Policy Dialogue Series # 2

POLICY PROSPECTS FOR URBAN AND PERI-URBAN AGRICULTURE IN KENYA

Results of a workshop organized by:

Kenya Agricultural Research Institute (KARI),
Urban Harvest - CIP
&
International Livestock Research Institute (ILRI)

Complied by George Ayaga, Gilbert Kibata, Diana Lee-Smith, Mary Njenga and Racheal Rege

Held at
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Urban Harvest is the CGIAR systemwide initiative on urban and peri-urban agriculture, which aims to contribute to the food security of poor urban families, and to increase the value of agricultural production in urban and peri-urban areas, whilst ensuring the sustainable management of the urban environment.
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Urban Harvest's Policy Dialogue Series seeks to make more widely available in summary form the policy related outputs of workshops, seminars and assessments related to the practice of agriculture in the urban and peri-urban environment. The intention is to help build awareness among national and municipal decision-makers about key policy issues affecting agriculture in the city in order better to integrate it into national and municipal government planning.

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LIST OF INSITUTIONAL ACRONYMS AND ABBREVIATIONS

AFJAND	African Journal of Food, Nutrition, Agriculture and Development
ALV	African leafy vegetables
CAB International	CAB International
CBO	Community Based Organization
CBS	Central Bureau of Statistics
CGIAR	Consultative Group on International Agricultural Research
DRD,	Department of Research Development,
Min. of Ed. S&T	Ministry of Education Science & Technology
ICRAF	World Agroforestry Center
IDRC	International Development Research Center
ILRI	International Livestock Research Institute
IPGRI	International Plant Genetics Research Institute
JKUAT	Jomo Kenyatta University of Agriculture and Technology
KARI	Kenya Agricultural Research Institute
KCC	Kampala City Council
KEFRI	Kenya Forestry Research Institute
KEMRI	Kenya Medical Research Institute
KEPHIS	Kenya Plant Health Inspection Services
KIPPRA	Kenya Institute for Public Policy Research Analysis
KIRDI	Kenya Industrial Research Development Institute
KMFRI	Kenya Marine Fisheries Research Institute
MoALD*	Ministry of Agriculture and Livestock Development
MoH-PH	Ministry of Health and Pubic Health (Food Safety)
NARL	National Agricultural Research Laboratories
NARO	National Agricultural Research Organization
NCC	Nairobi City Council
NEMA	National Environment Management Authority
NGO	Non-government organization
UNHABITAT	United Nations Habitat Program
UPA	Urban and peri-urban agriculture
UoN	University of Nairobi
TSBF – CIAT	Tropical Soil Biology and Fertility – International Center for Tropical Agriculture

* Currently the Ministry of Agriculture and Livestock Development has been divided as two ministries – Ministry of Agriculture (MoA) and Ministry of Livestock and Fisheries Development (MoLFD)

EXECUTIVE SUMMARY

Farming is a well-known and widespread activity in the capital city Nairobi and other urban areas of Kenya, often practiced by vulnerable groups, the majority of whom are women. Although it alleviates hunger and poverty for those who lack wage-employment, it also carries health risks in built-up areas. And although the Government of Kenya provides limited extension services to urban farmers, there is no coherent legal and policy framework governing urban agriculture.

In recognition of the diverse opinions on urban agriculture, the Kenya Agricultural Research Institute (KARI) in collaboration with the regional office of Urban Harvest, a system-wide initiative of the Consultative Group on International Agriculture Research (CGIAR) organized a one day stakeholders' workshop to develop consensus on providing an enabling environment for advancing urban and peri-urban agriculture (UPA) in Kenya. The workshop, which also received support from the International Livestock Research Institute (ILRI), used an issue-based framework as the basis for developing a policy process. Substantive papers were presented on:

- Employment and Poverty
- Health Issues and Waste Management
- Food Security focusing on Household Nutrition (Fresh Vegetables and Dairy)
- Land Use Management and Physical Planning
- Legislation and Governance

Representatives of key national institutions, including KARI, the Ministries of Agriculture, Lands and Settlement, Health, and Local Government, confirmed their commitment to carrying forward a policy dialogue and presented substantive data and information relating to urban and peri-urban agriculture from the perspective of their sectors. The Department of Research Development located in the Ministry of Education, Science and Technology presented important data on urban poverty in Kenya in relation to urban agriculture, while the Ministry of Agriculture presented recent statistics on the volume of urban agriculture production in Nairobi.

International research institutions and national bodies including NGOs gave perspectives and data on the other aspects of policy. Participants met in groups addressing each aspect of policy to review the adequacy of treatment by the expert presentations, to come up with additional material and to chart the direction policy should take. To do this, each group addressed the key questions of who should be responsible for what. A final plenary session reviewed these suggestions and focused on deciding which institution or institutions should carry the policy process forward.

It was resolved that the Ministry of Agriculture was the right institution to carry forward the process of developing UPA policy, with assistance from KARI, which therefore undertook to take the next step needed, to convene a meeting of key stakeholders from community, market, government, civil society and other actors in UPA to create a National Inter-institutional Steering Committee of these stakeholders. It was agreed that the national process should build upon the extensive data and analytical material produced by this workshop, as well as on work already done to create a forum for government, private and community sector, including the creation of an urban farmers' network. This Sectoral Mix and Cooperation Model provide the starting point for the national process. Urban Harvest agreed to help KARI to compile the workshop report and distribute it to participants, relevant ministries and departments.

PREFACE

The Director of Agriculture noted that until recently urban agriculture – which can be defined as any farming technique in an urban environment – was believed to be an insignificant cultural practice adopted from rural life, and was ignored by planners. However, the complexity of urban life combined with high poverty levels has led to increased agricultural activities in urban and peri-urban areas, and it is now seen as a livelihood strategy for survival.

