late 1998.

Areas of impact relevant to the project

The urban food, fuel, and shelter project did not specifically contribute to human resource development in the sense of specific training or skills development. Nonetheless, in indirect ways it did build research and research management skills among Institute staff. For example, the acquisition of computers through the project led to on-the-job computer training for staff, although the training itself was funded from other sources.

Impacts on Mazingira's institutional capacity were both positive and negative. The project did contribute significantly to institutional capacity strengthening insofar as computers and other office equipment were acquired. A financial audit required by IDRC did strengthen the Institute's management systems. Most significantly, financial support for six newsletters and two workshops helped stabilize and strengthen SINA as a regional network. Certain negative impacts on the Institute's capacity are addressed later in this paper.

Effectiveness of local partnerships with non-research organizations were enhanced most directly by support for the SINA network. This support laid the groundwork for connections to a variety of other organizations long after the project itself had finished. Other links also developed indirectly through Mazingira's various activities. For example, at the end of the project one of the researchers moved to another Kenyan NGO, Undugu Society, and set up its urban agriculture project in a low-income community. Informal links were also created with UNICEF's urban basic services program. With regard to fuel, Mazingira participated in setting up the Kenya Energy NGO (KENGO) and worked on numerous other energy-related activities.

Although a major project finding was that women predominate among urban farmers, gender sensitive analysis, tools, and methods were not used in the project. However, project staffing was gender balanced at all levels, including professional and field workers. In addition, the gender disaggregation of data produced research findings that led to later gender analysis and insights. Their influence was felt in an enormous range of subsequent work, including the gender, urbanization, and environment research program of the Institute.

The added value of the interdisciplinary approach used in the project emerged from the mix of specializations in the research team, but most importantly from the Institute's team decision-making process in methodological design and analysis of the research findings. This process facilitates learning of cross-disciplinary skills and critical review of findings -- with regard to accuracy and relevance -- for research users. The main value of the process is that findings are more likely to be applied, which clearly links it also to impact in methodological and scientific advances.

Methodological and scientific advances are considered to have been made by the Institute on the urban food, fuel, and shelter project along a continuum that begins with the Matatu mode of urban transport project. Both projects were funded by IDRC. As stated earlier, Mazingira uses a scientifically innovative interdisciplinary method whose goal is effective research utilization. The method is, in fact, intrinsic to the mission and organization of the Institute. Research is intended to be issue-based and to involve stakeholders. The method relies on an interdisciplinary team using problem-solving techniques. The issue format, annotated with research findings, is used for debate and negotiation by stakeholders. Apart from this innovative method, the project made advances by providing the first national data on urban food production, based on a national household sample.

Research utilization by non-research entities is also related to Mazingira's methodological

approach. Although the impact of the research has yet to be seen in any concrete policy on urban agriculture in Kenya, the findings have had an impact on research thinking and public awareness. Consciousness has been raised about urban agriculture both locally and internationally and debate on appropriate policy measures continues in the region.

The leverage of additional non-IDRC funds is a difficult area to define with any precision. Many meetings and follow-up activities relating directly or indirectly to urban agriculture have been undertaken. These activities have been supported by various donors as well as by the Institute itself. The follow-up activities of the SINA Network on shelter are also pertinent. Seventeen years after its founding the network is still running with members in thirty countries, thanks to support from several donors as well as subscription finance. Mazingira Institute is also working with Swedish researchers to help enlist support from Swedish SIDA's Department for Research Cooperation (SAREC) for work on UA.

The remainder of this report will treat the following areas of impact in greater detail:

- institutional capacity strengthening
- gender-sensitive insights
- added value of the interdisciplinary approach
- methodological and scientific advances
- research utilization by non-research entities

The last three topics are treated together since they are inter-related in Mazingira's methodological approach.

These areas have been selected as having the greatest impact, although there is some overlap among them (and among other areas covered briefly earlier). Since the utilization of research results is considered the ultimate goal of Mazingira's research, the report emphasizes successes and failures in this area, which in turn is linked to the Institute's interdisciplinary methodological approach. Institutional capacity strengthening was selected for further analysis owing to the profound and complex impact the project had in this area. Finally, gender insights are discussed because of the unanticipated and far reaching impact of the project in this dimension.

Institutional capacity strengthening

The Urban food, fuel, and shelter project came sufficiently early in the life of the Mazingira Institute and was of sufficient financial value (CA\$277,000) to constitute a major contribution to realizing the institution's goals. However, this contribution was far from problem free and, paradoxically, tended to both weaken and strengthen the institution.

