

# Urban Agriculture Research in Africa: Enhancing Project Impacts

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## Table of Contents

<b>Note</b>	..1
<b>Acronyms and Abbreviations</b>	..2
<b>Executive Summary</b>	..4
<b>The Context</b>	..7
<b>The Purpose of the Review</b>	..9
<b>The Review Methodology</b>	..10
<b>Outcomes</b>	..15
<b>Recommendations on Research Emphasis</b>	..29
<b>References</b>	..30
<b>Appendix: brief project descriptions</b>	..31

## Note

This document is a companion to a set of reports which were presented for the Cities Feeding People workshop: "Lessons learned from urban agriculture projects in African cities," Nairobi, Kenya, June 21-25 1998.

The set of reports includes:

- Report 29A Diana Lee-Smith and Davinder Lamba, **Urban Food, Fuel, and Shelter**
- Report 29B Gertrude Atukunda, **Urban Agriculture in Kampala, Uganda: Reviewing Research Impacts**
- Report 29C Seydou Niang, **Épuration des eaux usées domestiques**
- Report 29D Sthembile Mawoneke and Bowdin King, **Impact of Urban Agriculture Research in Zimbabwe**
- Report 29E Camillus J. Sawio, **Urban Agriculture in Dar es Salaam**
- Report 29F Daniel Maxwell and Margaret Armar-Klemesu, **Urban Agriculture in Greater Accra: Reviewing Research Impacts for Livelihoods, Food and Nutrition Security**
- Report 29G Lood Spies, **Municipal Policy Review: Urban Agriculture in South Africa**

The acronym list included in this document applies to the entire set of reports. All of the reports (29 and 29A - 29G) were edited by Neale MacMillan.

## Acronyms and Abbreviations

AGCD	Agence générale pour la coopération au développement
AUFNS	Accra Urban Food and Nutrition Study
AVMA	added value of multi-disciplinary approach
CBO	community-based organization
CFP	Cities Feeding People (program of IDRC)
CHDC	Child Health and Development Centre (Uganda)
CIDA	Canadian International Development Agency
CJAS	Canadian Journal of African Studies
CODESRIA	Conseil pour le développement de la recherche en sciences sociales en Afrique
CRDI	Centre de recherches pour le développement international
CUC	Canadian Union of Cooperatives
CUD	Communauté urbaine de Dakar
DEAT	Department of Environmental Affairs and Tourism (South Africa)
EDI	Economic Development Institute (World Bank)
EIOIN	Effect-influence-output-impact network
ELP	effectiveness of local partnerships
ELCI	Environment Liaison Centre International
ENDA-ZW	Environment and Development Activities of Zimbabwe
FAO	Food and Agricultural Organisation
FES	Faculty of Environmental Studies (York University, Canada)
FL	fund leverage
FUL	Fondation universitaire luxembourgeoise (Belgique)
GIS	geographic information system
GRUPHEL	Gender research on urbanization, planning, housing, and everyday life
GSA	gender-sensitive analysis
GTZ	Gesellschaft für Technische Zusammenarbeit (German technical cooperation agency)
GUE	Gender, urbanization, and environment program (Mazingira Institute)
HCC	Harare City Council
HIC	Habitat International Coalition
HRD	human resource development
ICRAF	International Centre for Research on Agroforestry
ICS	institutional capacity strengthening
IDRC	International Development Research Centre
IFAN/UCAD	Institut fondamental d'Afrique noire/Université Cheikh Anta Diop
IFPRI	International Food Policy Research Institute
ISA	International Sociological Association
IYSH	International Year of Shelter for the Homeless
KCC	Kampala City Council
KDAO	Kampala District Agriculture Office

KENGO	Kenya Energy NGO
KSP	Kampala Structure Plan
KUSG	Kampala Urban Study Group
LCHS	Lund Centre for Habitat Studies
M&SA	methodological and/or scientific advances
MISR	Makerere Institute for Social Research (Uganda)
NIGP	National income generating program (Tanzania)
NGO	non-governmental organization
NMIMR	Noguchi Memorial Institute of Medical Research
NRB	Natural Resources Board (Zimbabwe)
OMS	Organisation mondiale de la santé
ONAS	Office national d'Assainissement du Sénégal
POSF	Productive Open Space Forum (South Africa)
PROP	Population and Development Program (Lund University, Sweden)
RALDO	Regional Agricultural Development Office (Tanzania)
RBTS	Reed Bed Treatment System
RDP	Reconstruction and Development Program (South Africa)
RELMA	Regional Land Management Unit (Lund University, Sweden)
RTCPA	Regional, Town and Country Planning Act (Zimbabwe)
RU	result utilization
RUPSEA	Rural and Urban Planning for Southern and Eastern Africa Association
SAP	structural adjustment program
SAREC	Swedish SIDA's Department for Research Cooperation
SCP	Sustainable Cities Program (UNCHS)
SIDA	Swedish International Development Agency
SINA	Settlements Information Network Africa
SONEES	Société nationale d'exploitation des eaux du Sénégal
SPSS	Statistical package for social scientists
SSA	Sub-Saharan Africa
SUDP	Strategic Urban Development Plan
TOR	terms of reference
TP	Technikon Pretoria
UA	urban agriculture
UCL	Université catholique de Louvain (Belgique)
UCLAS	University College of Lands and Architectural Sciences (Tanzania)
UDSM	University of Dar es Salaam
UICN	Union mondiale pour la nature
UNCHS	United Nations Centre for Human Settlements
Unicef	United Nations Children's Fund
UVPP	Urban vegetable promotion project (Tanzania)
WHO	World Health Organisation

## Executive summary

In June 1998 a group of African researchers met in Nairobi, Kenya to review the results and impacts of their projects on urban agriculture (UA) in seven capital cities of Sub-Saharan Africa (SSA). UA has been expanding in many regions of the world, but it is in SSA where this growth has been most dramatic. Increasingly, practitioners, local governments, and consumers are concerned about the risks and the benefits of producing food in the city.

The research under review was carried out in West, East, and Southern Africa between 1987 and 1998 by university institutes or departments, non-governmental organizations or governmental agencies. The activities were funded primarily by Canada's International Development Research Centre (IDRC), in some cases with support from other agencies. IDRC has supported work on urban food supply systems since the early 1970s. Over the period under review, IDRC gradually shifted its support toward output-oriented, multi-disciplinary research that involved multiple stakeholders in its design and execution. This research lent itself to joint funding, networking, and collaboration in regional and international arenas.

This review is concerned with the following research projects and institutions:

- A. Urban Food, Fuel and Shelter (Kenya), Mazingira Institute, Nairobi.
- B. Urban Agriculture in Kampala (Uganda) and Farming in the City: Impacts and Issues of Urban Agriculture in Kampala, Makerere Institute for Social Research, Makerere University, Kampala.
- C. Urban Domestic Wastewater Treatment (Senegal), Institut fondamental d'Afrique noire, Université Cheikh Anta Diop (IFAN/UCAD).
- D. Survey of Urban Agriculture in Harare (Zimbabwe) and Socio-economic and Ecological Impacts of Urban Agriculture, Harare and Gweru (Zimbabwe), Environment and Development Activities of Zimbabwe (ENDA-ZW).
- E. Urban Agriculture in Dar es Salaam (Tanzania), University of Dar es Salaam (UDSM).
- F. Food Security and Nutritional Status in Greater Accra (Ghana), Noguchi Memorial Institute of Medical Research (NMIMR), University of Ghana, Accra.
- G. Municipal Policy Review: Urban Agriculture (South Africa), Pretoria Technikon, Pretoria.

For the Nairobi workshop, project leaders documented and discussed project outcomes in eight possible areas of impact. Impacts were defined as noticeable changes in the external environment of the research project that occurred partly or entirely as a result of the research process or findings. Each project was reviewed by the group with the assistance of a facilitator. Then the group synthesized all project impacts into two matrices, the first one grading the intensity of such impacts and the second describing their nature. In each matrix, both positive and negative impacts were recorded.

Most projects had strong positive impacts on forming effective local partnerships, in making scientific and methodological advances, and in utilizing the research results. Some positive impacts occurred in institutional capacity building and to a lesser degree in human resource development.

Weaker positive impacts were recorded in the area of gender-sensitive analysis.