Aproximatley, 34 percent of 33 million Kenyans were estimated to be living in cities and towns in 1999, with their numbers projected to grow to 16 million by 2005, representing about half the population. Although most of the migrants search for jobs to support their immediate families and dependants, most end up unemployed or are casually hired in low-earning engagements with no job security. At least 60 percent of Nairobi's residents live in very low-income neighborhoods, with headcount poverty ranging between 60 to 78 percent in the various city suburbs. Recent surveys in low-income areas of Nairobi showed malnutrition of children to be quite common, with the prevalence of wasting, a condition characterized by chronic diarrhea and dangerous deficiencies of protein, among children aged 6–60 months ranging from 5 to 13 percent and stunting from 10 to 57 percent.

The link between hunger, malnutrition and HIV-AIDS in both adults and children is established, and the pivotal role urban agriculture can play to alleviate this, as a survival strategy for the urban poor, the urban unemployed and those unable to engage in other useful income generating activities.

The Ministry of Agriculture has data that indicate urban farming can play a crucial role towards improved livelihoods of the urban poor, since urban farmers cultivate a wide range of crops and rear a large number of livestock with substantial yields. For example in Nairobi the city farmers cultivate crops such as kale (*sukuma wiki*), tomatoes, beans, cowpeas, maize, Irish potatoes, sweet potatoes, arrow roots and bananas amongst many others. The amounts are substantial with an estimated 50,000 bags of maize and 15,000 bags of beans being produced in Nairobi annually. The Ministry estimates that up to a quarter million chickens are reared within Nairobi and about 45,000 goats and sheep. Conservative estimates show that about 42 million liters of milk are produced within Nairobi annually. This, in economic terms, means that milk alone generates up to Kshs. 800 million annually if priced at 20 shs. per liter. Most of it reaches the urban poor as either food or income. In 1998 there were 24,000 dairy cattle in Nairobi, worth roughly one billion shillings. In Kasarani Division, about 180,000 trays of eggs were produced in 1998, worth Kshs. 27 million. In the same year 110,000 kilograms of *sukuma wiki* were grown in Dagoretti, while Langata Division produced 240,000 and Westlands Division an amazing 260,000 kilograms. All these figures indicate the potential economic contribution of urban agriculture, not only in Nairobi but also in other urban centers in Kenya, where the situation is similar.

In contrast to this, the major challenges facing the farmers are contamination from pathogens and toxic chemicals in the waste materials used in urban farming systems, and the lack of a sound policy and legal framework to govern urban farming.

In making the link between urban and peri-urban agriculture and the livelihoods of the urban poor, the Ministries of Agriculture and Livestock Development towards reviving agriculture according to the "Strategy for Revitalizing Agriculture 2004–2014", and the Millennium Development Goals. Furthermore, spatial dimensions are important to UPA in respect to the

urban market by influencing employment and incomes, as shown by the extensive processing and handling of food in the informal sector. Recognizing and working with this is integral to plans towards reducing poverty and creating jobs.

There has been a recent concerted effort involving relevant government departments and private sector, non-governmental organizations (NGOs) and farmers. Moreover the Minister for Local Government sent a representative to a meeting on Urban and Peri-urban Agriculture Policy in Harare this time last year, and that Kenya became a signatory to a Declaration that provides for Urban and Peri-urban Agriculture Policy.

The workshop was convened and jointly organized KARI, Urban Harvest and the International Livestock Research Institute with the aim that stakeholders deliberately are involved in the formulation of a UPA policy. KARI had also set up a team to assist in addressing urban and peri-urban agricultural research, and the participants for finding time to attend and contribute to the workshop. The workshop aims to find clear ways forward on the issues at hand, and that the Ministry of Agriculture is dedicated to do the best to ensure that, in future, urban and peri-urban agriculture finds its proper place in policies and planning.

Opening Speech by Dr. Mukisira, Deputy Director (R & T) KARI

THEMATIC PRESENTATIONS

Background

Farming in Kenyan cities and towns is increasingly gaining significance. A visit to most Kenyan urban centers reveals farming activities everywhere, not only on the outskirts but also in the heart of the cities and towns. Along roadsides, in the middle of roundabouts, along and between railway lines, in parks, along rivers, under power lines, in short, in all kinds of open public spaces, crops are cultivated and animals like cattle, goats and sheep roam around. Not immediately visible is the intensive farming in the backyards in the residential areas.

Available information indicate that most of the urban farming is undertaken by the vulnerable poor who also account for the approximately 50 percent of the urban population living below the absolute poverty line of Kshs. 2,648 per person per month. Taking Nairobi city as an illustration, recent surveys by Central Bureau of Statistics (CBS) show that within the 8 city divisions, poverty ranges from 32 percent in Westlands division to 58 percent in Makadara division. The results of the survey further indicate a huge difference in levels of well being among the city divisions, with the poor concentrated in Mathare, Kariobangi, Kibera, Dandora, Korogocho, Laini-Saba-Ngombe, Huruma and Kawangware areas. Synonymous with urban poverty is the lack of wage employment, where only less than one million people out of the estimated population of 2.5 million people in Nairobi are engaged in wage employment. Those unemployed and not undertaking any other form of income generating activities often resorted to illegal trade practices such as manufacturing and selling illegal brews, prostitution, street begging and stealing. An alternative to this situation is farming, to supplement food supply as a hedge against hunger, as well as a source of supplementary income. The majority in this category are women (64 percent), many of whom are also household heads. There is limited provision for extension services to these farmers and crop and livestock production systems are as diverse as intensive as intensive vegetable production (sometimes with pesticide overuse) for the market, small scale crop-livestock systems with recycling of organic inputs, free range livestock systems using mixed wastes as fodder, stall fed livestock using managed organic waste or bought feed, and “sewage farmers” tapping the nutrients from waste water to increase crop outputs.

