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Appropriate Methodologies for Urban Agriculture

Research, Policy development, Planning, Implementation and Evaluation

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1. INTRODUCTION

Urban agriculture is an ancient practice but a recent focus of attention for a wide range of professionals associated with urban management, urban planning and agriculture. In the past these fields have been quite separate, and have elaborated their own approaches and methods associated with policy development, planning, research and monitoring and evaluation.

The organisers of the workshop believe that to strengthen and develop agriculture in the urban environment, there is a pressing need not only to explore the adaptation of the wide range of methods used in rural agricultural research and development, but also to provide an innovative integration of these procedures with the specifically urban methods applied to understanding planning and policy issues.

In order to stimulate such a process CGIAR-SIUPA and ETC-RUAF decided to jointly organise a multi media process of collection, discussion and synthesis of a set of appropriate methods for urban agriculture research, policy development, planning, implementation and evaluation.

We started with a brain-storming meeting (in Leusden, the Netherlands)with a small group invited resource persons. As a result six thematic areas were chosen through which to identify and debate appropriate methods for urban agriculture. These themes, which are elaborated in more detail below, are:

- Situation analysis/diagnosis and baseline studies on UA
- Participatory UA policy formulation and action planning
- Integration of UA in urban land use planning
- Participatory technology development in UA
- Marketing assessments and micro-enterprise development related to UA
- Monitoring and evaluation of the impacts of UA

As a next step we invited experts on each of these themes to prepare a synthesis paper. The topic coordinators identified interesting experiences, commissioned the preparation of case study papers and synthesized current methodological experiences.

The synthesis papers were used as the basis for the discussions during the expert consultation held in Nairobi in October 2001, on which we report in this document.

The **objective** of the workshop was:

to bring together, exchange and discuss experiences gained with a variety of methodologies applied in intra-urban and peri-urban agriculture (UA)¹ research, policy development, spatial urban planning, project planning, implementation, monitoring and evaluation.

¹ In this document, Urban Agriculture will be used as the generic name, including intra-urban and peri-urban agriculture. Whenever reference is made to a specific type/location of urban agriculture this is specified in the text.

The **workshop programme** was as follows:

Day 1: Presentations of the main issues dealt with in the synthesis papers, followed by a short discussion. During that discussion we will also identify the main questions to be discussed in the working groups.

Day 2: Fieldvisits.

Day 3: Working groups

Day 4:

- Feedback from the working groups
- Formulation of Conclusions and recommendations
- Closing of the workshop and Farewell dinner

On the basis of the results of the workshop the synthesis papers were revised.

The synthesis papers and a selection of the case studies have been published in the *Urban Agriculture Magazine* no 5, January 2002 informing the over 3000 subscribers of the *UA-Magazine* on the key elements of the discussions.

The synthesis papers as well as the case study papers have been published on the website of the Electronic Conference that will be held from 4 – 16 of February 2002 (see www.ruaf.org/conference).

The E-conference will allow a much wider audience to participate in the discussions and to share their experiences and critiques.

Finally, we expect to gather the results of this rich step wise process in a methodological resource guide that presents in a systematic way the main frameworks, methods and tools that may be applied in urban agriculture research, policy development, planning, implementation and evaluation and indicates their potential uses, requirements, pitfalls, a/o.

2. PRESENTATION OF THE SYNTHESIS PAPERS

2.1 Methodologies for situation analysis in urban agriculture

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1. Introduction

Situational analysis in intra-urban and peri-urban agriculture (UA) is often a starting point for programmes and projects supporting interventions to improve the contribution of urban agriculture to income, family nutrition, social and environmental conditions and well-being. Yet there has been little specific consideration of appropriate methods and tools for assisting situational analysis in the urban context. Our focus is on methods, which help to build and facilitate action-oriented programmes, particularly emphasising participatory diagnosis and learning. We consider some of the broader analytical frameworks for understanding, and the conceptual challenges in investigating UA. We then discuss some specific contexts of investigation in an UA setting and raise issues for critical reflection in relation to the use of the methods and tools described.

2. Frameworks and conceptual challenges

In considering methodologies for situational analysis in UA the starting point may be the identification of a useful conceptual framework. One such a framework is the Livelihoods framework that assists in conceptualising the interrelationships between the different dimensions of people's lives and helps to reveal the complexity of urban livelihoods and poverty. It makes the conceptual link between understanding at the household level and at meso and macro level encouraging analysis of how livelihoods are influenced by institutional and policy processes and vice versa. (Sanderson, 2000, Martin et al., 2000, and Carney, 1998). A range of methods and tools, many deriving from participatory appraisal methods, are needed to operationalise analysis based on the livelihoods framework.

The definition and use of concepts that guide the exploration and analysis of urban agriculture and the urban context are particularly challenging. The terms 'urban', 'peri-urban' and 'rural' agriculture are sometimes used as broad descriptions of a continuum and sometimes as discrete categories. Conceptual clarity is especially important as the study of UA is marked by the diversity of actors and plurality of countries involved. In addition, definitions guide the sampling strategy, the selection of units of observation and tools of investigation and are used as the basis for comparisons between communities. It is important to defining UA in each context rather than relying on pre-established definitions (Santandreu case study, Adam, 1999). This process contributes to knowledge sharing between different stakeholders and to a mutual understanding of the issues to be addressed.

The type of urban agriculture needs clear specification. The literature most frequently addresses cultivation that takes place in public and private open spaces. Homestead gardening is less frequently a focus, although it can make a significant contribution to

² The preparation of this paper was co-funded by the Department of International Development of the United Kingdom. The information and views expressed are the responsibility of the authors

household livelihoods, both in terms of food and income. Open space cultivation differs from homestead gardening in terms of scale of production, labour and employment relationships, types of produce, farm management, tenure arrangements and security, constraints, benefits, and opportunities for people to get involved. The inclusion of homestead gardening has important implications for the research objectives, methodology and process.

A further problematic issue is the nature of 'households'. A common working definition is 'those people eating from the same pot', however, defining what constitutes a household is more complex, especially in the urban areas, given the dynamic changes in traditional family norms and values and prevailing rural-urban linkages. In urban areas, households are complex and often multi-locational with household members in different places in different seasons, or with multiple occupancy of house stands and sub letting and renting arrangements (Martin et al, 2000, and Beall and Kanji, 1999). Therefore, the dynamic and complex notion of an urban household should be incorporated in the methodology design, for example, by including questions on rural-urban linkages, (temporary/permanent migration of household members, remittances, kinship relations and access to land, the extent of reciprocity, trust and mutual support, and intra-household decision making).

3. Participatory Approaches

There are some interesting examples of the use of participatory approaches in UA analysis (Santandreu; Slater). Engagement in a participatory process encourages participation of local communities and prepares the ground for improved local governance. It facilitates the integration of gender, cultural and environment aspects in the development of project proposals, helping to avoid misfit between intervention and need. Participatory approaches have been used to explore the role of women in food provisioning and their use of urban cultivation in Harare. (Gabel, 2001). It also helps to capture complexity and permit better problem definition.

The use of PRA tools such as transect walks and plot land use mapping are usually recommended as introductory participatory exercises which provide researchers with a initial overview of the area and participants with the opportunity to familiarise themselves with the research and to take a lead in identifying which issues are important to them. However, in high-density urban areas with an influx of new residents and where access to land is limited and often highly politicised, this might arouse mistrust (Gabel, 2001). It is important to build up trust over an introductory period with several key informants before issues such as land use and tenure can be explored in depth.

There are important differences between conducting PRA in urban and rural contexts that have implications for the use of participatory tools and methods (Mitlin and Thompson,1994). The differences are associated with the greater diversity in urban livelihood strategies, compared to rural, the extent of reliance on natural resources, the combination of formal and informal activities, differences in language and ethnicity, in tenure arrangements for housing and land etc.) and the role of local government intervention in urban areas, for example with respect to squatters and zoning of land. Participatory research methods can be used in an urban context, but it is important to maintain critical awareness of potentially misleading assumptions more relevant to the rural context (Norton,1994:55).

Methods such as wealth ranking which rely on detailed knowledge of the situation of other community members may be more difficult to apply where urban key informants have only limited knowledge of their neighbours. Patterns in urban livelihoods and incomes are likely to be very varied, and field studies have to accommodate

seasonality, and day/ evening/ weekday work patterns with appropriate timing of interviews with different stakeholder groups. The understanding of what constitutes a community is more variable because of the greater complexity of social identification and affiliation.

The term 'participation' can mean many different things to different people. Approaches that seek to go beyond mere consultation face the question of who is able to participate and how to ensure equity of participation. Tools are needed to encourage the direct participation of urban agricultural producers, and for consultation with secondary stakeholders such as local leaders, politicians, professional workers in health, education, agriculture, traders and major employers.