The nature of impacts spanned a wide range:

- More than 175 individuals were trained, formally or informally, in data collection and analysis, and in fields such as nutrition, water and soil toxicology, geographic information systems, and participatory rapid appraisal.
- With the aid of computers acquired by the project, many institutions increased their capacity for managing research data and financial control, as well as telecommunications.
- Many projects succeeded in linking with others concerned with UA. Typical stakeholders were state utilities, national ministries and municipal councils, public and private learning institutions, professional associations, NGOs and community-based organizations, producer groups, national and multilateral agencies, and foreign experts. In some cases, the project team improved capacity for such stakeholders as a national commission on standards, the administrators of a treatment plant, and one city's urban planning group.
- Project leaders agreed that impacts in gender analysis were limited and require further attention. Some information was generated on the participation of women and men in UA, differences in men's and women's activities, and their respective access to resources, inputs, services, and benefits.
- The added value of multi-disciplinary approaches was acknowledged by all projects except one. Some impacts consisted of innovative approaches to research, appropriate treatment of socio-economic aspects in technical studies, and a multi-disciplinary research team composition.
- Most scientific advances were recorded through new methodologies for national-level quantitative surveys; statistical analysis of urban home production of food; wastewater treatment capacity of native plants and biological treatment of domestic wastewater in an African setting; mapping of open space cultivation; analysis of soil erosion due to urban farming practices and of heavy metal contents of vegetables grown in cities; and recommendations for city policy changes based on issue assessments and scenario options.
- All projects recorded positive impacts for result utilization, a particularly important dimension of development research. These impacts included increasing public awareness on UA, influencing graduate curricula, and sensitizing city council departments. Project results also contributed input for national policy strategy and proposals on peri-urban land use, food safety controls and public health, feasibility studies for rehabilitation of urban garden centres, the establishment of a UA committee within a city council, and recommendations for city plans and approved zoning provisions.
- Since most projects were successful in involving key stakeholders, this led in many cases to

“fund leverage” or access to additional project funds from sources other than IDRC. This fund leverage afforded project teams access to expertise that might otherwise have been unavailable.

All workshop participants agreed that the external environment -- such as disruptions of city food supplies or the local government’s attitude to urban cultivation -- had marked their projects.

Among the lessons learned were that research institutions must have adequate management capacity and a mix of disciplinary expertise. The project process must be inclusive, using, for example, pre-project workshops to identify important stakeholders. These factors can contribute to higher success rates and better chances that research results will be applied by urban farmers and local governments to increase food and income security or to improve urban environmental management.

At the end of the workshop, the project leaders recommended a course of action for future research:

- stress applied research, with multi-stakeholder involvement, aimed at using results;
- focus on the interface between UA and other development issues;
- target politicians and technocrats for policies that manage and support UA;
- work with local government actors in social and urban planning, agriculture, and public health;
- emphasize the use of urban open space as opposed to private home plots;
- ensure that methodologies pay equal attention to gender and household analysis;
- encourage inter-country (city) collaborations rather than confining research to specific cities; and
- evaluate performance according to areas of impact as proposed by IDRC’s Cities Feeding People Program.

The project leaders also agreed to examine common problems in advancing constructive governance for UA in their cities, and considered working together at a regional level to develop a network. Finally, the effect of this exercise on the project leaders themselves was somewhat surprising: most stated that they would henceforth look at research design and implementation in a new way.



## **The context**

This collection reviews various impacts of selected development research on urban agriculture (UA) issues, carried out in major cities of Sub-Saharan Africa (SSA) during the last ten years or so by local institutions with the support of Canada's IDRC and other agencies. The following sections introduce the development context in which the research under review has taken place, as well as the purpose, methodology, and principal outcomes of this review.

Over the period embraced by the review, the international and regional context for development research in UA evolved considerably. This evolution has influenced the impacts of research activities under review in various ways, depending largely on when, where, and how the research was conducted. Three major trends seem to have affected such research activities: the dynamics of the UA phenomenon itself, the official policy response to UA, and the research culture prevailing in the time and place the research activity was undertaken.

### **Dynamics of the urban agriculture phenomenon**

All research activities under review were carried out in cities where some form of UA has gained importance as an urban land use, as an employer, or as a supplier of food to the city. This contextual similarity is explained by IDRC's deliberate direction of research support toward cities in SSA where UA was developing rapidly over the period and where research needs and capacities were in place (CFP Reports 1-4, 1993). Although UA had been expanding in many world regions since the 1970s, it is in Sub-Saharan Africa where its growth was most striking. This growth is due to a singular web of factors that have accumulated in the region over the period. These factors include rural-urban migration, food production deficits, deficiencies in city food supply, crises in fossil fuel supply, natural and civil disasters, and the negative impact of structural adjustment programs on welfare and opportunities for alternative livelihood strategies. Given this evolving context, it is worth noting that while early research activities reviewed here are outdated by now, they have become valuable baselines, and are particularly relevant where UA has since expanded and diversified. The updates on local activities, such as those done in Dar es Salaam and Harare, afford urban policy-makers with a better spatial and temporal perspective on UA than more recent activities in cities where fewer data are available.

### **Official policy environment**

UA still lacks official support in most cities of the world. But in the Sub-Saharan African cities surveyed during this review period, the growth of UA has generally met with increasing official awareness and acceptance, and even promotion in times of crisis, as occurred in Senegal, Uganda, Tanzania, and Zimbabwe. Recently, more governments have become interested in the proper (or, in the wording of French analysts, "reasoned") management of UA and its relationship with other urban land uses and economic functions. In post-apartheid South Africa, UA is an essential part of the national debate over the productive use of urban open spaces. However, this official response has not been evolving in the same way and at the same pace throughout the region. Nor can it be asserted

that this evolution is linear or irreversible in any given setting, as is reported to be the case for Zambia. A national policy on UA, whether it is supportive, restrictive or nonexistent, may be interpreted or enforced very differently at the city level, as will be discussed in an accompanying paper that addresses the case of Harare, Zimbabwe.

The extent to which national policies are followed in a given city depend on local priorities, capacities, and resources. Conversely, even in the absence of explicit national policy, as in Kenya, municipal administrations may be very supportive at times, and less at others, with differences among cities at any given time, such as those between Nairobi and secondary Kenyan cities in the mid-1980s. Official responses to UA range from recognition, favourable statements, accommodating practices, enabling legislation and regulations, norms or programs, and fiscal and other incentives. The only constant found in this review is that the local government was never indifferent to UA in any of the cities studied. In most cases, the research was supported by IDRC, based on an assessment by IDRC and the research proponents that local conditions were favourable to improving the governance of UA. More public stakeholders were actively involved in recent activities than in the earlier ones.

## **Research culture**

Part of the research activity's context is the research culture (mission, mandate, priorities, strategy) among the different actors involved in the research. These actors are the entities who propose and execute the research (who happen to coincide in the cases reviewed here), their associates or collaborators, and the support agencies -- whether domestic or foreign. The research culture differs from one activity to another and can evolve over time. In the activities under review, the executing entities and their associates were NGOs, university institutes or departments, and local and national governments. At the time of the research, they demonstrated various amounts and types of capacity, with clear differences between those of NGOs and public research entities. Over time, most of these entities have modified their approach to research through partnerships and networking.

Among the actors influencing the research culture, external support agencies can have a significant, if not determining, effect on the final design (proposal review) and the actual approach (progress monitoring) of the research. Given that all activities under review here had IDRC as their main granting agency, it is worth noting that IDRC's own corporate culture changed over the period under review.

A brief summary of these changes may help the reader to understand some differences that will be apparent in the papers. Between the late 1980s and the late 1990s, IDRC shifted emphasis toward more output-oriented programming and clearer definition of linkages between objectives and impacts. More importance was attached to issue-driven research, interdisciplinary teams, and inclusive research processes. Also, thanks to joint funding ventures and greater electronic connectivity, the activities of the late 1990s had better access to financial, human, and material resources than were available to projects funded ten years before.

In summary, the context for the activities under review has evolved considerably over the period. While some obstacles to impact delivery stemming from the research culture may have been overcome, the challenges faced by more recent activities tend to be quite different. With the expansion of UA in many cities, governments and other stakeholders are becoming more aware of the phenomenon, and more concerned with removing the constraints and risks, as well as enjoying the benefits and opportunities. The range and quality of information required, and the skills, expertise, and institutional capacities needed on an unprecedented scale, all pose new challenges to research and training centres, urban management and agricultural extension agencies, and other sectors of society concerned with the fate of urban food supply systems.