The legal situation on urban agriculture is unclear with most urban dwellers assuming it is illegal. However a close look at the Local Government and Public Health Acts, as well as the Nairobi Bylaws, indicates that urban farming may be practiced under certain restrictions. Amidst the uncertainty however, farming activities have continued to thrive in urban centers in Kenya often with little regard for associated health issues such as contamination from pathogens and toxic materials among the waste materials used in farming systems and disease transmission from animals kept in unhygienic conditions. Experiences gained from other cities of the world where urban and peri-urban agriculture is legalized and is better regulated indicate the beneficial effect of farming in cities towards the provision of better nutrition, poverty alleviation and employment creation. Here in Kenya, it is documented that huge amounts of waste, 60-70 percent of which is organic, are produced in urban centers. This is a potential resource for improved soil fertility, a current constraint to agricultural production. It is also an input for livestock feed, if obtained from markets, household or selected industrial waste, such as breweries. New research results show that urban crop farming has higher productivity compared to rural farming, perhaps due to inputs of water and waste and with the application of improved technologies in crop and livestock production and waste management, its potential remain high Kenya.

In recognition of the diverse opinions on urban agriculture, the Kenya Agricultural Research Institute (KARI) in collaboration with the regional office of Urban Harvest, a systemwide initiative of the Consultative Group on International Agriculture Research (CGIAR) organized a one-day stakeholders' workshop to develop consensus on matters of policy which will provide an enabling environment for advancement of urban agriculture in Kenya. Key policy issues which were discussed at the workshop link to the role of urban agriculture in employment creation and poverty alleviation, health and waste management, food security, land use management, physical planning and legislative framework. It was anticipated that the stakeholders would identify knowledge gaps in urban farming and devise a steering mechanism for addressing these issues including policy requirements.

Urban and Peri-urban Agriculture as a Public Policy Issue

Dr. Diana Lee-Smith, Interim Regional Leader of CIP in Sub-Saharan Africa, formerly Regional Director for Urban Harvest in Sub-Saharan Africa

Urban food security depends primarily on rural agricultural production, but where there is poor infrastructure, lack of refrigeration and a less effective market chain, then urban and peri-urban food production tends to increase. Poor security, wars and disasters also play a part, but even in the best of circumstances urban and peri-urban agriculture have the advantage of market proximity and freshness, and this is recognized in developed countries.

Rapid growth in urban population is a factor in the growth of urban agriculture. With 7.5 billion people on the planet by 2020, 57 percent of them being urban, it will become an increasingly prevalent activity. It is estimated that there will be 500 million urban Africans in 2020, and if present figures are a guide, 200 million Africans will be practicing urban farming then. In 1996 UNDP estimated 800 million people worldwide were involved in urban agriculture, therefore it is not a small phenomenon and deserves research.

The International Livestock Research Institute (ILRI), show high correlation between cattle and human populations, meaning that the density of livestock increases around towns. Figures from Nairobi from the 1980s show a total of 23,000 head of cattle in the city back then, confirmed by recent figures presented by the Director of Agriculture. These figures also indicated similarly high volumes and values of urban crop production. Twenty nine percent of Kenyan urbanites grow crops in town, 20 percent in Nairobi, while Kenyan urban farmers, mostly female, were using mainly organic inputs.

The pros and cons of urban and peri-urban agriculture are as follows. The benefits are:

- Better nutrition
- Savings in buying food
- Income from sales
- Jobs and
- A greener environment

The risks are:

- Pathogens and toxic contamination from liquid and solid waste, and air pollution
- Proximity to animals carrying zoonotic diseases, and
- Environmental damage

These aspects are being addressed through research supported by Urban Harvest.

Policy issues, namely household nutrition, health, employment, land use and physical planning, legislation and governance, which forms a research framework guides the work of Urban Harvest, which supports risk assessment research and a participatory approach to policy review and legislative reform.

Incorporating UPA in Urban Land Use Planning

Herbert Musoga, Ministry of Lands and Settlement.

There is a competition between agriculture and housing as urban and peri-urban land uses, with housing having a higher economic return. Urban and peri-urban agriculture are perceived as essentially temporary or transient land uses. Therefore, there is a need to look at UPA in the context of Urban and Regional Planning. Nakuru Strategic Plan is an example of a changing approach to UPA. Although generally UPA is not a recognized urban land use and there is no category for it in zoning in Nairobi, for example, this is not the case in Nakuru, where it is designated as a zoned land use.

Since Kenya is currently engaged in the development of a comprehensive Land Policy, there is an opportunity to include UPA as a land use. The policy development process includes stakeholders, thus providing the chance to incorporate these concerns in a systematic way, perhaps as a parallel activity to the one we are looking at in this meeting.

However, a caution should be sounded, as there are many reasons why UPA can be a problem in urban planning, including not only the health risks, but other aspects such as insecurity where criminals can use maize plantations as cover or hideouts. Above all, there is a need for clear and comprehensive data on the current patterns of UPA on which to base our understanding of UPA as a phenomenon before developing land use policy for it.

Current Legislation Governing UPA in Kenya

Ms. Milcah Thairu, Head of Legal Services, Member of Local Government

Under the Local Government Act (Cap. 265) local authorities in Kenya have the power to lease, transfer or allocate land for temporary use (Section 144). They also have the power (under Section 201) to make bylaws necessary to:

- Maintain residents' health, safety and wellbeing
- Maintain good rule and government in the area
- Prevent and suppress nuisance
- Control, regulate, prohibit or compel any act they are empowered to perform.