The obstacles to participation, especially in the poorest areas, include low levels of social capital, poverty and limited access to assets, insecurity resulting from crime or political activity and social isolation. There may be constraints on the participation of the poor because of the power of dominant groups, because the poor have excessive demands on their time or because they lack the necessary assets (Mbiba, 2001a: 33).

There may be trade-offs between encouraging participation and achieving a goal. "Weighing up the pros and cons between empowerment of those living in poverty and pragmatic involvement of influential stakeholders is an important consideration which will determine the success or otherwise of the strategy." (Pederson, 2001:26). Local government structures may or may not provide a supportive infrastructure.

The choice of methods and tools is closely related to the underlying purpose of the research, ownership of the research agenda and the role of researchers in relationship to other stakeholders. Whether participatory methods are used or not depends on the objectives of the study, the type of analysis and for whom the analysis is done. There is a distinction between the processes of setting objectives and accounting for results, and the actual methods of enquiry. Either, neither, or both, may be participatory.

4. Stakeholder analysis

A crucial aspect to consider is the wide range of stakeholders encountered in urban settings. UA is taking place in a multi-sectoral environment and it is easy to miss some key stakeholders in a participatory process. The identification and involvement of different stakeholders tends to be driven by the underlying objective of the study. It is unusual to find vertical integration of study objectives across different sectors in the existing array of UA case studies. The wide range of stakeholders also contributes to the presence of conflicting interests and tensions. External interventions may be used by certain stakeholder groups to strengthen their position by capturing the benefit flow and denying participation to other groups. Alternatively they may negotiate compliance with their wishes as a condition of benefit. To avoid this, the research team has to adopt a position of "critical neutrality" (Santandreu, 2001). The research approach used successfully in such a complex context should produce information that is relevant to different stakeholder groups; it should be transparent and participatory in order to allow people with different educational backgrounds to engage.

Box 1 - Methods to identify and explore stakeholder interests include:

- Small *meetings with a few key stakeholders*, who identify others, both *direct* stakeholders – those involved with the causes or consequences of a problem or issue and affected by actions taken to alleviate it, and *indirect* stakeholders who can positively or negatively influence the process and can play a role in strategies to solve the problems (Grimble, 1998).
- *Stakeholder workshops* for a detailed identification of interests, activities and contributions and opportunities for new networks or partnerships. Stakeholder information can be tabulated or depicted in Venn diagrams showing the most significant interrelationships
- *Individual interviews* with representatives of the main stakeholder groups to explore main issues, perceptions, constraints and potential areas of conflict.
- *In-depth discussions* with separate stakeholder groups.
- *Joint focus groups*, in which representatives of each stakeholder group discuss the various issues arising from the individual focus group discussions and try to develop a strategic vision for potential uptake by policy makers.

5. Sampling and focus

As resources are usually limited, situational analysis has to be selective in its coverage of areas and types of urban agriculture. Criteria guiding area selection could include availability of open space, the distribution and scale of poverty, population and housing growth and density, levels of basic services, distance from city centre, transport linkages and cost, market integration, housing availability and cost, land use, tenure status, physical characteristics of land, and the proximity and availability of arable land (O'Reilly 95, Adam, 1999). The selection of the study area also has a political dimension, linked to the interests of the different stakeholders involved. The precise definition of the geographical boundaries of the study area helps in the planning and implementation of the participatory appraisal. (Santandreu case study). However, while the criteria and category descriptions might be clear, the actual physical areas designated may need to shift between categories over time as peri-urban areas take on urban characteristics, and parts of the rural hinterland become more peri-urban in nature.

There is a problem of ensuring representativeness in the choice of areas and participants for interviews and surveys. In small, less differentiated rural communities, key informant interviews and social mapping can be used to elicit a full list of village households for sampling purposes. However, in urban areas, the population density, high social mobility, a wider range of employment opportunities and less established social relations make it less likely that residents know each other well. It is more difficult to use key informants for generating a list for random sampling or to conduct ranking exercises for purposive selection of respondents according to wealth status, gender, age and ethnicity, although this may be possible by delimiting a neighbourhood. Population censuses are often unavailable and/or outdated. Administrative data may also be based on rate paying households, which often excludes lodgers.

Case study approaches usually involve a limited number of locations and/or people chosen to exemplify a particular category or group. Participants can be found through field visits to urban farming plots or identified through their membership of farmers' groups, or women's groups involved in urban agriculture. An in-depth understanding of farming activities, contribution to livelihoods, their constraints and aspirations can be developed through detailed individual household interviews. This can be complemented by focus group discussions.

Focus groups are based on the assumption that purposively selected participants will interact in a way that elicits qualitative information on a predetermined problem or issue. They are designed to expose and explore issues rather than find single quantitative solutions. Focus groups require tools such as visualisation, photographs, or other PRA tools (such as seasonal calendars, matrix ranking and time-lines) to stimulate and focus interaction. Time and resources, selection of participants and design of techniques to promote interaction are all critical, and experienced facilitators are needed. This approach usually generates a wealth of detailed information of a quantitative and qualitative nature in a relatively short period. However, there is the problem of the extent to which it is representative of and can be scaled-up for a larger population. It is often criticised as being too anecdotal.

Another alternative is to conduct a questionnaire survey of all households in a particular neighbourhood, collecting base-line data such as household composition, size, and main sources of income. This baseline information can be used to select households for a follow-up study as outlined above, based on criteria such as involvement in agriculture, access to land, gender, age and socio-economic status. Questionnaire surveys are useful where it is important to understand the quantitative dimensions of the population as a whole, but are often more resource intensive.

A compromise between the case study approach and an inclusive questionnaire survey is to select households randomly along a transect walk (Meadows, 2000; Martin, Oudwater and Meadows, 2000). In discussion with 1 to 3 key informants, the team agrees on a route to walk through a particular urban neighbourhood, covering a diverse cross-section of the area. Attention needs to be paid to the criteria for route selection, including historical, socio-cultural, economic and physical factors (centre versus periphery, soil and hydrological conditions etc.) The team should decide on the sampling intervals, i.e. every tenth or fifteenth house depending on size of selected area, housing density and required number of respondents. The method allows exploration of the variable role played by urban agriculture in people's livelihoods. Again, this information could be used to select households for more detailed follow-up study, for example comparing those currently farming with those who aspire to farm, using a mix of detailed semi-structured household interviews and focus group sessions.

6. Poverty and Dynamics

Rapid change is characteristic of many urban environments hence there is a need for practical methodologies to capture trends and dynamics influencing urban and peri urban agriculture, at different scale levels (intra household, group/neighbourhood, city). It is important to link agricultural change with wider urban livelihoods issues and the underlying dynamics in term of changing land tenure and emerging land markets, rural-urban linkages, migration patterns, local perceptions, the national economy, urban development policies, environmental issues and the historical, institutional and political context (Torres-Lima et al, 2001). Mbiba (2001a) highlights the importance of understanding the context and diversity of local dynamics, especially concerning land, governance and institutional action to resolve associated conflicts.

Urban locations often have the advantage of accessibility, but access to individuals is complex because people engage in multiple activities in different locations and many combinations exist among household members. To understand the wider dynamic and institutional context, it is important to explore what changes people have perceived in relation to their livelihoods and to urban agriculture, how they have responded and what are their perceptions and aspirations. Visualisation using photographs can be helpful in exploring local perceptions of urban development

(Antweiler, 2000). However, it is important that the selection of photographs should be done carefully to avoid biases and to balance the different types of images presented. The technique is useful in a package of other qualitative and quantitative methods.

An important characteristic of poverty is its dynamism; poor individuals and communities are not necessarily permanently poor and it is important to distinguish between chronic and transient poverty (Rakodi, 1998). People may move in and out of poverty as a result of wider shocks and stresses, seasonality (in urban areas, health, food prices and vulnerability to flooding, or time of school fees), cyclical factors, i.e. monthly wage payments, life cycle factors, both intra and inter-generational.

Box 2 - Suggested methods for exploring dynamics are:

- Interviews at different times a year (pre and after harvest), (Gabel 2001)
- Interviews and data collection over a longer period of time (i.e. 5-10 years) (Moustier, 2001) at macro and micro scale.
- Focus group discussions using PRA tools such as time lines and trends with an emphasis on changes in access to and use of natural resources, employment opportunities, population and housing conditions.
- Individual interviews exploring perceived changes and perceptions of the future with regard to livelihood strategies, opportunities, constraints and aspirations
- Changes in the spatial distribution of urban agriculture relative to other land uses and actual coverage can be estimated through mapping of urban spaces using aerial photographs and GIS
- Use of case studies to explore dynamics and responses to some of the identified changes in earlier sessions, i.e. coping strategies of people who have lost their land to urban development
- Personal life histories showing changes and critical decision making paths (Slater, Gabel).