Undoubtedly, one of the major and lasting contributions of the project to institutional capacity was the acquisition of office equipment. The IDRC grant helped purchase some equipment that is still in use, such as filing cabinets and desks. The grant also helped the Institute to acquire its first computers. Not only did these computers last several years, more importantly they facilitated the computerization of data processing, word processing, and financial management

throughout the institution.

Computers had not been included in the original project proposal, only computer time and services. However, it became clear that it would be more cost effective for the Institute to acquire its own machines and process its own data. Therefore, a reallocation of funds to this end from salaries and allowances was approved in 1985 to purchase two computers, a printer, and software. A computer manager cum trainer was hired on consultancy using funds from another source.

This was a crucial step for the institution as typewriters and manual proofreading were gradually phased out. Training in keyboard skills was provided to all new staff and these skills became required ones for all new recruits during the 1990s. Full computerization of all financial management, office correspondence and documents, data processing and network data bases took approximately five years. The library was also computerized during that period.

In some respects, computerization is ongoing as machines are upgraded and new systems introduced. For example, Mazingira was instrumental in establishing the first local e-mail network in 1991-92 in collaboration with Doug Rigby of Environment Liaison Centre International (ELCI). Access to the Internet only became possible in 1998, when Mazingira was involved with ICRAF in developing proposals for the IDRC Acacia project to bring information technologies to remote areas.

At the start of the 1983 urban food, fuel, and shelter project, Mazingira employed a part-time accountant. In 1984, additional professional support was hired to help the secretary keep records and write financial reports for the project. The shelter component experienced no delay since SINA was already functional. A program of workshops planned by network members was executed on time and reported without problems. The President of IDRC attended one of these workshops and expressed strong support.

However, owing to delays in project start-up on the food and fuel research (caused by the bureaucracy of research clearance in Kenya), data analysis was able to begin only just as the project was scheduled to finish. This unfortunate delay caused financial problems for Mazingira, which were only partially responded to by IDRC. The root of the problem was the Kenya Government's reorganization of research clearance procedures and its capacity for monitoring.

Numerous ministries were involved in this process. One of the ministries refused the application -- even though the IDRC grant had been awarded -- on the grounds that it would duplicate existing findings. This was clearly not the case. Being the first local NGO to carry out such research meant that Mazingira was viewed with curiosity, if not suspicion. This despite the fact that the Ministry of Transport was using the Matatu study findings to formulate the Traffic (Amendment) Act of 1984, known commonly as the Matatu Act.

A project extension was granted until March 1986. Then, IDRC selected Mazingira Institute as a

case of an NGO recipient to undergo a financial audit. The audit recommended improved financial controls and accounting procedures, which in the end were useful to Mazingira in building management capacity. However, the blanket application of accounting conventions more appropriate for larger institutions created difficulties: the exercise became punitive rather than supportive.

Two negative impacts of the project upon the institution must be mentioned. The first regards the strict accounting procedures imposed during the IDRC financial audit that stipulated overhead costs could not be carried over into the extension period for the project. This stipulation created financial hardship for Mazingira and staff. The second concerned production of the final project report for IDRC. Considerable word processing needed to be completed within a short period to meet IDRC reporting deadlines. Unfortunately, the Mazingira Institute could not assign more than one individual to the keyboard work, which apparently resulted in repetitive strain injury and permanent disability for that person.

On the other hand, financial support for the SINA network (under the shelter component of the project) was entirely beneficial. The network was founded by a group working on self-help housing and related activities with low-income communities in different African countries. The premise was that sharing information among such communities and local professionals would create more effective and endogenous development than would separate donor-funded projects working in isolation.

During the project period 1983-85 the network membership grew from 25 founder members in nine countries to over 250 members in 21 African countries and abroad. The international members raised subscription fees. Six newsletter issues were disseminated and two international meetings were held of organizations engaged with communities in tackling shelter problems. The results of one of these meetings was published as a 74-page booklet on community participation (Lee-Smith 1984).

The newsletters addressed a wide range of issues and were not limited to the dissemination of research results. The earlier IDRC-supported Matatu study was the focus of a special issue on low-cost urban transport. Research studies carried out by Mazingira and funded by other donors or studies carried out by other institutions in the region were also covered in the newsletter. Topics included land, informal finance, credit, appropriate technologies, income and employment generation, women and shelter, training, and information exchange (Lee-Smith 1982-98). The outcome of the urban food and fuel study was covered after the project was completed. *SINA Newsletter* no. 42 (late 1998) was to be devoted entirely to UA.