Nairobi City Council has used these powers to enact bylaws that prohibit:

- Cultivation on public streets
- Keeping livestock that create a nuisance

Section 144 (c) of the Local Government Act also prohibits cultivation by unauthorized persons on land that is not occupied or enclosed, or land belonging to private persons, government and local authorities.

Section 155 (b) of the same act, however, allows for agricultural and livestock undertakings and the provision of services to them. In doing this, it refers to the Animal Diseases Act regarding the prevention of the outbreak and spread of disease. Section 155 (c) also provides for the planting of famine relief crops by persons to support themselves in any part of the country where there is likely to be a shortage of foodstuffs.

The Public Health Act (Cap 242) in Section 157 (1) empowers the Minister of Health to prohibit cultivation or irrigation within and around townships.
There are various laws governing land. These need to be amended to recognize and support UPA, to allow for it as a land use and zoning category, and to facilitate forms of tenure that support UPA.

Governance and UPA: The Nairobi and Environs Food Security, Agriculture and Livestock Forum (NEFSALF) Experience

Davinder Lamba and Zarina Ishani, Mazingira Institute, Fredrick Kimani and Diana Oyugi, NEFSALF Farmers Network Steering Committee

NEFSALF was established in September 2003, out of a process that began earlier the same year. In March 2003, a workshop on Urban Livestock for Improved Livelihoods in Sub-Saharan Africa was held in Nairobi with participants from five cities, Addis Ababa, Dar-es-Salaam, Kampala, Kisumu and Nairobi. Mazingira Institute organized the meeting and was selected as the focal point for Nairobi for follow-up activities. NEFSALF adopted a "Sectoral Mix and Cooperation Model" to guide its activities. The model aims at linking representatives of the Community, Private and Government Sectors through the forum. They exchange ideas about their different positions, priorities and activities on UPA, and can go on to develop partnerships and collaborative activities based on this.

NEFSALF was active in carrying out its mission, objectives and work plan through numerous activities in 2004. The Farmers Network was established and had 105 members by mid-2004, some of these being groups who in turn have other members. They formed a gender balanced steering committee, with co-conveners from different urban and peri-urban areas of Nairobi and comprising both crop and livestock farmers. To improve access by farmers to Ministry of Agriculture and municipal services, the community and government sectors in the Forum met to strategize. Farmers identified training as a priority and representatives of the Ministry of Agriculture and the Ministry of Livestock Development and Fisheries visited six urban farming areas in Nairobi to assess the training needs. Two training courses were held at Mazingira Institute, based on this joint planning. The Provincial Extension Coordinator and other agriculture officers of the Nairobi Province were the trainers, and 18 men and women farmers were the trainees, who were able to pass the knowledge on to their groups. Two training sessions per week were held over a period of three weeks, on record keeping and assessment of gross margins, group dynamics and crop and animal husbandry.

NEFSALF also collaborated with Urban Harvest, which held a farmers' training course on raising African Leafy Vegetables for the market, in association with the NGO Family Concern, ILRI and

IPGRI. Materials from a regional course on Urban Agriculture held in March were used, to expose farmers to issues of health risks in urban agriculture and improve their practices.

To address the objective of producing policy-relevant knowledge on urban farming, researchers from the University of Nairobi Department of Clinical Studies are carrying out research on the community level health risks of livestock keeping in a slum area of Nairobi. The research process is being shared with the Forum members. Mazingira Institute as Forum Focal Point has also made a policy analysis of UPA issues.

The Peri-urban Dairy Industry: Research and Policy

Dr. Amos Omore, International Livestock Research Institute (ILRI)

The existence of both traditional raw milk and pasteurized milk markets in Kenya are responses to consumer demand. Most marketed milk production is peri-urban. The raw milk market provides millions of poor consumers with affordable nutrition, which would decline if it was not available. While policy should aim at growth in the formal milk sector long term, the informal sector milk production will play a major role in the medium term.

Seventy percent of the 40,000 jobs created by milk processing and marketing are in the informal sector, not counting casual employment. Plus, between 600,000 and 800,000 dairy farm households employ family labor as well as creating 365,000 full time wage jobs, which constitutes 12 percent of the agricultural labor force. Most of these jobs are in UPA. The employment statistics coming from the Smallholder Dairy Research Project in Kenya do not include the numerous additional jobs created through the supply of inputs and services to dairy farmers.

Milk consumption addresses nutrient, protein and energy deficiencies in children, and can be crucial for poor households. Cattle ownership also benefits child nutrition. Policy analysis has been carried out with extensive research backup and stakeholder consultation. Nevertheless, the Draft Dairy Bill has not been implemented and conflicts on regulation and implementation of the policy continue. Supportive policy, investment and training are needed for the small-scale raw milk traders, to ensure gradual improvement in milk quality, as well as sustaining nutrition and employment.

Apart from supporting such research on the Dairy Industry, ILRI's program on People, Livestock and the Environment will be looking at other human health impacts of livestock keeping, with a focus on poor urban livestock keepers. It is for this reason that ILRI has been glad to help Urban Harvest support this meeting, and encourages KARI in its efforts to define UPA policy for Kenya.