There are different motivations for urban farming, described by Nugent (2000) as a 'mixed strategy of risk minimisation and food supplementation'. The extent to which it is important for the poorest, needs to be empirically established. Studies which have explored characteristics of urban poverty indicate that it is associated with multiple characteristics, for example concerning diet and frequency of eating, higher unit prices for food, little meat consumed, non essentials dropped, lack of income (O'Reilly '95).

Participatory poverty assessments (PPA) are a very useful tool to explore local perceptions of poverty and deprivation. They help to identify the poor and different social groups from a local perspective, as well as the constraints experienced by the poor in pursuing particular livelihood strategies and accessing public and private services. The changes they perceive can be assessed (see also Norton, 2001, Nunan et al., 2001). Ideally, several focus group discussions should be organised to compare these perceptions according to gender (men/women) and age (young/old), whether there are differences and/or similarities and how these can be explained. Religious, caste and cultural differences should be taken into account as ascribed statuses can limit livelihood strategies.

Analysis of social networks can assist understanding of vulnerability and people's ability to mobilise support. Social networks and other informal institutions are the channels through which the urban poor access information, and social and economic support. Mbiba (2001a) criticises a narrow focus on the poor which risks missing out

on the interlinkages that exist between poor groups and upper income groups. He suggests that middle class and elites should be seen as social capital at disposal of communities. The challenge is to investigate networks that link the various actors in a given locality and to link entrepreneurship and economic growth to equity. Methods for exploring informal institutions are particularly relevant.

Methodologies for exploring gender relations and urban agriculture are discussed in detail in surprisingly little of the literature (Slater). Hovorka (1998) argues that gender analysis is most effective if it is an integral part of the entire research process and incorporated as a key analytical tool. Gabel (2001), found that gender analysis helped in exploring the practical and strategic gender needs of women involved in urban cultivation in Harare. Informal and qualitative methods are useful in understanding women's survival strategies, perceptions and constraints. A study conducted with CARE in Lusaka used interviews with women in a range of locations, with key informants and women's groups and projects, as well as direct observation through walks (O'Reilly and Gordon, 1995). Discussions explored factors influencing decisions on time allocation and the constraints limiting choices. In these cases, urban agriculture is understood as part of wider livelihood strategies and the focus is on understanding the range of constraints and the linkages between them.

7. Methods for analysis of sustainability

One of the claims made about urban agriculture is that it adds to the "sustainability" of urban areas. The Habitat Agenda signed at the UN City Summit in Istanbul 1996, states that "Human settlements shall be planned, developed and improved in a manner that takes full account of sustainable development principles and all their components as set out in Agenda 21. The agenda suggests that "Science and technology have a crucial role in shaping sustainable human settlements and sustaining the ecosystem they depend upon". Methods have been developed in many disciplines to assess the "sustainability" of an activity or enterprise. Common elements are to examine the impacts over a relevant time period of the activity and to consider the linked interactions of social, economic, and environmental phenomena (Nugent 2001).

In terms of environmental sustainability the focus of many research projects has been on natural resource use (land use) and waste / waste water utilisation. In many cases the research focus is on technological issues. Methodologies used to understand these aspects consist usually of standard methods which are not UA specific and which usually produce quantitative data. However, there are also examples of less conventional ways of analysing waste management issues. IDRC sponsors a waste management project in three agro-ecological zones in West Africa to develop recycling strategies to close the rural-urban nutrient cycle as well as preserving the quality of the urban environment by reducing the waste accumulation.

Box 3 Multidisciplinary situation and stakeholder analysis (MSSA) to address waste management.

The sources, amounts and quality of organic waste **supply** within the rural-urban zone available for composting, were explored using secondary data, questionnaire surveys and laboratory analysis. The amount of food that enters/leaves the city and that is consumed or processed was estimated and market and household surveys were used to quantify and qualify the contribution of intra-urban, peri-urban and rural agriculture to urban food security. An estimation of **demand** included characterisation of potential clients, including socio-cultural aspects, economics of production, attitudes and perceptions and clients' ability and willingness to pay. Tools included structured questionnaires, individual interviews and focus group discussions, matrix ranking and contingent valuation. A further area of investigation was the process of **waste collection and composting**, determining the optimal number, capacity, and location and economic feasibility of compost stations. Visits were made to compost plants and composting options were field-tested. Household surveys explored perceptions of waste separation and incentives. Surveys of food purchases and consumption complemented market surveys. **Legal, institutional and communal factors** affecting the set-up of compost stations were explored, including public awareness and the orientation of authorities and interest groups towards organic waste recycling. Methods included review of policies and plans, interview of key persons, questionnaires on perceptions and problems of different stakeholders and open interviews with municipal authorities, interest groups and private investors. Focus group discussions were held with community leaders and members on environmental issues, waste management, and community-based organic waste recycling scenarios. Outcomes were provision of decision support for municipal authorities on realistic options for organic waste recycling in their city-context. (Drechsel et al 2001)

The discussion of sustainability relates closely to efforts to estimate the trends and economic benefits arising from UA. Although the relevance of indirect indicators is often acknowledged, the inclusion of intangible benefits as perceived by the respondents in the total economic value of urban agriculture is less frequently included (Perez-Vazquez et al, 2000a and b, Martin et al, 2000, Slater 2001). Intangible benefits such as leisure, social linkages, improved nutrition, a sense of well-being, and greening of open spaces etc, can even be more substantial than the purely economic benefits, especially in small subsistence farming (Meadows, 2000).

Box 4 – Valuation of UA

Two methods of economic analysis in UA are useful to provide robust information for the sustainability discussion. These not only address trends in production costs or wages, but examine non-market, social and environmental aspects as well. The two methods discussed, cost-benefit analysis and contingent valuation, differ in significant ways in their informational needs, other resource requirements, and ways in which the results may be used. Contingent valuation is based on questions about willingness to pay, both for benefits from urban agriculture, and to avoid risks or loss. It attempts a monetary assessment of non-market benefits. An alternative is the decision analysis method, which defines stakeholders' preferences among alternatives and then places them along a common scale. This method elicits hypothetical willingness to pay but gives insights into how and why communities select between alternatives. A range of preliminary work is needed to improve communities' capacity to undertake economic analysis of UA for better decision-making. (Nugent 2001)

Most studies focus on the positive economic and intangible benefits of urban agriculture, and only mention briefly any negative associations of urban agriculture as perceived by policy makers. To develop an objective economic evaluation of urban agriculture, negative costs should be included as well (Bowyer-Bowyer and Tengbeh, 1997, Nugent, 2001). Negative costs could include:

- Increased risk of health (i.e. malaria, waterborne diseases, uptake of heavy metals through consumption of i.e. leafy vegetables, aqua-culture fish)
- Environmental degradation, i.e. pollution of watershed through use of pesticides and fertilisers, soil and water erosion especially through stream bank cultivation
- Availability of land for housing, public green leisure parks and/or business development

8. Food Security

Urban agriculture makes a direct and indirect contribution to urban food supply. Data on indirect contribution to urban food supply can be collected through household surveys asking the respondents to estimate the proportion of the home consumption that is covered by home cultivation (Moustier, 2001). A comparison of weekly expenditure on vegetables, meat, fish and eggs among farming and non-farming households also indicates indirectly the value of urban agriculture at the household level (Martin et al, 2000).

Studies measuring impact of urban agriculture on food security tend to support the hypothesis that urban agriculture improves the food security of vulnerable households (Armar-Klemesu 2000). However, relatively few studies attempt to measure the link with nutrition. Participatory approaches complement formal nutrition surveys by offering an understanding into the complexities of issues, interactions and behaviour affecting food security and nutrition at community level (Pederson, 2001).

9. Policy and institutions

Institutional analysis in urban agriculture is complex as urban issues are rarely the basis for inter-sectoral institutional collaboration and institutions rarely look across the rural/urban interface. Different institutional stakeholders - national government, local government, different departments and ministries have different responsibilities with regard to urban development, town planning, social welfare and economic development. Multi-disciplinary approaches to urban agricultural analysis are often difficult to implement despite the increasingly recognised need for multidisciplinary approaches to the planning and implementation of solutions (UA Magazine March 2001).

Institutional analysis is important in order to understand interrelationships and decision making processes, in particular, the role of NGOs and representatives of local communities in decision-making fora. Yet if the benefits of participatory methods are to be realised, it is important that the understanding so gained, is used to influence wider policies and programmes designed and implemented by these institutions (Marshall and Te Lintelo, 2001). Both formal and informal channels can be used.