A systematic evaluation of the impact of the network and its newsletter has never been done and would be quite difficult to carry out. Only in recent years has its impact become apparent, although only through anecdotal evidence. It is read by many more people than appear on the mailing list. For example, it is circulated within an entire ministry of housing and is read by community groups in different countries.

The *SINA Newsletter* appears to have influenced both official and popular views on questions such as evictions, housing rights, women's property rights, informal sector and popular activities, and to have generated action on housing and construction co-operatives, especially in Zimbabwe. The idea of exchange visits as a form of mutual learning came from members and has been implemented with donor support. Exchange and study visits appear to be highly cost-effective means of sharing learning and bringing about change.

The stability provided by the IDRC grant enabled the network to survive between 1985 and 1986, a period that saw an almost total lack of additional funds, but during which time the membership remained active and newsletter material abundant. A four-page issue was printed from subscription funds and staff worked unpaid -- or supported partly by other projects -- to prepare two more issues that were printed and mailed with UNICEF funds.

Things turned around in 1986 with a three-year grant from the Canadian Union of Cooperatives (CUC) and support from UNCHS (Habitat) for the network to prepare NGO case studies from the region for the International Year of Shelter for the Homeless (IYSH-1987). Since then the network and its newsletter have been funded by grants from Shelter Sweden and Rooftops Canada Foundation, and have become the regional vehicle or focal point for the Habitat International Coalition (HIC), the women and shelter network of HIC, and the community development programme of UNCHS (Habitat).

Gender sensitive insights

Although the project adopted no particular gender methodology, its research findings regarding the predominance of women over men urban farmers generated considerable reflection on gender issues within the Institute. The Institute itself had adopted gender sensitive management practices since its founding in 1978. It has always had as many, or more, women than men employees at all levels, including among associates and board members. It also has supportive policies and practices for female employees, including generous maternity benefits in its health packages. Discussions about gender equality in the workplace and elsewhere are routine events within the Institute.

However, gender methodologies or gender analysis in Mazingira projects did not begin until later (although data was disaggregated according to gender for certain variables in research projects). The urban food and fuel research was one project that did provide specific gender insights, namely that women predominate among urban farmers. Together with findings from other studies on women's and men's different roles and problems in self-help construction and informal finance, this finding led to several papers on urban issues affecting women as well as discussions on carrying out further research on women in urban areas. The material also influenced a number of NGO meetings, action plans, and programs -- both in the African region and internationally.

During the UN Conference on Women held in Nairobi in 1985, Mazingira organized a workshop

on Women and Habitat at the Global NGO Forum. The workshop included the topic of women's role in urban farming. The output of the workshop appeared first in *SINA Newsletter* No. 9 (October 1985), was later reproduced in *Women and Environments* magazine, and also appeared in a book (Lee-Smith 1989a).

In parallel with this process of dissemination, other similar initiatives were in progress. Through the SINA network, Mazingira helped the Swedish and Zimbabwean governments prepare documentation for an international seminar on women and shelter. The findings of the urban food and fuel research were incorporated in the background documentation, discussions, and proceedings (Lee-Smith 1988a).

Also in 1987, Mazingira prepared case study and analytical documentation for a regional plan of action for "NGOs and Shelter," which appeared in *SINA Newsletter* No. 13 (August 1987). No reference to UA appeared in this plan of action, although the findings on fuel were certainly incorporated. It is not clear why this omission occurred, but it may have been due to the bias of participants at this meeting, the majority of whom were men. Women had been in the majority at the other two NGO meetings. In fact, at this time, many male NGO activists were hostile to gender analysis. References to women's issues in the plan of action were included only after heated debates.

This somewhat hostile environment led the task force on women and shelter of the Habitat International Coalition (HIC) to form a women and shelter network in 1988. The network was intended to enable women -- especially at the grassroots -- to articulate issues affecting them and to bring these to policy attention. One of the Mazingira UA researchers founded this network. She mentioned UA in her address to the opening session of the HIC annual seminar in New Delhi in 1988 (Lee-Smith 1988d).

She also contributed several papers to seminars, journals, and policy meetings addressing issues of women and urbanization, including references to their role in UA (Lee-Smith 1988c; 1989c; 1990b). These papers mention women's role in UA along with their other typical subsistence tasks including provision of water, fuel, and traditional building materials. A more systematic policy analysis in relation to urban infrastructure planning was developed in a regional paper for a World Bank seminar (Lee-Smith and Syagga 1990). Some of the same thinking appeared in "New Perspectives on African Urban Management," an influential article written jointly with Richard Stren (Lee-Smith and Stren 1992).