## **Purpose of the review**

IDRC's Cities Feeding People (CFP) program commissioned this internal review of selected research activities in urban agriculture supported over the last ten years in Sub-Saharan Africa. Combined with a similar review of research activities in Latin American and the Caribbean, these regional evaluations will provide elements for the program's external evaluation, planned for 2000-2001. This internal review, like the larger review activities of which it is part, has the following purposes:

- (a) to document, compare, and synthesize the impacts of development research on UA supported by IDRC. This review of research impacts is a companion to a previous report that focused on the scientific findings of research activities (Cities Feeding People, 1994);
- (b) to bring together various research teams supported by IDRC in SSA in order to draw lessons from their collective impact reviews, and assist them to revise subject focus, local research and communications strategies, and regional or other networking for more effective contributions to development;
- © to provide a useful reference to development and research agencies for identifying UA research activity needs, requirements to be met in the areas of research context and process, and techniques and resources for impact documentation and analysis, particularly in SSA;
- (d) to generate an internal information base for organizations directly involved with research activities that can serve as a framework for external evaluations;
- (e) to present a report card to the Canadian public and international audiences on the concrete impacts of development research supported by Canada in the new field of UA;
- (f) to better account for impact evaluation in proposals for future development research on UA;
- (g) to elicit comments from readers about how the exercise reported here, and the research that is its object, could be improved in the future.

## **The review methodology**

### **Selecting activities for review**

The activities under review were selected on the basis of strategic relevance to current and potential programming, the availability of the key informant at the original recipient institutions, and adequate file documentation at IDRC. They represent a diversity of settings, history of support, grant size, and categories of research.

The review embraced six research projects and three research support activities completed between 1987 and 1998. They took place in the capitals of Senegal, Ghana, Kenya, Uganda, Zimbabwe, Tanzania and South Africa. The grant recipients -- either NGOs, university departments or institutes -- were also the executing agencies, although they were associated with other organizations in carrying out the research, and often received financial assistance from other agencies. They are all developing proposals for collaborative work on a regional scale, which underlines the timeliness of their participation in this review. While their earlier activities are clearly either policy or technology-oriented, more recent activities combine technology and policy concerns, especially the latter. The nine activities selected are:

a) Urban Food, Fuel and Shelter (Kenya), a research project completed in 1987 by the Mazingira Institute, Nairobi. The review paper was written by principal project researchers Diana Lee-Smith (workshop participant) and Davinder Lamba.

B) Urban Agriculture in Kampala (Uganda) and Farming in the City: Impacts and Issues of Urban Agriculture in Kampala, a research project and a research support activity respectively, completed by the Makere Institute for Social Research, Makerere University, Kampala, in 1992 and 1994. The review paper was written by Gertrude Atukunda.

C) Urban Domestic Wastewater Treatment (Senegal), a research project completed by the Institut fondamental d'Afrique noire, Université Cheikh Anta Diop (IFAN/UCAD), Dakar in 1992. The review paper was written by the principal project researcher, Seydou Niang.

D) Survey of Urban Agriculture in Harare (Zimbabwe) and Socio-economic and Ecological Impacts of Urban Agriculture, Harare and Gweru (Zimbabwe) a research support activity and a research project, respectively, completed by Environment and Development Activities of Zimbabwe (ENDA-ZW) in 1994 and 1998. The review paper was written by one of the principal project researchers and the project coordinator, Sthembile Mawoneke (workshop participant), and Bowdin King.

E) Urban Agriculture in Dar es Salaam (Tanzania), a research project completed by the University of Dar es Salaam (UDSM) in 1998. The review paper was written by the project coordinator and a

principal project researcher, Camillus Sawio.

F) Food Security and Nutritional Status in Greater Accra (Ghana), a research project completed in 1998 by the Noguchi Memorial Institute of Medical Research (NMIMR), University of Ghana, Accra. The review paper was written by one of the project coordinators and principal researchers, Margaret Armar-Klemesu.

G) Municipal Policy Review: Urban Agriculture (South Africa), a research support activity completed in 1998 by the Pretoria Technikon (PT), Pretoria. The review paper was written by activity coordinator Lood Spies.

A short description of each project is appended to this paper.

### **Commissioning the reviews of research impacts**

The IDRC program Cities Feeding People commissioned a paper from a key participant (principal researcher or coordinator) in each activity. When a research support activity was logically related to another project by the same recipient, the author was asked to review the impacts of both in a single paper.

Terms of reference (TORs) were drafted by CFP, in consultation with the IDRC Evaluation Unit to ensure consistency with the CFP program prospectus (1997-2000). The TORs were then shared with prospective authors for comment (no changes were recommended before the Nairobi workshop).

The TORs called for the lead researcher or coordinator to write a 20-page paper (not including abstract, figures and bibliography) organized in three sections. In the first section, authors identify which of the CFP program's eight areas of impact are most relevant to the project and explain their choices. (For the purposes of this review, impacts were defined as noticeable changes brought about in the external environment of the research project or activity, partly or wholly as a result of the research process or findings.) The eight areas of impact delineated by the CFP program were:

(a) human resource development (HRD) during or following the project: upgrading specific skills, short-courses, undergraduate and graduate research supervision, etc.;

(b) institutional capacity strengthening (ICS): provision, rehabilitation, updating of equipment, facilities, literature, management systems, advisory and dissemination services, etc.;

© effectiveness of local partnerships (ELP) with other institutions or organizations, research-related or otherwise;

(d) gender-sensitive analysis (GSA): tools used and insights provided by these;

(e) added value of multi-disciplinary approach (AVMA): range and benefits that might otherwise not

have been achieved;

(f) methodological and/or scientific advances (M&SA) : innovative design, implementation, evaluation or transfer of urban agriculture practices;

(g) result utilization (RU): by non-research entities for specific interventions in policy or technology, including specific processes or meetings influenced in whole or in part by the research; and

(h) leverage of additional non-Centre funds (FL): in-kind or in currency that serves to strengthen or diversify original project achievements.

Authors were also free to bring to the program's attention any other impact that they considered appropriate.

In the second section of the paper the authors discuss specific impacts in each of the areas chosen by them, encompassing both positive and negative impacts attributable to the project. The following questions were intended to help the author develop the treatment of chosen areas of impact:

- what changes, positive or negative, are happening or have happened as a result of the project?
- what was changed and where did these changes take place?
- what did the project do to bring about the changes?
- do you consider the changes to be at an early stage or are they likely to further develop?
- how do these changes contribute to the overall goals of your work or that of the recipient institution during or after the project?

In the third section, the author assessed which determinants were most critical in producing the impacts reported in the paper. In other words, what did the author think were the determining factors for the positive and negative impacts discussed in Section 2? For instance, the author was asked to think in terms of:

- the nature of the project (e.g. quality and relevance of results);
- the reach achieved by the project (pre-project consultations, recruitment of additional support, involvement of potential result users, dissemination, acceptance and uptake of results); and
- external factors that the project may have attempted to respond to or other factors that the project may have tried to actually influence such as policy and political environment, social and economic conjuncture, legal frameworks, etc.

The authors had three months to complete their paper. Then, three weeks before the workshop, they distributed the paper via e-mail or fax to the CFP program and to their fellow authors invited to the workshop. Following discussion of the papers in the workshop, each author had three weeks to revise and re-submit the paper to IDRC for editing and publication.

## **Collective review of research activity impacts**

A three-day workshop was held in Nairobi in June 1998, attended by the authors or co-authors of all seven papers. Co-chairs were CFP program team leader, Dr. Luc Mougeot, and team member, Dr. Ola Smith, with facilitation by a gender specialist (who had previous contracts with IDRC's Evaluation Unit).<sup>2</sup> The workshop consisted of paper presentations, construction of matrix-form impact syntheses, and planning of follow-up activities.

### **Presentation of papers**

In 30-minute sessions for each paper, the authors summarized their research objectives and results as well as their assessment of the research impacts. Discussion by all workshop authors and participants followed for about 15 minutes. This discussion focused on questions arising from the presentation and on comparisons with other projects. If the author had relayed information about impacts during the oral presentation that was not contained in the paper, he or she was asked to add this information in a revised paper. Each author received recommendations for revision based on the plenary discussion of the paper.