Role of UPA in Improving Household Nutrition

Hon. Professor Ruth Oniang'o. MP, Founder, Rural Outreach Program and Editor-in-Chief, African Journal of Food, Nutrition, Agriculture and Development (AFJAND)

The scale of UPA is generally underestimated but it is a widespread phenomenon involving many urban dwellers. African Leafy Vegetables (ALVs) are an important part of UPA, because they

need to be fresh. The role of ALVs in food security and income generation is increasing, due to their short production cycle and low capital investment requirements. Demand is outstripping supply as the trade has spread to higher income groups and retail outlets including supermarkets.

Both low- and high-income urban consumers focus on ALVs because of their high nutritive value, while low- and high-income urban producers focus on ALVs to ensure meeting of market demand. UPA using ALVs ensures the intake of essential micronutrients including minerals and vitamins. ALVs are nutritionally superior to exotic vegetables such as kale and cabbage. UPA offers a tremendous opportunity for boosting the nutrition of urban poor families. ALVs should be encouraged more in the street food culture of urban centers. Apart from better nutrition they encourage the sense of cultural identity in urban centers. On the down side, contamination from biological and chemical pollutants is a risk of UPA, and this must be addressed through research, as well as proper planning and support of UPA.

Minimizing Health Risks in UPA

Mr. Kilinda Kilei, Public Health and Food Safety, Ministry of Health

The Ministry is aware of the fact that many urban dwellers live below the poverty line, in informal settlements. They are aware of the different patterns of urban farming and livestock keeping, with the better-off farmers being able to do mixed farming in a less hazardous manner than those forced to live in unserviced settlements. Further, they are aware of the nutritional benefits from proteins and vitamins coming from the products of urban farming, which benefit the health of the urban poor, at very low cost. On the other hand, there are related health risks from urban agriculture, ranging from the upsurge in zoonotic disease to chemical poisoning.
Zoonotic diseases presenting such risks include brucellosis, swine erysipelas, taeniasis, echinococcosis, Newcastle disease and psittacosis. Unattended livestock (those allowed to graze, often on refuse, as well as those who are merely strays) are liable to consume industrial effluents or waste products containing heavy metals, which can end up in the human food chain, apart from being hazardous to the animals themselves. A study on pork meat in Eldoret found high levels of lead for example (Okande).

When it comes to vegetables, there is an intake of heavy metals in vegetables grown along roadsides with heavy traffic, and lead is of particular concern in Kenya, which still has leaded fuel. A study by Surrow of KEMRI showed high levels of lead in kale in the city. Low-income farmers in Nairobi also block sewers to get the water and nutrients to grow vegetables in particular, causing risks from pathogens as well as any heavy metals in the waste water.

Urban and peri-urban flower farms, which have become economically beneficial to many farmers recently, present a specific set of problems. They consume a lot of water, which contributes to urban water shortages. In peri-urban areas, where people rely on boreholes or shallow wells for domestic water supply, these may be contaminated by the large amounts of agrochemicals used by flower farmers.

There is adequate legislation in Kenya governing public health that can address all of the issues mentioned concerning UPA. However, the problem is enforcement.

Utilization of Urban Waste for Agricultural Production

Professor Nancy Karanja, Department of Soil Science, Faculty of Agriculture, University of Nairobi, and Mary Njenga, Urban Harvest

Both solid and liquid waste present urban management problems as well as opportunities for the reuse of nutrients for improved soil fertility for UPA. The presentation draws on results of recent research in Nairobi, including an Urban Harvest supported project carried out by ILRI, ICRAF, and KARI with NGO partners working with the urban poor.

Nairobi generates 1740 tons of solid waste daily, or half a kilogram per capita. This includes wastes from households, markets, agroindustrial wastes from slaughterhouses, breweries, sugar, coffee and other industries, as well as commercial wastes from food kiosks, hotels and other enterprises. The mean composition by weight of the waste in Nairobi is 70 percent organic, 13 percent paper, five percent plastics or rubber, five percent metal, four percent inert material and three percent other substances.

Organic material, which is biodegradable or rapid in decomposition, includes kitchen wastes, crop residues, waste paper, sawdust and wood off-cuts, as well as human waste and livestock manure. Non-biodegradable materials, meaning those that are slow to degrade, include glass, rubber, plastics, textiles, tin cans, iron and steel, nonferrous metals, minerals, chemicals and oils. Organic waste can be integrated with UPA practices by processing it as compost to fertilize soils, but non-biodegradable waste materials can also be incorporated into UPA management systems as covers or containers for plants, livestock feed, compost and other items.

The purpose of the Nairobi research on recovery of nutrients from waste was to make an inventory of composting groups in the city, document and evaluate composting techniques, model rural-urban nutrient movements, and link stakeholders involved in UPA and waste management. Results indicate that 2200 tons of Nitrogen (N), 815 tons of Phosphorus (P) and 3,700 tons of Potassium (K) are lost annually in Nairobi from organic (solid) waste that is unutilized. Only one percent of organic solid waste available is composted. The composting methods used by different groups have an effect on compost quality, and there are opportunities for improvement. The market for compost is limited. However, the main finding is that the whole subsector is poorly managed and information on marketing and reuse opportunities are missed, at neighborhood as well as citywide levels. A clear policy for linking UPA with urban solid waste management would improve the situation.

Research by Hide and Kimani in 2000 indicates that 3,700 farmers in Nairobi practice irrigation and that 36 percent of these use wastewater. Crops worth over US$ 3.2 million are produced each year from irrigated UPA in the city.

The health risks associated with waste reuse in UPA include the pathogenic organisms in waste residues, respiratory problems from dust or gases released, injuries from sharp fragments in waste, and crop contamination from heavy metals contained in waste. Risks to farmers need to be distinguished from risks to consumers. Urban Harvest and other partners are engaged in the measurement of health risks from UPA and will produce scientific and urban management guidelines.