The subject of women and UA was also mentioned in a special issue of *Environment and Urbanization* on women, guest edited with Ann Schlyter (Lee-Smith and Schlyter 1991), and in an article for the same journal on women, subsistence and sustainable development, co-authored with Catalina Hinchey Trujillo (Lee-Smith and Hinchey Trujillo 1992).

Activist work through the HIC women and shelter network was ongoing at this time. The subject of women's role in urban food production, along with their other urban tasks, appeared in

statements to various United Nations fora, including the 1992 Global Forum at the Rio Earth Summit, the Commission on the Status of Women in New York, and various meetings of the United Nations Commission on Human Settlements and the Habitat International Coalition.

Mazingira was also beginning to articulate its gender policy and program in the early 1990s, which led to the research project on women and shelter in Kenya funded by SAREC. Although the project focus was on access to land and housing, the findings included crop and livestock production by women among the case study sample populations. This research clearly established that women are more involved than men in UA owing to their customarily assigned role of producing subsistence food for the household. The findings have been presented at international seminars and published in three books (Lee-Smith 1992a; 1990c; 1993; 1995b; 1996b; 1997).

The impact of the urban food and fuel research findings also influenced the direction of the Institute's later program of research on gender, urbanization, and environment (GUE). This impact was articulated in two major projects, an international research seminar organized in June 1994 jointly by Mazingira with Research Committee 43 of the International Sociological Association (ISA) and UNCHS (Habitat), and a small grants award program funded by SAREC.

The output of the international seminar was meant to contribute to the UN Habitat II process and referred to women's management of natural resources in urbanization, including urban farming (Lee-Smith 1994). Women's management of natural resources in urban areas certainly emerged from a number of the African contributions to the international seminar. But it is fair to say that without the Institute's grounding in urban agriculture issues, this dimension might not have been given such importance.

In this respect, it is useful to compare another research network in Southern Africa funded by SAREC whose focus is gender research on urbanization, planning, housing, and everyday life (GRUPHEL). In fact, the content and boundaries of this area of gender research are still being defined as the two research networks grow (Lee-Smith 1998).

Only two of fourteen research studies selected for the first two phases of the GUE small grants program dealt with urban farming and only one of these was completed. This research, by Ophelia Mascarenhas on Dar-es-Salaam, Tanzania, has been released as a Mazingira Institute monograph and will also appear as a chapter in a forthcoming book (Lee-Smith 1998). Phase 3 of the research grants program commenced in 1998.

It is worth noting that although UA was included in the document prepared for the Habitat II process, it went virtually unmentioned in the Habitat Agenda produced by the UN meeting. Why? It would appear to be owing to the absence of strong activism (as exists, for instance, on women's land rights through the women and shelter network and other groups) to ensure its place in public debate. The lack of attention to UA in the Habitat Agenda recalls similar omissions in the "NGOs and Shelter" plan of action a decade earlier. On the other hand, there is also

practically no mention of UA in the Beijing Platform for Action emerging from the Fourth World Conference on Women in 1996. Is it because women activists target what they perceive as more crucial aspects of their program, such as women's land rights?

Methodological (interdisciplinary) advances and result utilization

The methodological or interdisciplinary advances made by the project relate mainly to research result utilization. In fact, apart from providing quantitative data from the first (and only) national survey of UA in the region, research utilization is considered to be the project's main methodological and scientific advance. Therefore, added value of interdisciplinary approach, methodological and scientific advances, and research utilization are discussed together. With regard to utilization of research results, the urban food and fuel study has been less successful than the earlier Mazingira study of informal transport (Matatu), for reasons that are discussed below.

Mazingira Institute adopts an interdisciplinary approach in all its work. Indeed, it is one of the principles on which the Institute was founded in 1978. The approach is based on the assumption that the combined efforts of professionals with a variety of skills are more likely to produce research that can be applied by users than would the efforts of researchers operating within the confines of a single discipline. A key additional ingredient in this method is the use of problem-solving methods.

The approach originates with the founders of the Institute, several of whom did graduate studies at the graduate Faculty of Environmental Studies (FES) of York University in Toronto, Canada in the early 1970s. FES was itself founded upon principles of interdisciplinarity in the late 1960s and made several innovations in methods of interdisciplinary teaching and learning with which some of Mazingira's founders were directly involved. They established the Institute with the intention of applying these innovations to practice.