Participatory methods are associated more with researching the poor than with elites and policy makers.

Box 5 – Working with policy makers – Zimbabwe

Focus group discussions were held with development professionals, government officers and planners in order to share research findings with policy makers, and collect policy opinions to inform the next stage of research. This was in a prevailing climate of negative public attitudes toward urban agriculture. Photographs, previously published in national newspapers, and selected to cover a range of issues, were used in a workshop context to stimulate discussion among policy makers and town planners concerning actions to manage urban agriculture. Researchers played a neutral facilitating, posing a range of questions in relation to the photographs, exploring interpretations and encouraging critical reflection. It was agreed that future participants in the policy debate should include politicians, community representatives and health and environment officials. (Mbiba, 2001b)

Tools to encourage participation in town planning and urban development have recently included participatory applications of Geographical Information Systems (GIS) to facilitate stakeholder communication to develop a consensus on land use planning policies (Quan et al, 2001).

10. Conclusions and further issues

Some of the main lessons learned from this review are that;

- Conceptual clarity is important in guiding selection of location, methodology and analysis
- The active and coordinated participation of all stakeholders is needed to facilitate improvements for vulnerable groups
- Multidisciplinary teams require accessible methods to foster the participation of urban agricultural producers. Standard tools of participatory enquiry need adaptation for urban use.
- Documentation of the selection, combination and sequencing of complementary methods is very useful.
- The use of a combination of complementary methodologies, both quantitative and qualitative, is effective and helps in triangulation of information
- Time is needed to build trust for participatory enquiry and action research. This is common to most participatory action but can be problematic in highly diverse urban areas with an unstable population and limited information networks.
- Reflective learning and critical assessment of methodology and research practice can help in adjusting to the challenges posed by unpredictable and possibly conflictual urban contexts.
- There should be consideration and discussion of the trade-offs between slow community empowerment and participation and goal-oriented influence on powerful stakeholders to expedite change.

Areas for further research are:

- Effective approaches to overcome barriers to participation by the very poor
- Methods and tools for analysis of urban networks and rural /urban linkages.
- Further case studies of the decision analysis method of measuring non-monetary benefits of UA
- Further tools for understanding the policy environment and institutions affecting UA and encouraging multi-sectoral approaches.

REFERENCES

- Adam, M.G. (1999) Definitions and Boundaries of the Peri-urban interface – patterns in the patchwork. Paper presented at IBSRAM International Workshop on Urban and Peri Urban Agriculture, Accra, August 1999.
- Antweiler, C. (2000), *Urban Knowledge for a citizen science, experiences with data collection in eastern Indonesia*, presented at the ASA 2000 Conference 'Participating in Development', 2-5 April 2000, London, UK.
- Armar-Klemesu, Margaret (2000), Urban Agriculture and food security, nutrition and health, in: Bakker et al, Eds. *Growing Cities, Growing Food, Urban Agriculture on the Policy Agenda*, p. 99-117.
- Bowyer-Bowyer, T. and Tengbeh, G. (1997), Environmental implications of (illegal) urban agriculture in Harare: a preliminary report of field research in Harare (1994/5), in: *Geographic Journal of Zimbabwe, A special issue on Urban Agriculture*, 23:53-58, Geographical Association of Zimbabwe, University of Zimbabwe, Zimbabwe.
- Beall, J. and Kanji, N. (1999), *Households, livelihoods and urban poverty*, background paper for ESCOR commissioned research on urban development: urban governance, partnership and poverty, London School of Economics and Political Science, UK
- CARNEY, D. (EDS) (1998), *SUSTAINABLE RURAL LIVELIHOODS, WHAT CONTRIBUTIONS CAN WE MAKE?*, DFID, LONDON, UK
- Drechsel, P., Cofie, O., Vazquez, R. and Danso, G. (2001), *Technology Development for municipal organic waste recycling for urban and peri-urban agriculture: a multidisciplinary situation and stakeholder analysis*, Workshop on Appropriate Methodologies in Urban agriculture Research, Planning, Implementation and Evaluation, 1-7 October 2001, Nairobi, Kenya
- GABEL, G. (2001), *METHODOLOGICAL REFLECTIONS ON USING PARTICIPATORY AND ACTION ORIENTED RESEARCH WITH WOMEN FARMERS IN HARARE*, WORKSHOP ON APPROPRIATE METHODOLOGIES IN URBAN AGRICULTURE RESEARCH, PLANNING, IMPLEMENTATION AND EVALUATION, 1-7 OCTOBER 2001, NAIROBI, KENYA
- Grimble, R. (1998), Stakeholder Methodologies in Natural Resource Management. *Socio-Economic Methodologies Best Practice Guidelines*, Chatham, UK, Natural Resources Institute.
- Hovorka, A. (1998), *Gender resources for Urban Agriculture Research: Methodology, Directory and Annotated Bibliography*, Cities Feeding People Report Series No. 26, International Development Research Centre (IDRC), Canada
- Marshall, F. and Te Lintelo, D. (2001), *A methodology for assessing the social and economic implications of pollution effects on urban and peri-urban agriculture: a case study from India*, T H Huxley School, Imperial College of Science, Technology and Medicine, Ascot, UK
- Martin, A., Oudwater, N. and Meadows, K. (2000), *Urban agriculture and the livelihoods of the poor in Southern Africa, Case studies from Cape Town and Pretoria, South Africa and Harare, Zimbabwe*, paper presented at the International symposium 'Urban Agriculture and Horticulture – the linkage with urban planning, Berlin 7-9 July 2000

- Mbiba, B. (2001a), *The political economy of urban and peri-urban Agriculture in Southern and eastern Africa: Overview, settings and research agenda*, in: Proceedings of the MDP/IDRC Workshop on the political economy of urban and peri-urban agriculture in Eastern and Southern Africa, 28 Feb-2 March 2001, Harare, Zimbabwe
- Mbiba, B. (2001b), *Participatory methodologies for policy development in urban agriculture: visualisation and the Harare experience in the early 1990s*, Workshop on Appropriate Methodologies in Urban agriculture Research, Planning, Implementation and Evaluation, 1-7 October 2001, Nairobi, Kenya.
- Meadows, K (2000), *The Social and Institutional Aspects of Urban Agriculture in the Cape Flats, Western Cape, South Africa*. NRI report. Chatham, UK
- Mitlin, D. and Thompson, J. (1994), *Addressing the gaps or dispelling the myths?: Participatory approaches in low-income urban communities*, in: Special Issue on Participatory Tools and Methods in Urban Areas, RRA notes 21, p.3-12, International Institute for Environment and Development (IIED), UK
- Moustier, P. (2001), *Assessing the socio-economic impact of urban and peri-urban agricultural development*, Workshop on Appropriate Methodologies in Urban agriculture Research, Planning, Implementation and Evaluation, 1-7 October 2001, Nairobi, Kenya
- Norton, A. (2001), A rough guide to PPA's: an introduction to theory and practice, Overseas Development Institute (ODI), UK, also available on <http://nt1.ids.ac.uk/cgi-bin/>
- Norton, A., (1994), Observations on urban applications of PRA methods from Ghana and Zambia: Participatory Poverty Assessments, in: *Special Issue on Participatory Tools and Methods in Urban Areas, RRA notes 21*, p. 55-56, International Institute for Environment and Development (IIED), UK
- Nugent, R (2000), The impact of urban agriculture on the household and local economies, in Bakker et al, Eds. *Growing Cities, Growing Food, Urban Agriculture on the Policy Agenda*, p.67-97.
- Nugent, R. (2001), *Using economic analysis to measure the sustainability of urban and peri-urban agriculture: A comparison of cost-benefit and contingent valuation analyses*, Workshop on Appropriate Methodologies in Urban Agriculture Research, Planning, Implementation and Evaluation, 1-7 October 2001, Nairobi, Kenya
- Nunan, F., Adam, M., Agbenyega, O., Antoh, E.F., M, Boateng, Bonsu, O.P., K., Brook, R., Gyamfi, V.A., Kasanga, K., Longbottom, L., Martin, A., Nkrumah, K.O., Oudwater, N., Smith, D., and Thomas, G. (2001), *Further knowledge of livelihoods affected by urban transition, Kumasi, Ghana*, Final Technical Report, R7854, Natural Resources Systems Programme, DFID, UK.
- O'Reilly, C. and A. Gordon (1995), *Survival strategies of poor women in Urban Africa; The case of Zambia*. NRI Socio-economic series 10, Chatham, UK: Natural Resources Institute.
- Pederson, Robert M. (2001), *Urban Food and Nutrition Security, Participatory approaches for community nutrition*, European Health21 Target 11, WHO Regional office, Copenhagen, Denmark.
- Perez-Vazquez Arturo and Simon Anderson (2000a), *Participatory research in allotments: an evaluation of the methodology*, Imperial College at Wye, University of London, UK
- Perez-Vazquez Arturo, Simon Anderson and Alan W. Rogers (2000b), *Valuing non-market benefits from allotments: a contingent valuation study*, Imperial College at Wye, University of London, UK