A policy for UPA in Kenya needs to look at policy and regulatory mechanisms affecting waste reuse, official and cultural attitudes, land availability for composting, the needed institutional set-up and the involvement of all stakeholders.

Potential of UPA to Create Employment and Reduce Poverty

Dr. John Onyatta, Director of Research, Department of Research Development, Ministry of Education, Science and Technology

Kenya's population is projected to rise from 29 million in 1999 to 36.5 million in 2010, while per capita incomes are falling (from $271 in 1990 to $239 in 2002). Poverty increased from 11 million (48 percent) in 1990 to 17 million (56 percent) in 2001. In 2003, 15 percent of the work force was unemployed. Almost twice the proportion of urban, as compared to rural, population were food poor in 1974 (29 percent compared to 7 percent) (Economic Recovery Strategy 2003).

Government statistics show that poverty is shifting from rural to urban areas, with poor people expected to increase to 65 percent of the urban population by 2015, while 50 percent of Nairobi's residents are currently poor and hungry, living below the poverty line of Kshs. 2,648 (Economic Survey 2003). Although 75 percent of the population is currently rural, there was a 90 percent increase in urban population 1994–1997, creating concern that the focus for poverty reduction must now be in urban areas.

Government responses include the Poverty Reduction Strategy Paper 2001–2004, which aims at industrialization by 2020 and reducing poverty by half by 2015. However, although agriculture contributes to 80 percent of employment and 60 percent of national income, only rural and not urban agriculture is addressed in the strategy. The same applies to the Economic Recovery Strategy for Wealth and Employment Creation 2003–2007 (ERS).

Since there is a will to eradicate poverty and create employment, the time to act is now. Responding to the Addis Ababa Declaration on Feeding Cities in the Horn of Africa, May 2002, and the Harare Declaration on Urban and Peri-urban Agriculture (UPA) in East and Southern Africa of 2003, the Department of Research Development of Kenya Government has prioritized UPA. A proposal submitted to FAO on Nairobi Food Supply and Distribution Systems (FSDS) aims to enhance urban food security by, among other things, facilitating the formulation of UPA policies, strategies and interventions that will make FSDS more efficient and dynamic in the context of urban expansion.

Research Agenda:

1. Survey the status of UPA and inform decision-makers
2. Create model codes and standards
3. Identify appropriate technologies

Policy Agenda:

1. Establish national and city level policies
2. Integrate UPA in the PRSP and other social and economic policies
3. Develop capacity on UPA, especially in local authorities
4. Link UPA with food security and nutrition policies

Action Agenda:

1. Recognize UPA as an urban industry, based on current statistics
2. Organize a national course on UPA
3. Integrate UPA into projects
4. Adopt enabling legislation
5. Assist in organizing urban farmers
6. Create institutional structures for UPA

Create city level UPA strategic plans

UPA KAMPALA CASE STUDY

Councilor Winnie Makumbi, City Minister, Kampala City Council

Kampala City Council has a Mayor elected by the population at large and councilors elected in their wards. The Mayor selects a cabinet of City Ministers from the elected councilors. The City Council has executive and legal powers. As District Council in Uganda, Kampala can draft its own laws under Section 39 of the Local Government Act (Cap. 37). A bill is a draft law, which is called an "ordinance" when it comes into force. Local Councils (LCs) below the level of a district are empowered to make "bylaws".

Any members of Council can propose a bill, which is then refined by a technical team. Such a bill can then be introduced in full Council, but it must first be published for public consultation. It is at this stage, after making sure it fits within the framework of the 12 relevant existing Acts of Parliament, that public workshops can be held, to incorporate the views and ideas of stakeholders. The Divisional Offices of the Council are the ones concerned, as they have to operate the legal framework in practice.

Urban and Peri-urban Agriculture (UPA) contributes to livelihoods and the economy in Kampala, yet regulations have been outdated and restrictive. Following international consultations and declarations, Kampala City Council decided to review its 2001 Draft Bills for Ordinances on Urban Agriculture and related matters affecting urban food supply, using a stakeholder consultative process.

Consultations in each of Kampala's five Divisions were held in August 2003, followed by a Stakeholder District Forum in September 2003. Councilors from the Divisions, Makerere University, Environment Alert, farmer representatives, the Ministry of Agriculture and Animal Resources and Fisheries and officers of KCC took part. Urban farmers as well as technical officers and local leaders contributed to lively debates that saw the Draft Ordinances subjected to intense scrutiny and realistic criticism. The Kampala Urban Food Security, Agriculture and Livestock Coordinating Committee, comprising technical personnel, then prepared an amended version of the Draft Bills for Ordinances, incorporating the proposed amendments.

Key changes were suggested to the type and application of permits. Since there are large numbers of food producers and traders whose operations are informal and currently undocumented, as well as unregulated, a process of record collection by KCC was proposed, with council listing constituting a temporary permit. People producing and consuming food for their own use would be exempted. Meanwhile, the publication of the intent of the Ordinances (and their application to a class of "industrial" concerns) would create awareness among farmers, traders and the general public. This would promote the gradual raising of standards in urban agriculture and food handling.

Concern was voiced at the District Forum that simple guidelines in local language were needed to disseminate the new Ordinances when passed. Urban Harvest and DFID responded with the promise of support. The Commissioner for Agriculture also expressed the concern that a policy framework for Urban Agriculture – within which regulations should fit – is missing. This is an essential part of national agricultural planning and should be addressed as soon as possible. The Forum also recognized how important the input of research data was to this process, and that it should continue. There is much that

is still unknown about the health risks and benefits of urban agriculture. In January 2004 the Kampala City Council passed the Ordinances with some amendments. Guidelines for the public were drafted, translated into Luganda and field tested during 2004.