The innovations include methods of group work and communication and issue-based techniques of combining investigation or enquiry with decision-making or problem-solving. Several founders of Mazingira participated in FES work on methodological development. They helped combine the theory and methods of planning, design, and management (and the policy sciences) in a theory and method of "intervention." The work also applied natural and social science disciplines to the design of an ecological settlement in the "Ecodesign project." FES also provided education and skills development in social science methods and the humanities.

The approach to interdisciplinary thinking can be traced to even earlier work of the Mazingira founders, for example an interdisciplinary seminar on environment and technology at the University of Nairobi in 1969 and studies with Professor Horst Rittel at the University of California, Berkeley in 1972 on issue-based methods.

In any event, this interdisciplinary approach coincided with the thinking of IDRC's Social Science Division. It led to a productive relationship in the development of the Matatu study and the urban, food, fuel and shelter project. Establishing the research team for the urban food and fuel research followed the successful model used in the matatu transport research. This model combined professionals with research experience in different disciplines with junior researchers in other disciplines and professionals with technical and applied skills.

The interdisciplinary team assembled for the food and fuel research included among its permanent members an economist, an environmental planner, and a geographer/planner. At various times the team also included an architect planner, a demographer, and a political scientist, with a community development specialist as the field team supervisor. However, mere combination of disciplines does not guarantee an effective interdisciplinary method. Rather, this effectiveness depends on how the team works together.

The Mazingira team developed its methodological approach and instruments of data collection through team meetings using a joint problem-solving approach. This enabled team members to appreciate each others' skills and to develop ownership over the process and commitment to the study, thereby ensuring its relevance to users. Team work discussions also involved the field team, although on a different level of decision-making.

The Matatu study (Kapila et al. 1982) had been remarkably successful in the utilization of research results. Its findings influenced government legislation, were cited in courts of law and commissions of enquiry, and were sought after by vehicle operators' associations, police, insurance companies and other stakeholders as well as by researchers and donors (Lee-Smith 1989b). In comparison, the urban food and fuel research was by no means as widely influential. The reasons for this are considered to be threefold:

- there were no obvious stakeholders to work with among urban farmers in the form of associations or groups;
- no donor support was found for stakeholder workshops or other follow-up; and
- the area was less politically interesting at that time, both in Kenya and for the donor.

The last two reasons are obviously related and together indicate that the study occurred too early in terms of awareness of UA as a potentially significant area of research, public policy, or informal sector activity. This general lack of interest meant that Mazingira's early efforts to apply its methods of stakeholder involvement and analysis were severely constrained. This had not been the case with the Matatu study, which investigated a question of great public and political concern that also enjoyed broader donor appeal.

The same mode of issue identification as had been used for the transport study was employed for the urban food, fuel, and shelter research, with the difference that team members substituted for the stakeholders (for reasons explained below). The process involves talking about the essence of the issue, who is affected by it, and what options for action are available. When more is known about the area of research, as was the case in the informal transport study, issue formats can be

used to identify research information needs and data collection instruments. At a later stage, in the process of reviewing research findings, the issue format is the basis for discussion and negotiation among different stakeholders.

Thus, data from the research are used to annotate the presentation of the issue and constraints on various options. The stakeholders are then better informed to negotiate -- or argue -- than before the research took place. This method is sometimes called the argumentative approach. These arguments or stakeholder meetings never took place in the urban food and fuel study. Instead, the method was applied using the interdisciplinary team to identify issues.

This alternative to the regular method was followed because several factors frustrated the team from involving stakeholders in the issue identification stage. The main factor was the delay in start-up. Lack of research clearance meant that as much preliminary design work as possible had to be done without going to the field. During the first year of the grant award, no interviews could be carried out either with urban farmers or local authorities. Therefore, the research team gave itself a head start by identifying issues based on members' own experience, casual observation of urban farming, discussions with interested agencies such as UNICEF, and review of the methods used to collect data in the Zambian study.

Much other preliminary work was done also such as identifying and orienting team members, developing a sample design that included selection of the six towns, designing the household questionnaire, and precoding and preparing analysis forms. Fieldwork started with preliminary site visits, case studies of farmers and markets, questionnaire pretesting, and interviews with local authorities. It soon became clear that no urban farmers' associations existed and that local authorities were generally hostile to urban farming, except on private land. The exception was in Isiolo, located in a semi-arid area where the seasonal river flows through the town. Here the local authority helps urban farmers dig irrigation channels to their fields. Questions about associations were kept in the survey, but were oriented more toward informal collaboration, which appeared to be more frequent than actual associations.