### **Construction of matrix-form impact syntheses**

In this step (which required a full day), the lead researchers developed in plenary two matrix-form syntheses of the impacts reviewed in the seven papers. The first matrix, more quantitative in nature, graded the intensity of positive and negative impacts by project site (seven) and by area of impact (eight). The second matrix, more qualitative, briefly described the nature of the positive and negative project impacts, also by project site and by area of impact.

### **Intensity of impacts (by project site and area of impact)**

The matrix (see Table 1) was initially developed by the CFP program, then adopted by the workshop participants. It provides a comparative perspective on the different impacts, and a synthesis of strengths and weaknesses. It consists of seven columns (representing project sites) and eight rows (representing areas of impact).

In order to indicate positive or negative impacts, the participants decided to assign positive (+) or negative (-) signs to the appropriate cell in the matrix. More than one such sign could be inserted in

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<sup>2</sup>It was assisted by IDRC's East Africa Regional Office (EARO). Dr. Eva Rathgeber, the IDRC Regional Director, officially opened the workshop. Dr. Luis Navarro and Dr. Sunita Kapila, EARO program officers, attended sessions. Representatives from the local World Bank office and from ETC International attended final sessions on future activities.

a given cell, depending on the collectively agreed intensity (weak, medium or strong) of the impact in a particular area. Thus, the number of signs would refer to the overall intensity of an impact, and *not* the number of separate impacts recorded in that area.

Since there were no external evaluators at the workshop, participants agreed that their judgements about impacts should be especially thorough and consistent. Therefore, they agreed on a set procedure to decide collectively on the nature and intensity of impacts for all 56 cells of the matrix. The lead researcher of the relevant activity would initially provide evidence to support his or her judgement about the impact of the activity. A collective decision would then be made about whether to include the proposed impact in the matrix, whether to allocate it to the proposed cell, whether to assign the impact a positive or a negative sign, and whether to grade the impact intensity as weak, medium, or strong.

Once the matrix was complete, the participants reviewed their initial decisions. By the end of the process, intensity grades attributed to the first projects (largely based on comparison between impacts within the same project) could now be compared with a larger set of intensity grades in other projects and adjusted accordingly. In some instances, a project was found to have had both positive and negative impacts in the same area of impact. The end result appears in the outcomes section of this introduction.

#### Nature of project impacts (by project site and by area of impact)

This second matrix (Table 2) was accepted by the workshop participants in the form proposed by the CFP program. It explains the *nature* of distinct impacts within particular areas, information that supplements the scores assigned in the first matrix. The fact that the quantitative matrix was built before the qualitative matrix helped the group be more selective in choosing which impacts actually made it from each project review into this all-project, matrix-form synthesis. A quick comparison of the two matrices shows that intensity grades in the first matrix are not necessarily proportional with the text (or number of impacts) listed in the second matrix, as had been intended originally by participants when deciding on a basis for grading intensity.

#### **Planning follow-up activities**

The closing session of the workshop took stock of the first and second sessions. It identified three main areas for follow up:

(a) *Recommend corrections in research emphasis and partnership modalities used by IDRC and executing entities that would improve the impact of future research.*

Table 3 consists of contrasting terms or concepts (e.g. fundamental versus applied research) that serve to identify preferences for approaches to future research in UA. It was circulated by IDRC before the workshop and, after clarification of certain terms, adopted by the participants. During the workshop, project representatives were asked to express their preference for one term over another.



The final version of the preferred research emphases is discussed in the outcomes section of this introduction.

With regard to partnership modalities, workshop participants reviewed the ideas that had been circulated by IDRC. The list was accepted much as proposed, with the added idea of developing partnerships with national entities in Kenya and South Africa.

*(b) Suggest issues to be addressed in an external evaluation of the activities reviewed at this workshop. These issues should be those most useful in orienting researchers in their future undertakings.*

The project representatives were asked to identify three areas of impact on which the external evaluation should concentrate. Additionally, the participants agreed to summarize in one sentence what they consider to be the principal roadblock to promoting and managing UA in their respective countries.

*(c) Identify key roadblocks of regional significance to the advancement of constructive governance in UA in the various cities involved. Determine whether formal coordination of resources among the executing entities and their associates could resolve these roadblocks. If such coordination is feasible, agree on a process for developing a regional proposal for a network and program of work.*

Based on experience from their respective cities, the participants identified the main roadblocks of regional significance. It was clear that no single group had sufficient resources to tackle these roadblocks. This fact, coupled with apparent complementarities across research groups, led to the conclusion that the various research groups should join forces to address obstacles. After discussing these issues in three smaller groups, they reconvened in plenary to decide on a plan and time line for a regional proposal.

## **Outcomes**

Seven papers reviewing the impacts of nine research activities in the capitals of seven SSA countries were written and shared electronically or by fax among all authors before the workshop. The papers were discussed in depth at the workshop, revised by their authors, edited by IDRC, and published in full. Generally speaking, the papers follow the terms of reference, discussing the eight areas of impact originally proposed and elaborating on those most relevant to each research activity. The final sections on impact determinants were improved through the collective review. New information was added and clarifications made. For most of the authors, it was the first time they had been asked to review the impacts of their scientific research. At the end of the workshop, most of them said they would never look at research design and implementation in the same way again.

The following sections highlight the collective output of the review.

## Matrix-form syntheses

**Table 1. UA research in Africa: impact intensity, by project sites and areas of impact**

	Kenya 1982	Kampala 1988 1993	Dakar 1990	Harare / Gweru 1993/95	Dar es Salaam 1993	Accra 1996	South Africa 1997
<b>HRD</b>	+	+	+++	+++	+	+++	+
<b>ICS</b>	++ --	++ -	+++	++	+++	++	+
<b>ELP</b>	+++ -	+++	+++ --	++	+++ -	+++	+++
<b>GSA</b>	++	++		++	+	++	
<b>AVMA</b>	+++		++	++	++	+++	
<b>S&amp;MA</b>	+++	++	+++	+++	+++	++	+
<b>RU</b>	+++ --	+++	+++	+	+++	+	++
<b>FL</b>		+	+++	++	++	+++	

Intensity scale: Weak (+ or -); Medium (++ or --); Strong (+++ or ---)

**HRD** Human Resource Development

**ICS** Institutional Capacity Strengthening

**ELP** Effectiveness of Local Partnership

**GSA** Gender Sensitive Analysis

**AVMA** Added-Value of Multi-disciplinary Approaches

**S&MA** Scientific & Methodological Advances

**RU** Research Utilization

**FL** Fund Leverage

Source: "Urban Agriculture Research in Africa: Reviewing and Enhancing Project Impacts".

IDRC Workshop, Nairobi, 21 -25 June, 1998.

The research covered by the review recorded impacts in the eight areas proposed to project representatives. Fifty of a maximum 56 cells in the matrix record impacts. Thus, there was strong correspondence between the areas of impact initially proposed by IDRC and those actually considered by the authors to be relevant to their projects.

Out of the 50 cells where impacts were recorded, 49 contain positive impacts of variable intensity. Among these 49 cells:

- strong positive impacts were recorded in 23 cells, particularly in effectiveness of local partnerships (six of seven project sites) and at the Dakar site (six of eight areas of impact).
- medium positive impacts were recorded in 16 cells, especially in institutional capacity strengthening (four of seven project sites) and at the Harare-Gweru site (five of eight areas of impact).
- weak positive impacts were recorded in 10 cells, especially in human resource development (four of seven project sites) and at the South Africa site (three of eight areas of impact).
- negative impacts ranging from weak to medium were recorded in cells where positive impacts were also registered (with one exception), particularly in effectiveness of local partnerships (three of seven project sites) and in the Kenyan cities (three of eight areas of impact).
- The Dakar project scored the highest number of strong positive impacts. It is one of the oldest projects in the series. As might be expected, sufficient time for impact to occur was confirmed by participants as crucial in explaining differences between projects. Although the project had originally been technology-oriented, its consequences in both technology and policy-making have grown over time. Completed in 1992, it has had time to trigger follow-up research that has further magnified the original research impacts. Nonetheless, several of the more recent projects (Dar es Salaam and Accra) have already recorded strong positive impacts. This shorter time frame could reflect more effective research design and implementation in recent projects.
- Gender-sensitive analysis: A majority of projects scored positive impacts in this area, despite this emphasis having begun only in 1997. However, workshop participants noted that these impacts are generally less strong than those in such areas as effectiveness of local partnerships, scientific and methodological advances, and result utilization. This finding tends to support the CFP program’s 1997 decision to provide more guidance in gender-sensitive analysis to recipients. Workshop participants designated this area of impact as one of three areas for external evaluation.