- Quan, Julian, Nicolien Oudwater, Judith Pender and Adrienne Martin (2001), *GIS and participatory approaches in natural resources research*, Socio-economic methodologies for natural resources research best practice guidelines, Chatham, UK: Natural Resources Institute.
- Rakodi, C. (1998), *Review of the poverty relevance of the peri-urban interface production system research*, report for the DFID Natural Resources Systems Research Programme, UK
- Sanderson, David, (2000), *Cities, Disasters and Livelihoods*, Care, UK, also published on <http://www.livelihoods.org/cgi-bin/>
- Santandreu, A. (2001), *Rapid Visual Diagnosis applied in Montevideo: A rapid low cost participatory methodology*, Workshop on Appropriate Methodologies in Urban agriculture Research, Planning, Implementation and Evaluation, 1-7 October 2001, Nairobi, Kenya
- Slater R (2001), Understanding Women's involvement in urban agriculture in Cape Town; A social development perspective.
- Torres-Lima, P., Rodríguez-Sánchez. L. and Sánchez-Jerónimo, O. (2001), *Sustainable urban agriculture development in Mexico, a methodological approach*, Workshop on Appropriate Methodologies in Urban agriculture Research, Planning, Implementation and Evaluation, 1-7 October 2001, Nairobi, Kenya
- Urban Agriculture Magazine (2001), vol. 1, no.3., Resource for Urban Agriculture and Forestry (RUAF), the Netherlands

2.2 Methods for monitoring and evaluation and their adaptation to urban agriculture

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Monitoring and Evaluation (M&E) of urban agriculture (UA) is crucial in assessing outcomes of UA related projects or policy interventions, as well as changes in UA itself.

The challenge is how conventional M&E methods and indicators, generally used for rural agriculture, can be adapted to the specific context and dynamics of UA.

1. Introduction

The terms *Monitoring and Evaluation* (M&E) are often used in a broader sense than known from project work. Half of all resource papers reviewed for this topic presented 'M&E experiences' that consisted of surveys and analyses of biophysical, socio-economic or institutional UA issues without specific reference to any project or policy intervention. In these cases 'M&E' helped to describe UA situations and trends, e.g. the growing significance of urban agriculture for urban food security or the level of water pollution over the year. In the strict sense, this kind of 'M&E' would better be classified as *Situation Analysis and Diagnosis*. Nonetheless, this synthesis paper considers the repeated situation analyses of UA as also contributing to project M&E, such as when determining the impact of an external intervention.

The majority of cases presented by the resource papers dealt with one-shot evaluation activities. There were few examples demonstrating how M&E is interwoven into the project cycle, and how the individual M&E activities (e.g. baseline survey, process monitoring, impact evaluation) form a coherent, cumulative process of tracking change. For the purposes of this synthesis paper, M&E is viewed as:

...a set of activities and methods to track change in a given situation or system, and/or to assess project progress and impact. M&E can help us understand whether: (i) anticipated changes have actually occurred and (ii) if these are in fact the result of the intervention under review. Collectively M&E involves gathering information, data analysis, judging and making decisions. To analyse these changes, M&E should built upon an initial situation analysis and is likely to use related key parameter/indicators.

While there is already a well-established general literature on M&E in agricultural research and development (R&D), most of the reported experiences are based on the rural setting. In view of the contrasting characteristics often mentioned between rural and (peri)urban agriculture (Table 1), a distinct form of M&E in the UA context is expected. However, how far have UA projects taken up the challenge of adapting M&E for urban context? And does M&E require different framework/ approach, methods and tools, and/or indicators when applied to UA?

We drew some answers to these questions from the resource papers that shared experiences from Africa (5), Latin America (2) and Asia (3). Also serving as references were others papers that cut across countries/regions and those without specific reference to UA.

Table 1. Comparison of key features between rural and urban agriculture.

| <i>Features</i> | <i>"Rural" situation</i> | <i>"Urban" situation</i> |
|--|--|--|
| Farm type | Conventional, 'textbook'-type | Unconventional, mobile and transient; partly over ground or without soil |
| Farming livelihood | 'Farming' is a primary livelihood, engaged full-time | Farming often a secondary livelihood, engaged on a part-time basis |
| Farmer identity | Usually 'born' farmers | 'Beginners', part-time farmers, in part migrants from rural areas, hobbyists |
| Community profile | Majority of community members engaged in farming | Percent of community members engaged in farming is highly variable |
| Stakeholders' views on importance of agriculture | Generally supportive | Contrasting views |
| Political, social, economic and cultural context | More homogeneous | More heterogeneous |
| Land use | Generally stable for agriculture | Competing land uses (agricultural and non-agricultural) |
| Cropping calendar | Seasonal periods | Year-round growing of crops |
| Security of land tenure | Relatively high | Relatively low |
| Labour costs | Relatively low | Relatively high |
| Access to markets/inputs | Often far from market location | Closer to market location, favourable for perishable cash crops/products |
| Availability of research and extension services | More likely | Less likely |
| Policy support | High priority on policy agenda | Mixed; policies often vague or non-existent |

2. M&E Planning

One source of variation among the resource papers is the range of M&E definitions and procedures suggested. There was consensus though on the need for careful and advanced planning of M&E. In table two, examples of procedures for M&E planning are presented, based on experiences on participatory impact monitoring in Sudan (Plastow and Pantuliano, 2001) and participatory monitoring and evaluation in the Philippines (Campilan, 2001)

Table 2. Steps in M&E planning: two examples

| <i>Sudan Case</i> | <i>Philippines Case</i> |
|--|---|
| <ol style="list-style-type: none"> 1. What should be watched? 2. How can it be watched? 3. Who should watch? 4. How can results be documented? 5. What was observed? 6. Why these results? 7. What action should be taken? 8. How can impact monitoring be improved? | <ol style="list-style-type: none"> 1. What changes need to be monitored and evaluated? 2. What information is needed to know such changes have occurred? 3. Through what data will the indicators be measured? 4. How will these data be collected? 5. When and how often will these data be collected? 6. Who will be responsible for collecting which data? |

Meanwhile, Hovorka (1998) suggested a set of gender M&E guidelines for urban agricultural research projects. The guidelines are presented as questions which should facilitate the assessment how exactly gender analysis has been implemented by the project team during different phases of the project cycle and how effective this has been on enhancing overall project outputs. The list of questions, however, is not UA specific, thus open for modifications and expansion.

3. Participatory M&E

M&E is generally seen as a means to assess project efficiency, effectiveness, relevance and causality. Traditionally, its purpose is to promote accountability and transparency to outsiders. It is expected to yield information about project progress and accomplishments of targets, as illustrated by Table 3 from a homestead gardening project in Bangladesh (Talukder et al, 2001).

Table 3. Status of village nurseries in Bangladesh in 1999 (Talukder et al, 2001)

| <i>Nurseries that</i> | <i>% (n=1200)</i> |
|--|-------------------|
| Grow >10 varieties of vegetables | 40 |
| Produced >6 varieties of seeds in previous 3 months | 24 |
| Keep >6 varieties for seed production | 15 |
| Distributed seeds, seedlings and saplings in previous 3 months | 45 |

These information are often collected to serve the needs of donor agencies, administrative and management entities and/or policy-making bodies. More recently, participatory monitoring and evaluation (PM&E) has emerged as an approach that seek to involve those which contribute to or are affected by the project (e.g. local people, collaborating organizations, program field staff) from planning M&E to using its results.

Being an internally driven process, PM&E is initiated and led by project insiders -- local people, project staff, collaborating groups, other stakeholders -- thus it is also often called *self-assessment*. When done by insiders together with external groups, it takes the form of a *joint or stakeholder M&E*. PM&E experiences reported by the resource papers follow either of these two modes. These were contrasted with the conventional externally driven M&E, which is initiated from the outside and exclusively conducted by those having no direct involvement or interest in the project (Figure 2).