The delay in starting up also led to the project extensions already described. It also meant a scramble to complete the report to the requirements of a new IDRC program officer rather than in consultation with the research team -- let alone with stakeholders. Nevertheless, the team's analysis and discussion in the final town reports and the overall report identified the following key issues: land for crops, crop extension, space for livestock, veterinary services, woodfuel, organization, women farmers, marketing, and indigenous vegetables.

Once the research report was complete, IDRC took no interest in application or dissemination -- at least not until five years had passed. In 1988, with the Institute still recovering from financial losses on the project, the team tried to organize a meeting with local authorities from the towns surveyed, working through the Ministry of Local Government. But interest was minimal and the meeting never took place. The Ford Foundation, which had supported the Matatu workshop, did not consider UA a priority for its urban program, nor did any other donor.

Mazingira was left on its own to push the issue in other fora and to follow more conventional routes for research dissemination by writing up the results for publication (Lee-Smith and Lamba 1991; Lee-Smith and Memon 1993; Egziabher et al. 1994). At this time, IDRC was becoming actively engaged in UA again through its urban environment management program (URB) and two of its publications picked up the Kenyan material (Lamba 1993; Eberlee 1993). Fortunately, Mazingira's other modes of dissemination were working somewhat faster to bring the issue of women as urban farmers to NGO, UN, and urban policy audiences (as already described in the section on gender insights above).

In 1990, the issue-based format was used to highlight policy options for UA in an important inter-regional policy meeting of the World Bank's Economic Development Institute (EDI) in Harpers Ferry, West Virginia. Out of seven issue statements presented to this meeting, two contained references to urban agriculture in their content: "Services should be the ones the urban poor need," and "Services and land-uses women need are not planned for."

Another issue statement was directly related to fuel:

"Woodfuel is the basic energy used by the urban poor."

Apart from stating the issue, each one-page treatment looked at the obstacles to change, successful experience that could be built on, and priorities for action. With regard to UA, only Mozambique and Malawi could be cited at that time as regional experiences to learn from (Lee-Smith and Syagga 1990). The fact that knowledge of the regional dimensions of UA were available through the SINA network could also be considered a project impact.

It is hard to assess any impact this particular initiative had on policy or even urban management thinking. It is probably safer to say that this and other efforts accumulated over the years to change official perceptions and gradually increase awareness of UA and its dimensions.

Other articles or public interventions in the same period included an article on "Human Settlements and Planning Networking in Africa" in *Planners Network* (Lee-Smith 1986a). This network consists of mainly North American, self-styled "radical planners." Diana Lee-Smith was a founding member of the network. This article was an attempt to involve network members in development issues. Broadly focussing on activism around land and housing issues, the article touches on urban food and fuel. It is a project output in that it includes references to both topics and to the SINA network. The effort worked, in the sense that Planners Network eventually joined HIC and campaigned successfully on housing rights at the Istanbul Habitat II Conference in 1996. However, the network has yet to do anything on urban farming -- again indicating that this is a tougher nut to crack.

In 1988, similar dissemination efforts were made through professional associations in East Africa and abroad as well as through a lead article for USAID's regional newsletter. Again, UA was highlighted as a gender issue and as one of women's household tasks that are ignored by public policy and planning, thereby making life extremely difficult for the urban poor (Lee-Smith

1987a; 1988b; 1990a).

Meanwhile, parallel work to disseminate research results on woodfuel was undertaken. In 1986, Mazingira carried out a consultancy for the Ministry of Energy and the Kenya-Canada Energy Advisory Project on co-ordination of woodfuel development initiatives in the country. The issue format was again used to bring together stakeholders and negotiate a workable plan. Although this initiative succeeded under difficult circumstances, woodfuel still did not achieve an important profile in Kenyan policy (Lee-Smith and Mutiso 1986).

Internationally, an audiovisual presentation on "Urban areas and energy in Kenya: the cooking fuel crisis," based on project findings, was prepared by Davinder Lamba for the Globe '90 meeting in Vancouver in 1990. This presentation, which had a strong gender message, was the basis for a similar contribution to an expert group meeting and publication that were part of the preparations for the Habitat II Conference (LCHS 1993).