**Table 2. Nature of UA research impacts by project site and area of impact**

	<b>Kenya (6 cities) 1982</b>	<b>Kampala 1988, 1993</b>	<b>Dakar 1990</b>
<b>HRD</b>	+ on-job training (research management)	+ training in data collection methods	+ formal training + informal training

<b>ICS</b>	+ computerization + stabilizing regional networks  - financial de-stabilization	+ acquisition & generation of local literature on UA + UA information dissemination capacity - lack of research associates from other local institutions.	+ experimental system facilities + equipments for analysis + computerization
<b>ELP</b>	+ building international partnerships  - lack of partnerships with national government	+ strong involvement of municipal & national institutions/ authorities	+ strong involvement of municipal & national institutions & authorities, & of foreign research institutions - lack of coordination for sustained follow-up
<b>GSA</b>	+ follow-up analyses, projects, networking	+ gendered methodology (interviewee selection, focus groups, data disaggregation)	
<b>AVMA</b>	+ strong international disciplinary method (issue-based research)		+ social-economic aspects properly considered in technical study
<b>S&amp;MA</b>	+ first national (still only) quantitative survey on UA in Africa	+ analysis of impact of self-production on nutritional status of children	+ first information on treatment capacity of plants in Africa + original data on biological treatment of wastewater + methodology transfer appropriate to Africa, as opposed to tech. transfer from North.
<b>RU</b>	+ strong international/ regional uptake (researchers, NGOs policy makers)	+ incorporation of results and recommendations into city's Structure Plan	+ integration of research into policy process (Ministry of Scientific Research) + incorporation into graduate curriculum (environment)
<b>FL</b>	+ funding for Shelter Network	+ funding for follow-up research	+ funding for follow-up research

**HRD** Human Resource Development  
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**RU** Research Utilization  
**FL** Fund Leverage

**Harare / Gweru**  
**1993, 1995**

**Dar es Salaam**  
**1993**

**Accra**  
**1996**

**South Africa**  
**1997**

<b>HRD</b>	+ formal training & GIS + on-job training (data management) + training in research techniques	+ support to thesis + undergrads learn UA concepts + research ass't training in data collection	+ training in PRA methods, data collection methods & data management analysis (officers and assistants)	RSA
<b>ICS</b>	+ computer hardware/software acquisition + creation/dissemination of UA literature & advice	+ equipment for water/soil analyses acquired + computerization	+ Nutrition Unit gains social science research methods + better inst. capacity to manage/analyze data	+ formal training course development + advisory role by PT/DEA & T
<b>ELP</b>	+ formation of city UA Committee + informal talks with municipal authorities & line ministries	+ project's inclusion in policy process (SDP) - unstable local policy group	+ strong involvement with key partners (national/metropolitan authorities, farmers' groups, etc.)	+ dialogue with int'l experts, relevant national dep'ts + Productive Open Space Forum set up
<b>GSA</b>	+ data disaggregation + inclusion of women groups in consultative processes	+ team gender-balance + gendered data collection + women's groups in policy process	+ women's groups included in identifying issues & in workshops + focus group/choice of interviewees	RSA
<b>AVMA</b>	+ pertinent/related issues addressed as identified by stakeholders	+ multidisciplinary by design + better use of empirical methods - team disrupted by attrition	+ multidisciplinary by design + multidisciplinary research protocol (manual)	RSA
<b>S&amp;MA</b>	+ 3 firsts: maps of open-space cultivation; soil erosion results linked to UA; & counts of heavy metals in UA produce	+ info available to stakeholders as intended + maps for urban planning	+ first local survey on UA related issues	+ generation of information on important UA related issues
<b>RU</b>	+ influence / sensitize certain departments within Harare City Council	+ greater awareness of UA via int'l & local workshops + input into SUDP + input to feasibility study for rehab of garden centres	+ strong potential for uptake by national policy/ programmes peri-urban land use (food safety controls, public health)	+ PhD research refocused to UA + greater awareness + input to nat'l policy strategy + acceptance of participatory model
<b>FL</b>	+ funds to disseminate Ph. 1 results; digitizer	+ funding for applications	+ funds for parts of larger project	RSA

Source: "Urban Agriculture Research in Africa: Reviewing and Enhancing Project Impacts". IDRC Workshop, Nairobi, 21 -25 June, 1998.

## Human resource development

Impacts were recorded at all project sites except in South Africa (where the research support activity had expressly omitted this area of impact). At least 175 individuals received formal or informal training through the nine activities under review. This training included research management for institutional staff, specialized data collection and analysis methods (nutritional health indicators in Kampala, participatory rapid appraisal and anthropometrics in Accra, geographic information systems, toxicology of water and soil in Harare) as well as formal fieldwork methods. In Dar es Salaam and Dakar, the training included supervision of graduate research of national and foreign students.

Many activities delivered more than one training modality. In terms of mix and reach of HRD impacts, these tend to grow, from the Pretoria Technikon and Mazingira Institute activities, to the MISR, ENDA and NMIMR activities, up to the IFAN/UCAD and UDSM projects. Informal training through project work seems better suited to NGO conditions. It also seems that it is in NGOs that such training has the greatest impact on HRD. Conversely, institutes and universities appear better placed to feed project results into formal, even mandatory, training modules, apply methodological capacities to the project, and reach out to larger groups of trainees. The case of ENDA Zimbabwe in HRD is interesting in that collaboration with the local university permitted the project to train human resources through both formal and informal channels. Some training imparted through the projects was somewhat outside the primary domain of the executing entity (e.g. social data processing at a nutrition research unit).

Lastly, although all recorded HRD impacts were positive, the authors acknowledged that HRD has up to this point been provided largely through informal (on-the-job) channels. Such training does benefit large numbers of individuals (over 35 research staff in Accra and 25 in Dar es Salaam). However, the authors underlined the need to support formal development of technical and policy expertise in UA, given the current lack of capacity at any institution in the region. The review demonstrates the considerable reach that university curricula may have when it addresses UA topics. Ninety graduates from Senegal and other West African countries have done fieldwork on wastewater reuse in agriculture since the Dakar project set up its experimental station. In Dar es Salaam, some 306 geography undergraduates have done UA fieldwork since 1994 under the project coordinator's supervision. This finding reinforces the timeliness of the recently launched AgroPolis Awards Program for graduate development research in urban agriculture. Several participants thought a regional short course under the aegis of AgroPolis could help promote inclusion of UA subject matter in graduate curricula of the region.

## Institutional capacity strengthening

Impacts were recorded at all project sites. Better computer capabilities for research data and financial management as well as for telecommunications was most often cited. This was followed by the acquisition of equipment to perform specialized data collection, measurements and analysis, acquisition of literature, and capacity to reproduce and disseminate publications. Other impacts

include the development of course curricula, the use of experimental stations, acting in advisory capacities, and facilitating regional networking. In some cases, HRD related to the project has strengthened capacities in UA (Dakar and Dar es Salaam) or has initiated processes that could do so (Pretoria). This impact has been more frequent at institutes and universities than at NGOs. Doctoral graduates have afforded academic institutions with expertise to offer UA subject matter within existing course curricula (e.g. the graduate wastewater treatment module in Dakar or the compulsory undergraduate geography field course in Dar es Salaam). They have also increased capacity for UA policy-making and delivery among other stakeholders (national commission on standards, treatment plant management, national employment and income generation feasibility proponents, municipal UA committees, etc.). The “Sustainable Dar es Salaam” project asked the IDRC project team to open the round of proposition papers for its policy formulation process. The project’s paper set the methodological standard for other working groups collaborating on the full Strategic Urban Development Plan for Dar es Salaam.