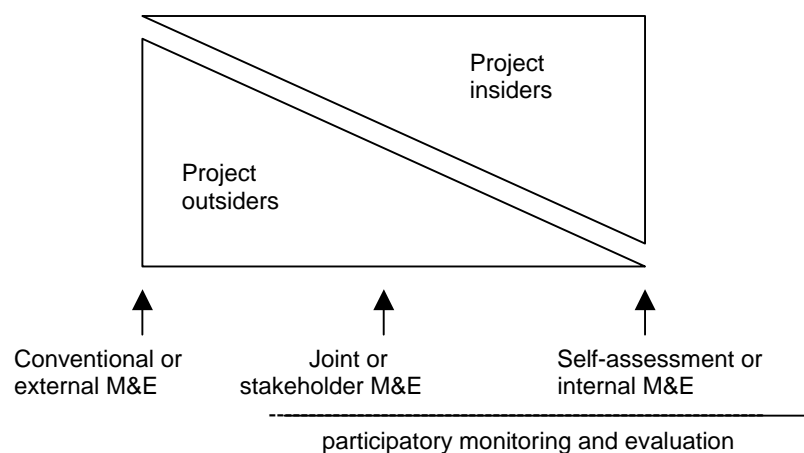


Figure 1. Project insiders as primary participants in PM&E.

PM&E emphasizes methods and tools that are more interactive, exploratory and flexible, e.g. participatory appraisals and ethnographic methods. Serving as examples of conventional and participatory M&E are two types of water quality assessment in peri-urban irrigation in Kumasi, Ghana. Cornish (2001) described how technical experts conduct water sampling and analysis, as compared with another project where school kids use simple test kits to monitor water samples that they collected (McGregor, pers.comm.)

It has been observed though that PM&E has high transaction costs; the emphasis on interactive communication among project stakeholders can make the process more time consuming. Not surprisingly, the most comprehensive examples of PM&E cited in the resource papers are those implemented by projects or institutions with relatively better funding support (e.g. Jacobi and Kiango, 2001; Drechsel et al., 2001).

Meanwhile, it is important to emphasize that PM&E is not meant to be a substitute for the more conventional approach. Rather, it seeks to enhance the overall effectiveness of M&E by capitalizing on the core strengths of the conventional approach while addressing in a more participatory way the interests of the different stakeholders. A home gardening project in the Philippines demonstrates the potential synergy between conventional and participatory M&E approaches (Table 4).

Table 4. Combination of conventional and participatory M&E approaches in a Philippines vegetable home gardens project (adapted from Boncodin and Prain, 1997).

| <i>Evaluation Approaches/Activities</i> | <i>Purpose/Focus</i> |
|--|---|
| A. Conventional M&E | |
| 1. Technical baseline survey on insect population dynamics | Entomological and ecological study to assess insect population dynamics |
| 2. Technical monitoring on home garden biodiversity | Identification of crop species and assessment of mixes of crop species in home gardens |
| 3. Nutritional impact study | Assessment of food consumption patterns and nutritional status of households |
| 4. External project review | Terminal project evaluation |
| B. Participatory M&E | |
| 1. Participatory needs assessment | Needs assessment and problem diagnosis related to home gardens |
| 2. Participatory documentation of local knowledge | Documentation of ethno-botanical knowledge on home garden crops and their management |
| 3. Participatory monitoring/garden mapping | Multi-season monitoring of crops grown in home gardens |
| 4. Participatory technology evaluation | Participatory field trials to evaluate introduced crop species and management practices |
| 5. Self-assessment workshop | Formative mid-project evaluation by project stakeholders |
| 6. Community validation workshop | Analysis and validation of monitoring and evaluation results |

4. Adapting M&E to the UA Context

Generation of feedback from project participants is widely considered to be a key role played by M&E. Feedback is particularly crucial in UA projects as they seek to accommodate the dynamics of agricultural systems in a (peri)urban setting. The multiple aspects of change that is intrinsic to UA affect both the relevance of objectives initially set, and consequently the M&E indicators or methods chosen. This dynamic nature of UA is an additional justification for a more participatory, process sensitive approach (Prain, pers. comm.).

Based on the empirical cases presented, it was generally observed that M&E methods and tools widely used in rural agriculture tend to be sufficiently generic for application in the UA context. Instead of calling for major methodological adaptations, the resource papers stressed practical guidelines to enhance M&E's sensitivity and relevance to UA's socio-political and agro ecological milieu (Table 5).

Table 5. Emerging M&E challenges in UA projects

| <i>UA Features</i> | <i>Suggested Guidelines for M&E</i> |
|---|--|
| Unconventional farming systems | Identify indicators and units of measures for unconventional farming systems in UA, since those used in rural agriculture may be inappropriate or inadequate to Since UA is often mobile/transient, anticipate that it can be a "moving target" for M&E |
| Site proximity and accessibility | Budget project resources more efficiently because proximity and accessibility of UA sites cut travel time and costs |
| High number of stakeholders | The larger number of stakeholders in UA requires exerting more effort to seek them out for their inputs to M&E Examine how stakeholders' competing land use objectives affect achievement of UA goals and targets |
| Environmental costs | The potential trade-offs between economic benefits and environmental costs require that M&E integrates a key environmental dimension in evaluating project impact |
| Multiplicity of agricultural and non-agricultural livelihoods | Factor into the impact analysis the contribution of non-UA livelihoods |
| "Weak" identity of urban farmers | Exploratory phase required to identify UA farming population and/or select sample Motivate farmers to set aside time for participating in M&E Negotiate with farmers regarding incentives for possible opportunity costs of their participation |
| "Urban farmers' often marginalized and unorganised | Capitalize on M&E as processes for empowering and mobilizing urban farmers |
| UA intertwined with broader urban development issues | Anticipate that UA project and M&E could be dragged into conflict situations Cultivate trust and confidence among urban farmers who could be suspicious of any hidden agenda for M&E |
| Complex land tenure arrangements | Anticipate that urban farmers capacity to participate can be constrained by their limited rights over land/resources Seek (in)formal permission or facilitate consensus on the use of a disputed land/resource |
| Limited or non-existent research and extension services | Collaborate with other organizations/agencies (NGOs, universities, lobby groups) that may have indirect interest in UA |
| Policy support | Orient M&E towards collecting adequate "hard" data often required by policymakers/administrators |

For example, a joint UA project by the Kumasi University and IBSRAM has used PM&E methods that are comparable to those in rural agriculture projects. PM&E workshops and farm visits were organized using a variety of PRA methods, including a farmer self-analysis of changes in their knowledge, attitudes, skills and aspirations (KASA) in view of the introduced technology (Drechsel et al., 2001). Similarly in Dar es Salaam, Tanzania, exercises for drawing a ward profile and transect walking allowed participants, especially ward officials, to acknowledge the magnitude of small-scale urban agriculture activities (Jacobi and Kiango, this volume).

On the other hand, PRA tools may be incompatible with the cultural and political environment in certain UA communities. Gabel (2001) reported that in Harare, Zimbabwe, there are limitations to the use of participatory mapping tools for determining the geographic coverage of UA. As in many cases, UA is not a legal activity per se, and farmers felt uncomfortable mapping their fields. This implies that in cities where UA exists at the edge of legality, more formal/structured methods are useful in order to generate quantitative, technical information that are more familiar and acceptable to urban government leaders and policymakers. Among these could be the use of GIS to map green urban spaces and large-scale surveys to determine UA contribution to urban food demand.

5. M&E Indicators

Indicators are key parameters to show and measure changes. The resource papers however cautioned against the use of standardized indicators from rural agriculture, without first examining their appropriateness for UA.

Firstly, the selection of M&E indicators for UA can be daunting since agricultural activities are closely interwoven with the complex system of livelihood and food security strategies of urban households. An output indicator, for example, such as 'increased backyard production of food' cannot be assumed to automatically improve household food security or better diet; households may sell the food products and use the cash income for other purposes.

Similarly, a food consumption survey may not reflect urban reality if it ignores food supply from street kitchens and vendors, at least for the highly mobile working sector of the urban population.

Secondly, 'conventional' units of measures for rural farming systems may not be valid for the more 'unconventional' systems of UA (see Table 1). For example, measuring UA coverage in terms of hectareage will exclude a significant part of UA done in containers, rooftops and hydroponics systems. Another example is the 'per capita' unit. In some cases it might be more appropriate to refer to the urban 'night' population, in contrast to the 'day' population that includes people of working age who commute in and out of the city on a daily basis.

Thirdly, formulation of M&E indicators suffers from definitional and boundary-setting problems that plague UA in general. *Fundamentally different approaches to determining the size of especially the peri-urban area remain, although a related framework of different methods has been tested (Adam, 2001).* As long as these approaches are not homogenised, it becomes difficult to compare M&E data between different project cities.