The project findings were also disseminated in an article in *Environment and Urbanization* that examines four new perspectives on urban management in Africa: urban productivity and the national economy, the urban informal sector, women's need for basic urban services, and community sector organizations. Again, UA comes under the gender topic (Lee-Smith and Stren 1991). The same journal published a major article on UA in an issue on sustainable cities (Smit and Nasr 1992).

Other conference and seminar papers and newspaper articles appeared in the early 1990s (Lee-Smith 1991a; 1991b; 1992b; Omale 1993; Stackhouse 1993). The paper presented at the RUPSEA (Rural and Urban Planning for Southern and Eastern Africa Association) Conference on Urban Management in East and Southern Africa in Lilongwe, Malawi had an important impact when a researcher from Zimbabwe, Beacon Mbiba, decided to pursue research on UA and subsequently produced a book on the subject (Mbiba 1995). The paper presented in Mombasa in 1992 also had an impact when the organizer of the meeting -- who is also editor of *African Urban Quarterly* -- later produced a special issue on UA.

By the mid-1990s significant changes in UA research activity were evident -- more research results appearing, a major project on the international scope of UA launched by UNDP, and the Cities Feeding People program of IDRC gaining prominence. It all followed in the wake of the Earth Summit in Rio in 1992. Things were also beginning to change in African countries, with more acceptance of UA in countries like Tanzania, Zambia, and Zimbabwe, partly as a result of the dissemination of research results. However, Kenya still lags behind. Although UA is not as harassed as it once was, there is still little official thought given to the topic.

Prospects for a breakthrough on urban environment appeared in 1993, but these expectations were short-lived. Mazingira Institute had been instrumental in organizing the Nairobi City Convention in July 1993. This was an attempt by the first elected city council in ten years to open policy making to citizen participation and to develop a more people-centred agenda

(Karuga 1993). The convention workshops were well attended and UA was addressed as a gender issue in the environment workshop run by Mazingira. Although the meeting itself succeeded and produced a coherent set of guidelines, the larger initiative eventually foundered on political tensions: it was blocked by the central government because the winners of the local council elections had come from the ranks of the opposition.

The situation of collapsing services and a crisis of governance continued to worsen in Nairobi, a trend that continues up to the present. Although local authorities in other Kenyan cities have similar problems, they are not on the scale of Nairobi's. Mazingira continues its efforts at reform on fronts too numerous to describe here.

Several NGO initiatives in Nairobi support the UA activities of low-income communities. There are also many small independent producers undertaking commercial UA activities. One of the most important NGO activities remains that of the Undugu Society, which was begun by Kuria Gathuru, a member of the urban food and fuel research team. He was inspired by his work at Mazingira to apply the research results in low-income communities.

The specific topic of indigenous vegetables was taken up by KENGO. Researcher Monica Opolo subsequently set up her own NGO, CIKSAP, to pursue research and development on the same subject.

Although the scope of UA in Kenya, and in Nairobi in particular, has not been systematically monitored, activity has likely increased and diversified since the Mazingira study -- now 13 years old. Subsequent UA research studies have been limited to specific areas and research questions. According to data gathered at one period, it appeared that food-producing households in the lowest income range were farming less owing to lack of land. But data from another period suggested they were farming *more* (not less), owing to economic necessity. However, these trends are not clear because the data are limited to case studies carried out at different times (Omwega 1997).

Mazingira continues to work locally, regionally, and internationally to promote research and policy change on UA (Lee-Smith 1996a; 1998a; RELMA et al 1998). Most important among these efforts was a May 1998 workshop on urban food production as a household strategy, co-hosted with the Regional Land Management Unit (RELMA) and the Population and Development Program (PROP) of Lund University's Department of Sociology. RELMA, which works in six countries, recently adopted UA in its program, based on projections that UA will be linked to food security in the region for the foreseeable future.

Meanwhile, the connection between the original components of the urban food, fuel, and shelter project continues with a special issue of the *SINA Newsletter* on UA in late 1998. This issue covers the 1998 South African forum on productive use of open space, the 1998 CFP workshop "Lessons learned from urban agriculture projects in African cities," IDRC's AgroPolis awards, and a regional overview of the state of the art in UA.

Overall evaluation

The urban food, fuel, and shelter project strengthened the institutional capacity of Mazingira Institute by enabling it to computerize its operations and by supporting and stabilizing the early growth of Settlements Information Network Africa (SINA). Despite having no gender methodology (apart from disaggregating key variables by gender), the project provided gender insights that had far-reaching impacts, influencing Mazingira Institute's later gender program and numerous other activities through dissemination of research findings. The interdisciplinary approach and the innovative methodology for involving stakeholders to facilitate use of research results were less effective in bringing about projects and policy change in Kenya than they might have been, apparently due to contextual factors.