The projects in Kenya, Kampala, and Harare recorded a few negative ICS impacts. These included the financial destabilization of an incipient NGO due to stringent requirements by IDRC, a recipient’s failure to attract expertise from other local institutions, and the failure to retain expertise developed through the project. In Kenya, for instance, a project researcher moved to an NGO to implement a UA development program in the capital. However, workshop participants judged that an individual who left a recipient organization during or after the project cannot be counted as a net loss when they end up strengthening the capacity of another local actor.

Finally, it was noted that since the early 1980s, IDRC has become more sensitive to NGO conditions, encouraging inter-institutional partnerships to increase the mix of expertise and capacities required by recent development-oriented projects in UA (Accra, Dar es Salaam, Harare-Gweru).

### Effectiveness of local partnerships

Impacts in the area of effective local partnerships mean that recipients gain access to information and other resources beyond their own capacities. These resources can help focus research on relevant issues, assemble needed expertise, collect and use the right data, analyze information properly, disseminate results effectively, and increase their usefulness for development. Positive ELP impacts were recorded at all sites, some quite significant considering the grant size or the recency of some research activities. The stakeholders involved are research organizations, state utilities, national ministries and municipal councils, public and private learning institutions, professional associations, NGOs and community-based organizations, national and multilateral donor agencies, and foreign experts. The nature of the partnerships ranged from provision of data, services and equipment or facilities, review of proposals, discussion of results, use of information for interventions, communications and dissemination of research, and utilization of results. The effectiveness of these partnerships depended on early involvement of stakeholders in the research design through multi-stakeholder workshops to identify important issues and the necessary information for follow up.

In this regard, the research processes in Kampala, Harare and Dar es Salaam (in that order)

experimented with increasingly formal and complex approaches to stakeholder involvement. In Kampala, the recipient institution conducted the original research project largely as an academic undertaking with limited formal involvement on the part of external entities, other than as sources of information. However, once research results were released, several local stakeholders were sounded out about their interest in a public seminar. Response was so enthusiastic that the seminar was modified to a public debate on local policy implications of the research results, with a keynote address by the mayor. This form of stakeholder involvement significantly influenced subsequent policy-making on UA (see “Research Utilization” below).

The approach used in Harare and Gweru was more formal, inclusive, and systematic from the outset than was the case in Kampala. The NGO periodically convened multi-stakeholder workshops, some with non-IDRC funding. These workshops were scheduled at critical periods of the agricultural calendar and a wide range of stakeholders participated. Especially noteworthy was the participation of urban producers’ groups and public officials. The workshops enabled the recipient to present baseline information, invite participants to scope issues, define information needs, react to result updates, visit field sites, and make recommendations to resolve particular problems. In contrast to Kampala, this approach produced more policy results by the time the project concluded.

In Dar es Salaam, the project was formally subordinated to a much larger citywide consultation . This process was run by the city council, with technical advice from a multilateral agency, an approach that brought both disadvantages and advantages. Since it was an official exercise involving both national and local governments, the project timetable was delayed by political upsets. Nonetheless, the process from which the recommendations emerged made them more relevant, and probably more prescriptive, than if they had been generated from research external to the city consultation. The process produced several major positive results before project completion.

Weak negative ELP impacts were recorded at three sites. They included failure to strike a partnership with the national government, lack of local institutional leadership for sustained research follow up, and instability of the policy steering group. The first problem gave rise to a discussion on the “timeliness” of research projects. The second problem is related to changing priorities at the institutional level. The third problem underscores the risks associated with integrating research into processes whose conduct can be affected by political factors. The workshop participants interpreted these impacts more as external constraints affecting project delivery than as actual negative impacts caused by the activities themselves.

### Gender-sensitive analysis

Positive impacts were recorded in all but one project. These ranged from gendered data breakdown and analysis, interviewee selection, gendered focus groups, inclusion of women groups or organizations (producers’ coops, ministerial units, NGOs) in issue identification, consultations, policy processes, participation of women on project research teams (co-ordinator, principal researchers, interviewers). GSA impacts were mostly confined to generating and disseminating information on the participation of women and men in UA, gender differences in systems, product



and activity specialization, and men's and women's access to resources, inputs, services and benefits from their activities, both as individuals and as household members.

GSA impacts are particularly evident in the studies produced by the Accra project. GSA had been incorporated earlier in the methodology, owing partly to an external review and revision of the project after approval. Thus far, however, none of the activities under review have reported any influence on the development of gendered technologies or policies. A significant exception is the Mazingira Institute's project. Although the project's use of GSA was rudimentary, the Kenyan survey results on the prevalence of women in a range of UA systems were unprecedented at the time. They were used by the NGO to broaden the international gender agenda in the late 1980s --a time when gender awareness was just spreading to the development community. The Mazingira case shows that project impacts can take place long after the project has ended. Some cumulative impacts could still occur in coming years, since the Institute remains active in gender and UA in a more receptive regional context. In 1998 alone, Mazingira hosted a regional workshop (commissioned by SIDA) to set an agenda for policy research in UA, produced a special issue on UA of the Settlement Information Network of Africa newsletter, and saw one of its lead IDRC project researchers hired to head the UNCHS Gender Unit.

The participants felt that positive impacts in GSA should be stronger yet and recommended that the external evaluation address this issue. This dimension is certainly a critical one for women producers who time and again have been found to dominate many UA production systems. Yet institutional and legislative frameworks, as well as technical assistance, can strongly discriminate against women's fair access to the resources they need for their work, as well as to its benefits.

### Added value of multi-disciplinary approaches

Positive impacts were recorded at all projects, except at one site where no impact was registered. The impacts include the introduction of an innovative approach to research (issue-based), appropriate treatment of socio-economic aspects in technical studies, composition of a research team based on the expertise requirements of local stakeholders, and a multi-disciplinary research protocol (manual) for future undertakings. The AVMA depends largely on a recipient's ability to identify, assemble, and remunerate the right mix of expertise for the issues at hand. In one case, the disruption of research by team attrition was thought to have adversely affected the project's multi-disciplinary approach. This impact may be related to the structural weakness of small organizations whose comparatively lower salaries may induce some staff to leave for better pay or for training once they have gained experience.

### Scientific and methodological advances

All projects recorded positive impacts in this area, especially in methodology. In a relatively new field such as UA, many findings are firsts at the local, regional, and even international level. Highlights (all of them firsts) include:

- a national quantitative survey on urban agriculture in Africa;

- controlled statistical analysis using African data of the impact of urban food production for self-consumption on children's nutritional status (regressed conclusively and published by IFPRI);
- a study on the wastewater treatment capacity of native plants in an African country;
- original African data on the biological treatment of wastewater;
- an experimental protocol to objectively compare the effectiveness of different biological wastewater treatment methodologies under African conditions (as opposed to technology transfers from the North);
- city maps on open-space cultivation;
- data on soil erosion owing to UA practices and on heavy-metal content of vegetables grown in cities; and
- a study comprising baseline data, issue assessments, and scenario options on UA intended to inform an official policy formulation process for an African city.

## Result utilization

All projects recorded positive impacts in result utilization. Impacts include: raising public awareness about urban agriculture; influencing graduate students to do research on UA topics and incorporating UA in graduate curricula; sensitizing municipal departments; introducing UA into a national policy process on scientific research; and contributing to national policy strategy and proposals on peri-urban land use, food safety controls and public health. Impacts in RU were evident also in feasibility studies for rehabilitation of urban garden centres, whose results were incorporated in a city plan.

One dimension of RU that is relatively difficult to document -- although key to more pro-active result utilization -- is awareness-raising among non-research stakeholders ranging from local producers to national authorities. In fact, this dimension might better be classified under HRD. Most of the activities under review were developed either through consultation or collaboration with authorities at various levels. Therefore, most of them can claim some influence in changing attitudes of national (Dakar, Dar es Salaam, South Africa) or local (Kampala, Harare, Accra) governments.

In Kampala, for instance, Gertrude Atukunda reports that a director of a city department says the public seminar on project results helped change attitudes among council authorities and even to their suspension of repressive practices such as crop slashing. The District Agricultural Officer said that UA is now recognized by the Kampala City Council (KCC) and features in meetings of all Council departments. His office has been authorized to initiate UA interventions that are appropriate and ecologically sound. Education and extension with farmers now focuses on the issue of roaming livestock. Changes in producers' attitudes and practices are already noticeable.