Nonetheless, those seeking appropriate M&E indicators for UA can make use of existing technical indices/levels for various aspects of UA. For example, the widely accepted *Safe Minimum Standards* can be used as M&E indicators for water, soil, food, air quality. With the potential trade-offs in UA between economic benefits and environmental costs, a cost-benefit framework, which integrates farm economics with an economic environmental impact assessment, is essential (Moukoko-Ndoubé, 2001). If intangible values are of concern, contingent valuation methods and indicators (such as willingness-to-pay) will be more appropriate (Nugent, 2001).

Some resources are now available for those seeking guidance and support on M&E indicators for UA. To facilitate the identification of appropriate indicators and to allow harmonization of assessments, international indicator databases have been established, such as UNDP's Global Urban Indicators Database (www.urbanobservatory.org). The database was established for monitoring the implementation of the Habitat Agenda, allowing a more systematic appraisal of urban problems (e.g. pollution indicators), developments (e.g. land prices), and impacts of policies. For its part, UMP-LAC is seeking to integrate UA in the Urban Indicators Programme. In Lima, Peru a generic set of UA indicators is being pilot-tested to evaluate external interventions (Dasso, 2001). Such set of indicators however require flexibility as UA project objectives can vary significantly between different cities and countries.

6. Conclusions

We agree with Nugent (2000) who, in analysing UA case studies from different countries, found that they are extremely variable in their sampling methods, scope and presentation of data. The same can be said about the M&E resource papers being reviewed. One reason for the diversity might be that the complexity of the UA attracts researchers from a far larger range of disciplines than for rural agriculture.

We do also agree with Perez Vasquez and Anderson (this volume), that most UA studies are descriptive and base on surveys. This is especially common in M&E papers using a more conventional M&E approach. In fact, the case studies available show that there appears to be limited need for new M&E frameworks or procedures for the UA context. On the other hand, there is much evidence that the urban situation requires more thoughtful, dynamic and participatory approaches especially when R&D interventions are going to interest or affect different stakeholder groups. The challenge is then to explore how known M&E tools and M&E indicators can be best adapted to the specific UA context and will deliver the data and information needed for the various stakeholders interested in the assessment. A significantly high level of sensitivity appears necessary.

Box 1. Open questions and challenges to be addressed in a future UA E-conference.

- ◆ We are looking for more case studies of conventional and participatory M&E approaches.
- ◆ We are especially interested in examples emphasizing the adaptation of M&E frameworks, methods, tools, or indicators to the specific context and dynamic UA.
- ◆ In particular we are interested in indicators used for intangible impacts of UA, such as women empowerment and capacity development.

7. References

- Adam, M. 2001. Definition and boundaries of the peri-urban interface - Patterns in the patchwork. In: Drechsel, P. and D. Kunze (eds.) Waste Composting for Urban and Peri-urban Agriculture - Closing the rural-urban nutrient cycle in sub-Saharan Africa. IWMI/FAO/CABI: Wallingford.
- Aminuzzaman Talukder, Saskia de Pee, Abu Taher, Andrew Hall, Regina Moench-Pfanner, Martin W. Bloem. 2001. Improving food and nutrition security through homestead gardening in rural, urban and peri-urban areas in Bangladesh (resource paper)
- Batac, J. 2001. Performance Measurement within the Municipal Solid Waste/Urban Agriculture Continuum in the Philippines: A Practical Local Governance Methodology. (resource paper)
- Boncodin, R. and G. Prain. 1997. The dynamics of biodiversity conservation by home gardeners in Bukidnon, southern Philippines. In: Local R&D: Institutionalising Innovations in Root crop Agriculture. Los Banos: CIP-UPWARD. 26-38.
- Campilan, D. 2000. *Participatory evaluation of participatory research*. Paper presented at the Forum on Evaluation of International Cooperation Projects: Centering on Development of Human Resources in the Field of Agriculture, Nagoya, Japan, 6-7 December.
- Campilan, D. 2001. Participatory Monitoring & Evaluation and its adaptation to urban and peri-urban agriculture (resource paper)
- Cornish, G.A.: 2001. Assessing water quality and health implications in informal peri-urban irrigation. Case studies from Nairobi and Kumasi (resource paper)
- Dasso, J.A. 2001. Methodology for Analysing Interventions in Urban Agriculture in Latin America (resource paper)
- De Guzman, C. 2001. Sampaguita garland making in San Pedro, Laguna: livelihood systems assessment of a peri-urban agro-enterprise. Project terminal report. Los Banos: CIP-UPWARD and SIUPA., Laguna, Philippines.
- Drechsel, P. L., Gyiele and S. Asante-Mensah. 2001. Assessing human capacity building and the potential of technology adoption via KASA analysis (resource paper)
- Garrett, J.L. and J. Downen 2001. Rapid assessments in urban areas: lessons from Bangladesh and Tanzania. IFPRI FCND discussion paper no 107. Washington, April 2001
- GTZ 1998. Impact Monitoring – Approaches and Indicators. Eschborn, Germany
- Hovorka, A.J. 1998. Gender resources for urban agricultural research: methodology, directory & annotated bibliography. CFP series 26, page 32-33
- Jacobi, P. and Kiango, S. 2001. Weaving the net... - M&E tools used in Support of Urban Agriculture in Tanzania (resource paper)
- Moukoko-Ndoubé, F. 2001. Accounting for UA Real Economic Performance and Environmental Impact at Farm Level: Methods - Analytical approach - Pilot applications (general)
- Moustier, P. 2001. Assessing the socio-economic Impact of Urban and Peri-Urban Agricultural Development (resource paper)
- Nugent, R. 2000. The impact of urban agriculture on the household and local economies. In: "Growing cities, Growing food"; urban agriculture on the policy agenda (Bakker N, Dubbeling M, Guendel S, Sabel-Koschella U. and de Zeeuw H eds.). Food and Agriculture Development Centre (ZEL). Pp 67-97
- Nugent, R. 2001. Using economic analysis to measure sustainability of urban and peri-urban

agriculture: A comparison of cost-benefit and contingent valuation analyses. (resource paper)

Perez Vazquez A. and S. Anderson. 2001. A Methodological Review of Research into Urban Agriculture (resource paper)

Plastow J. and S. Pantuliano 2001. Participatory Impact Monitoring (PIM) (resource paper)

Spiaggi, E.; Biasatti, R.; Guillén, M. 2001. Urban Agriculture and local sustainable development: evaluation and monitoring tools (resource paper)

Talukder, A., S. de Pee, A. Taher, A. Hall, R. Moench-Pfanner and M. W. Bloem. 2001. Improving food and nutrition security through homestead gardening in rural, urban and peri-urban areas in Bangladesh (resource paper)

2.3 A facilitating framework for policy and planning in urban agriculture

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1. A facilitating framework for planning and policies on urban agriculture

Urban Agriculture (UA) is not a new phenomenon in the present-day cities of the world, and is more and more being considered an integrated part of urban management (as a strategy for poverty alleviation, income and employment generation and environmental management). However, only in few cases UA has been integrated into policy making and planning.

While prohibitive UA policies are bound to be ineffective, several constraints and risks are clearly associated with non-regulated UA (for ex, environmental pollution); also conflict, corruption and competition for scarce resources do exclude from legal UA those who stand to benefit most of it (the urban poor). A facilitating policy and planning framework (including legislation, normative and financial aspects, and institutionalisation of processes) can catalyse promotion and support UA development in the context of sustainable development (de Zeeuw H., S. Gundel S. and H. Waibel, 2000; UMP-LAC et al., 2001).

More specifically, the LAC City Working Group on Urban Agriculture and Food Security, bringing together 40 municipalities from Latin America and the Caribbean, expressed the need to perceive UA as an urban activity and recognise, incorporate and regulate it under specific municipal policies and programmes. They urge “local governments to become strongly committed with the development of UA, mobilising existing local resources, institutionalising UA and procuring its extension at national level; and to allocate municipal budget items to the execution of UA practices”. They affirm the need for “inclusion of UA within territorial planning processes as an element for the multiple-use of land and environmental protection and the development of credit and financial policies and instruments for UA, with special emphasis on the most vulnerable producers, to supplement technical assistance programs” (Quito Declaration, April 2000).

Three municipal case studies, illustrating local experiences with the development of such a facilitating framework, will be described below, after which general conclusions and remaining questions –based on an analysis of these cases- will be drawn. These cases are: Cuenca, Ecuador, Santiago de los Caballeros, Dominican Republic and Dar Es Salaam, Tanzania each with a very different political and institutional context and applying a different entry point.