Although the project was highly relevant to the previously undocumented field of UA, and benefitted from the linkages between urban food and fuel research through the dissemination mechanism of SINA, its impact on UA policy and practice in Kenya has been limited. This outcome reflects neither a weak effort nor a lack of sophistication in the methods used by the project.

It is impossible to know what might have happened had IDRC (or some other donor) been more supportive and taken greater interest in Mazingira's methodological approach. If there had been a commitment to developing the stakeholder methods and further extending the project, perhaps some enthusiasm might have been generated among local authorities and the Ministry of Local Government. In other words, events might have taken a different course.

The interdisciplinary team approach and the innovative methods of linking social enquiry and social intervention had proved effective in the earlier informal transport study. The issue-based format also proved effective when using the woodfuel findings in a policy context. This analysis seems to indicate that the findings from the Kenyan study on urban farming came too early to have any impact at that time. Urban farming seems to have been too new a concept for policy makers, researchers, and local government officials. However, the impacts of the study continue to be felt. Thus, it may be too early to close the chapter even though the statistics themselves are out of date.

Moreover, when we look at the growth of interest in UA -- virtually non-existent when the project began -- the impacts of the project have been extensive. Although it is almost impossible to attribute impacts directly to one initiative, the number of papers, meetings, publications, and activities relating to UA (not to mention energy) is enormous. One cannot say that the urban food and fuel research in Kenya caused Mazingira to develop its gender, urbanization and environment program, or that there would be more or less interest in UA among NGOs and other researchers in Kenya or elsewhere if it had not taken place. There are simply too many other intervening factors.

However, it is quite certain that some events, namely Kuria Gathuru's role in the UA project at Undugu Society and Beacon Mbiba's decision to research UA in Zimbabwe, owe their origin to the project.

Similarly, one cannot say that IDRC's funding or the project itself caused Mazingira to incorporate UA in many subsequent activities. Mazingira's principals were already interested in UA and would have tried to pursue it even without IDRC support, as indicated in the introduction to this paper. Nonetheless, without IDRC's support, the study's unique findings about the scale of urban household food production would not have been known.

The project also had negative impacts. Although it strengthened Mazingira's institutional capacity, it also eroded that capacity. Mazingira suffered an overall financial loss that was a serious strain for a small, new organization without core funding. In addition, one researcher was permanently physically affected by computer keyboard work for the project. IDRC's apparent loss of enthusiasm for the project may have occurred because it was more used to dealing with state-funded institutions or universities than with small, independent NGOs. Alternatively, the loss of interest may have come with the departure of Yue-Man Yeung, an interest that was revived only after the Earth Summit when IDRC saw its mandate move to environmental issues.

It is also interesting to speculate about what impact the project had on the donor. What have been the impacts on IDRC of Mazingira's project on urban, food, fuel and shelter? How did the project influence funding for later research on UA in the region? Have the lessons provided by Mazingira's innovative issue-based methods been absorbed in IDRC's thinking on research utilization? What has been the influence of this and other projects in the region in developing the Cities Feeding People Program?

Finally, it is perhaps still too early to establish the impact of the food and fuel research on policy in Kenya. The cycle from awareness creation to policy implementation may take longer than a decade and a half, depending on the local political context. The case of Planners Network cited above was a decade in the making, from the advocacy article in 1986 to the successful involvement of the organization in HIC work at Habitat II in 1996. Furthermore, it was not the article alone, but follow up and sustained dialogue that brought about action.

The only country in the region with a proactive approach to UA policy is South Africa. This appears not to be the result of local research, but of political change accompanied by advocacy. The forum on productive use of open space hosted by the Technikon Pretoria in March 1998 was unprecedented in the region because of the range of actors it assembled and the strength of political support displayed for UA at all levels.

Among other things, the Technikon forum provided the opportunity for UA researchers in the region to focus on the policy issues, which remains a somewhat undeveloped area. Most policy in the region is laissez-faire rather than targeted to policy goals such as food security for the urban poor. The RELMA/PROP/Mazingira workshop of May 1998 also addressed these issues.

But unless local and central governments are involved it is doubtful that change will occur, no matter how much research is carried out. Furthermore, there has to be a favourable policy environment, with government supporting initiatives that favour the urban poor. In Kenya this has not been the case, and advocacy based on research results is unlikely to succeed unless there is a shift toward people-centred policy in government.

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