In Harare, the project is credited with changing the attitudes of planners in three different departments. In Dakar, the research project convinced vegetable producers of the risks posed to human consumers from watering produce with untreated wastewater. These producers are now willing to reduce their acreage and harvests in order to grow a safer product. This shift represents a

big step toward using the research to enable the reuse of treated wastewater in conformity with WHO norms.

The Dakar project has also witnessed the uptake of research results at higher levels. The project recipient's main partner, the Office national d'Assainissement du Sénégal (ONAS), has changed its investment practices for wastewater treatment projects in the country. Inspired by the experimental protocol established by the project, it has made provision in the Third Water Project (funded by the WB) for installing locally appropriate treatment plants (pending validation of existing schemes in the country). In addition, the lead researcher has been asked by ONAS to join the validation team in a new project recently approved by CIDA and IDRC.

In Uganda, the Kampala Urban Study Group (KUSG) used project results to argue for the recognition of UA as a legitimate urban land use. Official recognition was finally granted in the 1994 provisions of the Kampala Structure Plan (KSP), the main output of the KUSG's contribution to the WB-funded First Uganda Urban Project. These provisions are a code for managing and enforcing the KSP. They state that UA can be carried out in all areas zoned residential and potentially industrial, and carried out conditionally in areas zoned environmental, commercial, industrial, and institutional. The provisions promote UA and recognize the need for studies needed on appropriate crops and environmental guidelines.

In Dar es Salaam, project results were used to produce a feasibility project for the rehabilitation of urban garden centres, which then received US\$500,000 through the National Income and Generation Programme. Project information was also drawn upon for the Strategic Urban Development Plan (SUDP) for Dar es Salaam, which replaces the city's 1979 master plan. The SUDP already proposes a mixed land use strategy and it is expected that the final version will recognize UA as a legitimate urban land use and earmark certain areas for UA. Two factors lead the IDRC recipient to believe that this outcome is highly probable. Not only is the local government interested in further developing UA, but Dar es Salaam already possesses an elaborate framework of bylaws regulating UA practice, a unique feature among cities in the region.

In Zimbabwe, the Harare City Council (HCC), one of the recipient's project partners and a participant in project workshops, decided in 1997 to set up a UA committee for enforcement and management. The recipient NGO has a seat on this committee, which meets at least monthly. Among its functions are periodic updates to the HCC on UA being practised on open tracts belonging to the Council.

## Fund leverage

Funds considered to have been leveraged do not include the recipient's own monetized contribution in kind or cash. Non-IDRC funding secured after completion of IDRC-funded projects are not included in this definition. Leveraged funds must have come from other donor agencies (national or international), have been committed after project approval by IDRC, and be logically related to the IDRC-funded project activities. Using this definition of fund leverage, positive impacts were

recorded at all project sites except one. These funds afforded either a broadening of the original project objectives (including the dissemination or publication of findings, networking with other research groups, application of results) or interaction with a larger project and consequent benefits from economies of scale. Several conclusions emerge from the activities reviewed here with regard to funding:

- More activities ended up leveraging funds after rather than before project approval by IDRC, although the amounts secured before IDRC approves a project tend to be larger than those obtained subsequently.
- Result utilization is an area of impact critical to development research and it seems to be more a function of effective local partnerships (ELP) than of IDRC grant size. This finding is strategically important to programs with small appropriations, as has been the case with Cities Feeding People.
- There is a close relationship between ELP and FL in more recent projects. This may reflect a changing environment for development research. In the face of declining resources, local partnerships have become a more frequent requirement for both external support and local executing agencies.
- A project's reach with respect to HRD and AVMA seems to be more sensitive to IDRC grant size, particularly where other donors do not stress these areas of impact.

The ability of a recipient to comprehensively investigate a development issue depends more often than not on its capacity to run a research team with the needed mix of expertise. Recognition of this fact explains IDRC's approach of supporting formal graduate training through a separate program of individual awards, while encouraging awardee interaction with UA recipients and ongoing UA projects. In larger research undertakings, of which the IDRC project may be part, FL is often critical to accessing expertise otherwise unavailable or unaffordable. For instance, three donors funded directly or indirectly the Accra UA project. Despite the small IDRC grant size (US\$30,000), the project gathered data from over 500 households in 16 different city districts, and involved some 16 different stakeholders in issue scoping and result discussion. Data processing and analysis was supported by a team that counted ten different areas of expertise. Finally, salaries for the two lead researchers came at no cost to IDRC.

## Overall determinants of the impacts reviewed

The various areas of impact can be combined in a composite, overall impact that expresses the difference that a research project makes for development at the local, regional, or international level. Since most of the activities reviewed here occurred in specific cities, their overall impact is most relevant for local development. The overall impact is a product of what we classify as either context determinants or project determinants. The former was deemed by most workshop participants as the more important level.

### Contextual determinants

Although these determinants are in place before the project begins, the project team can respond to contextual determinants to a certain degree, and even influence their evolution.

The concept of “timeliness,” as used by workshop participants, captures the relevance of the project to the local development policy agenda at a given juncture. For instance, the lead researcher at the Mazingira Institute considered the Kenya project to have happened too early to significantly contribute to development of UA in the country, particularly in Nairobi. In 1982, the issue rallied no obvious stakeholders and attracted less political interest.

Diana Lee-Smith suggests that the principal stakeholders in UA (the urban producers themselves) need a minimum of organization and representation before their problems can become enough of a public issue to attract political interest. This suggestion is given weight by experiences in other cities (Dar es Salaam, Harare, Kampala) where local authorities engaged actively in IDRC-funded projects. However, this condition alone does not seem sufficient in the Nairobi case. There, despite UA having grown and efforts made by producers to organize since the Mazingira project, UA is still not an urban policy issue.

Thus, other contextual determinants seem necessary before UA can gain public and political importance. These determinants have imposed themselves more quickly and severely in other capitals of the region than in Nairobi. They include such dramatic events as disruption of city food supplies (due to rural resource degradation by desertification in Senegal, droughts in Zimbabwe, and civil war in Tanzania and Uganda) and deteriorating urban living conditions (brought on by structural adjustment policies in several countries, economic sanctions in South Africa, and civil war elsewhere). These determinants favour the growth and visibility of UA, and can therefore hasten its acknowledgement by national and local authorities. However, mere acknowledgement of UA is not sufficient.

In the face of deteriorating supplies of rural food to cities and of worsening urban living conditions, the government response at the national and local level must show a readiness to accommodate UA or manage it better. Examples of such responses include Presidential appeals for food self-reliance, lax enforcement of colonial urban bylaws, establishing UA programs and policies, etc. These determinants were in effect in Dakar, Kampala and Dar es Salaam, partially in effect in Harare, but

not at all present in Nairobi.

In Harare, for instance, the project managed to positively influence policy practice but less so policy formulation. (It should be noted that influence on policy formulation typically takes more time to occur in most projects and the Harare project was not completed at the time of this review.) The weak impact on policy formulation occurred despite good project-level conditions. In the case of Zimbabwe, this result could be owing to discrepancies between national and local policies on UA, aggravated by the need for local governments to assume leadership in this area. As explained by Sthembile Mawoneke and Bowdin King in their paper, the Regional Town and Country Planning Act (enacted by the Government of Rhodesia in 1976), states that the use of urban land for agriculture does not constitute urban development. However, the more recent Urban Councils Act of 1995 gives the Ministry of Local Government authority to prohibit or regulate cultivation in local government areas. No national act explicitly prohibits urban cultivation. Although a national resolution on UA was made in 1992, specific local regulations that would enable this resolution are still to come. As a result, national stakeholders interested in assisting urban producers in Harare cannot do so because the activity is neither recognized in law nor regulated. In fact, city councillors have harassed practitioners of open-space cultivation with the express endorsement of their local Member of Parliament.

### Project-Level Determinants

A favourable context can certainly set a project on a positive course, but other conditions pertaining to the project itself also determine impacts on development. Project-level determinants consist of the recipient's capacity to find and effectively coordinate a strong team of experts to tackle development issues. These issues must be considered priorities by a wide range of local actors. Management capacity, mix of disciplinary expertise, and an inclusive research process all appear to be key determinants.