Political will of the Council is very important and of proactive leadership by councilors based on the needs of their constituents.

THEMATIC GROUP DISCUSSIONS

Participants then worked on six questions relating to the next step in policy process:

A. Did the policy analysis paper and the speakers identify the right set of policy issues?
B. What additional policy issues should be addressed?
C. What issues need further research to inform policy?
D. Are there any ongoing policy or legislative reforms that should include UPA?
E. What institution(s) should be responsible for UPA policy?
F. What steering mechanism (new or existing) is recommended to carry forward work on UPA policy?

Following is a synthesis of the answers prepared by the groups, which worked on five aspects of policy:

- Employment and Poverty
- Health Issues and Waste Management
- Household Nutrition (Fresh Vegetables and Dairy)
- Land Use Management and Physical planning
- Legislation and Governance Framework

A. Did the policy analysis paper and the speakers identify the right set of policy issues?

In general, the groups agreed that the policy analysis paper and thematic presentations had covered the issues well. These need to be followed up by policy action. Further policy issues identified are dealt with under the next question.

B. What additional policy issues should be addressed?

One group proposed that the meeting call for a policy that recognizes, enables and regulates UPA. This is because:

- It is an established practice
- It provides economic security
- It creates new opportunities

How should this be done?

1. Review all UPA relevant legislation with a view to determine compatibility with policy.
2. Local authorities to review UPA relevant laws in terms of policy goal and national legislation review.
3. Formulate bylaws that attain the policy goal.

4. Establish a system of participatory governance.

Employment and Poverty

- UPA needs to be integrated in urban economic and physical planning.
- The lack of institutions dealing with UPA should be addressed, and the coordination of institutions under whose mandate it falls by default.
- Policy should address the urbanization of poverty, and the need to recognize UPA as an urban industry. In particular, the urban poor and unemployed form an underutilized resource for waste management which is also a potential source for income generation
- Credit facilities, extension services and marketing advice are needed for UPA.

Health Issues and Waste Management

There should be a policy on using a risk analysis and risk assessment approach for:

i Identification of hazards
ii Hazard characterization
iii Exposure assessment
iv Risk characterization

This should cover:

- Zoonoses
- Heavy metals
- Pesticides
- Microbial infections
- Helminths

There should be a policy on using an economic Cost Benefit Analysis on the salvage and potential of urban waste.

Policy guidelines should be developed on:

- Risk management
- Disease prevention
- Waste management

Existing laws addressing health issues and waste management must be identified, harmonized and conveyed to stakeholders and the public for sensitization.

Household Nutrition (Fresh Vegetables and Dairy)

The dairy sector has been the subject of extensive policy research and a policy review is ongoing. It must be speedily implemented, and similar attention should be paid to the supply of fresh vegetables to urban areas, many of which come from UPA. There must also be greater policy recognition of the contribution of fresh vegetables and dairy supplies in urban and peri-urban areas to food security, human nutrition, dietary diversity and income generation, as well as to the hazards of UPA to environmental and human health.

There is need for a code of practice to ensure compliance to establish standards of sustainable production systems, handling, processing and marketing. This should address production constraints, the environment, be socially acceptable, and economically feasible. Such a code exists for milk.

Land Use Management and Physical Planning

- There is need for integration of UPA in urban planning. Currently there are no links between agriculture and land use planners.
- There is need for a policy decision on the allocation of underutilized land to UPA for income generating activities. The national law is clear on land use for agriculture in towns.
- There is need for the harmonization of policies. Policies exist but legislative changes and implementation are difficult. In particular, the Ministry of Livestock and the Ministry of Health should recognize UPA
- There should be a law on rainwater harvesting for UPA.

Legislation and Governance Framework

- There should be a review of all UPA relevant legislation, with a view to determine compatibility with policy.
- Local authorities should review UPA relevant laws in terms of the policy goal and the national legislation review.
- Bylaws that attain the policy goal should be formulated.
- A system of participatory governance should be established.
- Urban farmers need to be facilitated to organize themselves, and community UPA farming should be encouraged.
- There is a need for public awareness of UPA. While the review goes on, local authorities and other stakeholders need to be educated on the interpretation of existing laws and bylaws.

C. What issues need further research to inform policy?

Employment and Poverty

- Urbanization of poverty
- UPA as an urban industry
- Marketing of products from UPA
- Research on welfare indicators emanating from UPA
- Information delivery mechanisms
- Social and economic benefits of UPA
- Adaptation and adoption of best practices in UPA
- Monitoring and evaluation of the impact of UPA

Health Issues and Waste Management

- Realistic and effective guidelines on risk assessment and management are needed for:
  - i Disease incidence, disease prevention and transmission
  - ii Waste management

Household Nutrition (Fresh Vegetables and Dairy)

The extensive research geared to policy change in the Kenya dairy industry is acknowledged. Additional research is needed on:

- The proportion of UPA contributing to urban food security
- Constraints to dairy policy reform
- Measuring nutrition from UPA, especially Animal Source Foods (ASF)
- Urban employment in dairy production, processing and marketing
- Competitiveness of the urban and peri-urban smallholder dairy enterprise

- Documenting the proportion of African Leafy Vegetables (ALVs) supplied by UPA.
- Characterization of contaminant levels in plants grown in different localities within the urban areas with the ultimate aim of zoning urban areas for UPA
- Standards for sustainable production systems (production, environment, socially acceptable, economically feasible), handling, processing and marketing.
- Determination of differential contaminant uptakes by different plants.

Land Use Management and Physical Planning

- The existing dynamics of UPA as a largely informal land use
- Urban land tenure systems which are supportive of UPA
- Aspects of raw sewage water for irrigation
- Strategies for rainwater harvesting for UPA

Legislation and Governance Framework

- Means of integrating crop, livestock, fisheries production and forestry (UPA Agro-forestry) and floriculture into UPA
- Means of harmonization of policies and legislation
- Unrealized opportunities for production (New technologies)

D. Are there ongoing policy or legislative reforms that should include UPA?

- Poverty Reduction Strategy Paper (PRSP)
- Economic Recovery Strategy
- Revitalization of Agriculture
- Development of a National Land Policy
- Revision of the Local Government Act
- Food Policy Review
- Nairobi Metropolitan Plan
- Legal sector reforms
- Irrigation policy
- Development of Solid Waste Management bylaws for Nairobi

E. What institution(s) should be responsible for UPA policy?

Central Government Ministries with sectoral responsibilities:

- Ministry of Agriculture
- Ministry of Livestock and Fisheries Development
- Ministry of Health
- Ministry of Lands and Settlement
- Ministry of Environment
- Ministry of Water Development

Local governments: Each City and Municipal Council should create an agriculture unit in its planning department

Statutory bodies: National Environmental Management Authority (NEMA)

National Research bodies with a responsibility for sectoral advice: KARI, KEFRI, KIRDI

International Research bodies with a capacity for technical support:

- Urban Harvest (CIP)
- International Livestock Research Institute (ILRI)

Universities, Non-Governmental and Community Based Organizations (NGOs and CBOs) with a capacity for technical support

F. What steering mechanism (new or existing) is recommended to carry forward work on UPA policy?

Four out of the five working groups recommended the setting up of a National UPA Steering committee, involving all stakeholders. Two of the groups said the Ministry of Agriculture should be the lead organization of this committee.

One group recommended that the steering mechanism including stakeholders should be led from the local authority level, specifically recommending that Nairobi City Council set up such a mechanism.

Other suggestions included:

- The establishment of UPA units in the Ministries of Agriculture and Livestock Development.
- The establishment of UPA units within local authorities
- The establishment of UPA cross-sectoral and multi-stakeholder implementation committees in local authorities
- Ministry of Agriculture to take the lead in local level processes

RECOMMENDATIONS

After extensive discussion among participants during the final plenary, it was resolved that the Ministry of Agriculture was the right institution to carry forward the process of developing UPA policy. It was also agreed that KARI was the right institution to assist the Ministry in this process. KARI therefore undertook to take the next step, by convening a meeting of key stakeholders from community, market, government, civil society and other actors in UPA. This was identified as the next step towards formulation of UPA policy.

The extensive data and analytical material produced by this workshop were acknowledged. It is clear much has already been done that needs to be pulled together. It was agreed that the national process should build upon work already done to create a forum for government, private and community sector, including the creation of an urban farmers' network. This Sectoral Mix and Cooperation Model provides a starting point for the national process.

It was acknowledged that the policy discussion paper had provided a useful framework to capture inputs of this UPA policy workshop. Therefore, the same framework would be used to compile the workshop report and distribute it to participants, relevant ministries and departments. Urban Harvest agreed to assist KARI in this process.

Following this, KARI will convene the next stakeholder meeting, with the objective of creating a National Inter-institutional Steering Committee that will bring together the different sector stakeholders.

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Stakeholder Policy Workshop Agenda Held on 15th July 2004, At KARI Headquarters

9.00am	Arrivals and registration
9.30am	**SESSION 1: OPENING ADDRESS, INTRODUCTION OF GUESTS KEYNOTE ADDRESSES** **Chairperson**: Dr. Romano Kiome, Director KARI
9.40am	Keynote Address 1: UPA as a Public Policy Issue **Dr. Diana Lee-Smith, Urban Harvest**
10.00am	Keynote Address 2: UPA in Kenya – **Dr. Mukisira, KARI**
10.20am	Discussions
10.30am	TEA/COFFEE BREAK
11.00	SESSION II: THEMATIC PRESENTATIONS Chairperson: Dr. Charles Crissman, CIP
11.00am	1. The potential for UPA to create employment and reduce poverty. **Dr John Onyatta, Director of Research, MOEST**
11.10am	2. Role of UPA in improving household nutrition **Representative of KARI**
11.20	**3. Minimising health risks in UPA** **Representative of Ministry of Health**
11.30	4. Utilisation of urban waste for agricultural production **Prof. Nancy Karanja, UoN.**
11.40	5. Incorporating UPA in urban land use planning to ensure future food supplies, low-income food security, environmental protection and green space planning. **A.M. Saley**, **Ministry of Lands and Settlement**
11.50	6. Governance and UPA – the NEFSALF experience **Mr Davinder Lamba, Mazingira Institute**
12.00	7. Current legislation governing UPA in Kenya – **Ms. Milcah Thairu , Head of Legal services, Ministry of Local Government**
12.10	8. UPA experience: The Kampala Case study – **Cllr. Winnie Makumi**
12.20	Discussions
12.30pm	**LUNCH**
	SESSION III: GROUP DISCUSSIONS ON THEMATIC PAPERS **Chairperson:** Ms. Milcah Thairu, Ministry of Local Government
1.30pm	• Employment and poverty • Health issues and waste management • Household nutrition (crops and livestock) • Land use management and physical planning • Legislation and governance framework
3.00pm	**TEA/COFFEE BREAK**
	PLENARY SESSION Chairperson: Dr. Muga
3.30pm	Presentations to plenary (5groups x 5minutes)
3.55pm	Plenary debate and resolution on the way forward
4.30pm	**Closing**