The Kampala project suffered somewhat from not securing local expertise from outside the recipient organization. This action would have maintained the project team's momentum for follow-up activity. It is a shortcoming that can be addressed by ensuring that the proposal design and research process are more inclusive of other local research entities from the outset.

The Dakar project began simply as a small research grant, a fact that may have led the recipient institution to neglect the need for having strong negotiating capacity. Once the study began to attract interest from foreign research donors, such capacity would have served well to reach a better agreement for local dissemination and utilization of results. It is important to guarantee the institution's entitlement to the benefits of the research and to its involvement in subsequent initiatives. This problem is being addressed in a new project where a national agency will co-manage the research.

The Mazingira paper on the Kenya project is particularly rich in lessons with regard to project-level determinants. Poor timing was certainly one contextual determinant that may have limited its ability

to influence the local development of UA. However, the project design and research process also missed key project-level determinants, for which both donor and recipient share responsibility. A pre-project workshop could have assessed public awareness of UA, identified the interests of stakeholders, and scoped issues for study. IDRC often requires these workshops before negotiating a full research grant, but it was not the case for the Kenya project. Furthermore, there were no provisions for stakeholder workshops during the project. It thus became difficult, once the IDRC grant was approved, to involve stakeholders in adjustments to the project or to interact with them during its progress. Although the research approach may have been issue-driven and interdisciplinary, the team ended up substituting for stakeholder input. The final selection of UA issues for study was probably ruled more by the interests of a group of social scientists than by anything else. Greater involvement of stakeholders from the outset can spread the financial risks of a nascent organization, reduce costs, increase access to expertise and capacities through local partnerships, help focus data collection, and facilitate more prompt and effective dissemination of results. Whatever its shortcomings, the Mazingira final report is a landmark national survey that supplied an unprecedented richness of information on what was a disregarded phenomenon; it would end up guiding subsequent studies in the region and beyond.

## **Recommendations on research emphasis**

Workshop participants reviewed the proposed sets of contrasting research emphases (Table 3).

**Table 3. Research approach emphases**

<b>1</b>	<b>Fundamental vs Applied Research</b>
<b>2</b>	<b>Academic vs Multi-stakeholder Research</b>
<b>3</b>	<b>Knowledge Generation vs Research Utilization</b>
<b>4</b>	<b>Research within Urban Agriculture vs On Interfaces with other Issues</b>
<b>5</b>	<b>Support to Policy vs Technology Innovations</b>
<b>6</b>	<b>Support to Promotion vs Management of Urban Agriculture</b>
<b>7</b>	<b>Target Politicians vs Technocrats</b>
<b>8</b>	<b>National vs City Governments</b>
<b>9</b>	<b>Social / Urban Planning vs Agriculture / Public Health</b>
<b>10</b>	<b>Use of Home Plot vs Open Space</b>
<b>11</b>	<b>Gender vs Household Units of Analysis</b>
<b>12</b>	<b>City-confined vs Inter-country Collaborations</b>
<b>13</b>	<b>Measure Impacts against Current CFP Elected Areas vs Others</b>

Based on this review, it appears that the favoured research approach would:

- stress applied research, with multi-stakeholder involvement, aimed at the effective utilization of results;
- focus on the interface of urban agriculture with other development issues, providing support largely to policy interventions for promoting and managing urban agriculture, with assistance targeting both politicians and technocrats;
- assist local governmental sectors dealing with social services and urban planning, agriculture, and public health;
- emphasize the use of urban open space as opposed to private home-plots;
- pay equal attention in methodology to both gender and household analysis;
- exploit inter-country (city) collaborations rather than confining research to specific cities; and
- evaluate performance according to areas of impact proposed by IDRC's Cities Feeding People Program.

## References

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## **Appendix: brief project descriptions**

Urban Food, Fuel and Shelter (Kenya). (IDRC grant 82-0114 (82114) of CA\$305,000). This project was to explore and document food and fuel production on urban land, its pattern of consumption, and its role in the low-income household budget under different conditions in six Kenyan cities, including Nairobi. The project was also to permit the recipient institution to develop further an information network related to urban shelter projects in the East African region: the Settlement Information Network - Africa (SINA).

Urban Agriculture in Kampala (Uganda). (IDRC grant 88-0325 (88325) of CA\$4,800) and Farming in the City: Impact and Issues of Urban Agriculture in Kampala (IDRC grant 93-4104 of CA\$2,500). This project sought to learn how the activity of urban agriculture is organized. Researchers were to investigate current agriculture practices in the city, determining who produces what, how much, and why. They also were to determine levels of investment in land, labour, and capital; examine ways in which UA could be made more productive; outline relevant policy issues affecting UA; and suggest areas for further study.

Urban Domestic Wastewater Treatment (Senegal). (IDRC grant 90-0153 (90153) of CA\$13,703). This project was to study the feasibility of purifying domestic wastewater by a procedure that uses certain aquatic plants. This is a low-cost technology in comparison with the classical ones. A sociological study assessing the perception of the population regarding wastewater purification and reuse was to be carried out. An ecological study of the palustrine flora of Senegal's marshlands was to enable researchers to choose the appropriate aquatic plants. Chemical analysis of wastewater was to be performed to assess the amount and variety of liquid waste along with the presently used purification methods and the use of microphytes to treat wastewater and the economic value thereof.

Survey of Urban Agriculture in Harare (Zimbabwe). (IDRC grant 93-0024 (01187) of CA\$21,380) and Socio-economic and Ecological Impacts of Urban Agriculture, Harare and Gweru (Zimbabwe) (IDRC grant 95-007 (001015) of CA\$147,420). The first study sought to address conflicts between government officials and urban farmers regarding illegal crop cultivation or livestock raising on land designated for other purposes. The study was to do this through research into the structure and dynamics of UA and its relation to people's survival strategies. Researchers were to conduct a baseline survey of the scale, prevalence, and environmental and economic implications of UA in Harare. The results of the survey were to be presented at a workshop of key stakeholders and provide the basis for a larger project and eventually an integrated policy and planning approach to UA in Harare. The second study was to inform local policy makers on key UA issues, offer them relevant training, facilitate dialogue with urban farmers and recommend key changes for improved UA management in the country. The project was to upgrade the expertise and capacity of both the research recipient and collaborating planning institutions, as well as connect local researchers with research teams elsewhere. Expected outputs include a computerized mapping system, a planning manual on UA and extension support documents, as well as control measures by local authorities.

Urban Agriculture in Dar es Salaam (Tanzania). (IDRC grant 93-0037 (00219) of CA\$240,622). This

was the first of a new series of projects on UA to be developed in East Africa, for a network to build on previous IDRC-funded project findings, to inform and influence city-specific urban environmental policies. The research sought to promote urban management changes enabling UA to contribute more to urban food self-reliance, employment, waste recycling, and the productive management of urban space. The project was sited in Dar es Salaam where UA is significant and well documented, and also where the UNCHS/UNDP/WB Sustainable Cities Program was implementing the first of a series of city demonstrations on environmental planning and management. The IDRC project was developed as a component of the SCP project and received SCP parallel funding.

Food Security and nutritional Status in Greater Accra (Ghana). (IDRC grant 96-0013 (03149) of CA\$43,200). The project was designed with the participation of several local stakeholders and was to support the UA component of a larger multi-donor project on urban food security and nutrition in Accra. It was to test a comprehensive framework on the links between food production and nutritional status in urban areas and inform several policy interventions intended to strengthen Accra's food self-reliance in the context of Ghana's National Plan of Action on Food and Nutrition. The methodology was to include a survey and measurement of food consumption at the household and individual level in two seasons, rapid appraisal of agriculture in selected areas of the city, and data collection on UA and environmental practices.

Municipal Policy Review: Urban Agriculture (South Africa). (IDRC grant 97-4002 (03155) of CA\$51,937). This activity was to support a municipal policy review consultation on urban open space management following an initial IDRC correspondence and interviews with South African experts and institutions during 1994-1996. The activity built on project work on UA in other countries of the region and linked with a recently approved global networking project. In addition to surveying, assessing, and networking the municipal policy side of UA activities in South Africa, this research support activity was to identify a focal point for Southern Africa to interact with the global project. An international workshop was to be held with many different types of role players who were to review municipal UA policy experiences throughout the country.