2. Local economic development and investment for UA: the case of Cuenca, Ecuador³

2.1. Background

The electoral process of 2000 consolidated a political project at municipal level, which was aimed at participatory citizenship and economic development. Between September 2000 and August 2001, the city of Cuenca –Ecuador (350.000 inhabitants), developed under co-ordination of the Urban Management Programme, the “Strategic Investment Plan for Local Development in Cuenca”, as part of a City Alliance programme. The Strategic Investment Plan (SIP) sought to “generate a participatory process that would identify, formulate and implement one or various strategic programmes and projects for local economic development, and that would require the re-orientation, investment and combination of available local (public, private and community) or external national, regional and international funding mechanisms”.

Since 1998 an urban agriculture program on municipal level has been implemented, it has strong traditional practices mainly horticulture, orchards and forestry.

2.2. Step-by-step

The SIP was implemented in 5 phases:

a) *Initial Agreement (Sept. 2000)*

During this first phase, a formal agreement between the Municipality of Cuenca, ACUDIR and UMP-LAC, for implementation of the SIP was signed. The agreement specified the objectives of the SIP and defined four specific areas for economic development to be worked upon (promotion of the formal economy; strengthening of the informal sector, environmental management and the municipality as motor for economic development; with gender equity and citizens participation as transversal themes).

b) *Methodological design (October 2000)*

During this phase, various meetings were held among the working team members to commonly design the methodology to be used for implementation and systematisation of the SIP. Through discussions with ACUDIR and the Municipality, actors involved in each of the development areas were identified, guidelines were developed for interviewing each of them to get to know their present activities and proposals for further local economic development, and formats for project development elaborated.

c) *“Field-work” (October 2000)*

The actual “field-work” undertaken included the recollection of basic information on the development areas identified, through field-visits, review of literature, interviews with local actors and meetings with institutions, local authorities, universities, private enterprises, NGO’s and community based organisations. These activities allowed for understanding of present development in Cuenca, for identification of existing initiatives and experiences to be build upon and for a first identification of specific

³ Based on a paper by Andrea Carrion (UMP-LAC, Ecuador), titled “El Plan Estratégico de Inversiones: una estrategia para la planificación y la formulación de políticas. Lectura a partir del proceso desarrollado en Cuenca – Ecuador”, Cuenca, 2001.

projects to support local economic development and of available capacities and expertise for project implementation.

d) Project elaboration (November 2000- June 2001)

The fourth phase comprised the elaboration of 15 specific project proposals for each of the thematic areas for economic development defined, comprising 7 investment projects, and 8 municipal policy proposals and instruments.

e) Feed-back (July-August 2001)

The fifth phase comprised the formal presentation for the projects to the Cuenca authorities, the local partner institute ACUDIR, the Provincial Council, the organised private sector and community representatives. The SIP will be used as input into the Cuenca Strategic Local Development Plan that is being developed.

2.3. Actors involved

- Municipality
- Urban Farmers
- Public-Private Platform for Local Development
- NGOs, women groups, Universities
- International Agencies: UMP-LAC

2.4. Results

- Multi-sectoral UA Working Group established
- Municipal Action Plan on UA approved
- Institutionalisation of the Programme comprising finance allocation
Institutionalisation of the Programme comprising finance allocation.

In total 15 projects for local economic development were elaborated and articulated with municipal strategies and intervention instruments. Among them 2 projects related to UA: (1) Promotion of commercial urban agriculture (technical assistance, a commercialisation programme for 40 enterprises and set up of credit fund) and (2) Employment generation through environmental services (set up of micro-enterprises for waste collection and recycling). The projects will be financed by setting aside part of the municipal own funds (for 2001, 70,000 US\$ have been set aside to support the UA project), by the actors involved and through external financing.

2.5. Lessons learned

The interaction of various local actors in a collective effort to define and plan strategic investment for local development requires careful managing of conflicts of interests. The role of private enterprises in this process, being local agents for investment, is very important, but should be managed on the basis of their real involvement and interest in the “common good” and is not based on defending their (economic) interests.

3. Territorial planning processes: the case of Santiago de los Caballeros (Dominican Republic)⁴

3.1. Background

The last two municipal administrations have accepted the strategic planning process of the municipality as a participatory exercise. They have established a strategic management unit that has channelled important international support. Priority oriented towards poverty reduction programs.

Spontaneous urban agriculture activities exist in Santiago, these were detected and documented in a study realised in 1999, with the help of soil maps made by using GIS.

3.2. Step-by-step

a) *General Discussion and Planning Workshops*

A first workshop was held with the various municipal departments involved (Parks and Gardens, Public Works, Urban Planning, the Juridical Department, Community Development and Public Relations). A second workshop was held with 10 neighbourhood groups and other civil society actors. In both workshops regional experiences with UA were shared, existing projects in Santiago discussed and strategies for UA development identified while clarifying the role that each actor could play in this development, the latter being defined through questions and answers (What should be the principal working areas for a UA programme? What results are expected? What role could each of you play?).

b) *Follow-up meetings*

With representatives of the municipal departments and civil society institutions interested, follow-up meetings were arranged to more precisely define their role in the UA programme, and identify their available human and financial resources for support to such a programme. During those meetings the Parks and Gardens Department was selected to co-ordinate the UA programme and a technical support team was formed. Under this General Co-ordination a work-plan for both the short term (6 months) and the longer term were developed, that specified objectives and activities to be undertaken.

c) *Formal approval of Action Plan.*

The Municipality formally accepted the action plans developed in a meeting of the municipal council. It functions as co-ordination and facilitator of the UA programme and will also execute directly various projects under its departments, in close collaboration with the community and under specific co-operation agreements with other organisations and institutes.

d) *Implementation of activities*

According to the work-plan, the activities, basically following the logic of a territorial planning process, were developed, while at the same time the facilitating normative framework that their development required, were elaborated:

- Mapping of all cities green, agricultural and non-built up land areas, making use of satellite images, aerial photos, land maps and visual observations (transects),

⁴ Based on a paper by Maria Caridad Cruz (FUNAT, Cuba) titled "La planificación participativa en la agricultura urbana: experiencias de trabajo –el caso de Santiago de los Caballeros". See also Urban Agriculture Magazine No 4.

and classification of the areas according to their location and tenancy (public or private lands) (Urban Planning Department).

- Several of these areas were selected to function as demonstration sites, where information and training events were held.
- The Juridical Department developed proposals for legal use of public land areas for UA. A legal resolution that allowed the Municipality to rent private lands and hand them over to the community for UA use under certain co-operation agreements was also elaborated. Agreements with private institutes defining use of their lands for UA (hospital, airport) were made.
- Areas for agricultural and ecological preservation were defined and specific management plans elaborated (for river and road areas) by the Urban Planning and Parks and Gardens Department.
- The Planning Department also identified areas where organic waste material (markets, households, restaurants, and parks) was generated that could serve for the production of compost. A collection systems and composting scheme was set up and a various compost plant were established in the municipal nursery as well as in home-gardens. Training and resources were provided to the population by the Parks and Gardens Department).

3.3. Actors involved

- Municipality (various departments)
- Neighbourhood groups involved in Urban Agriculture
- NGOs, Universities
- International Agencies: FAO and Habitat

3.4. Results

- Action Plan defined and formally approved
- UA recognised as urban land use and specific regulations and norms developed.
- Pilot projects set up (for example demonstration gardens)
- Waste collection and recycling scheme set up and functioning
- The Parks and Garden Municipal City Department was designed as co-ordination institution
- A proposal to create a municipal department for food security is under discussion.

3.5. Lessons learned

To implement a Municipal Urban Agriculture Programme, a municipality has to consider and optimise use - by means of motivation, organisation and institutional collaboration - of locally available human and material resources. Also a proper financial basis has to be assured from the start, as this makes it possible to involve institutions and communities in collective activities and activities without a direct economic return like training and promotion.

Despite the acknowledgement that UA received and the development of specific regulations by the municipality, these have not yet been integrated widely in several city instruments like the territorial development plan, the housing plan and the economic development plan.

4. Environmental planning and management: the case of Dar Es Salaam-Tanzania⁵

4.1. Background

The city of Dar Es Salaam (3.000.000 inhabitants) reoriented classic master planning process to a more participatory approach in the city's planning exercises. A City Consultation on Environmental Planning and Management (1992) was held with international support and implemented it under the umbrella of the Sustainable Dar Es Salaam project (SDP).

Over the last decades, Dar es Salaam has seen a growth in the agricultural activities, some in areas with a high environmental risk. General legislation was directed primary to limiting these activities in the urban areas.

4.2. Step-by-step

In order to achieve its long and short-term objectives, the EPM adopted a four-stage approach.

e) *Preparation of City Environmental Profile (1992)*

As a first step of the EPM process, the SDP prepared the city environmental profile (1992), which highlights the city geographical, climatic and social-economic setting, environmental problems, the natural resource base to support city development and the urban management arrangements that influence city growth and development.

f) *General City Consultation (1992)*

Secondly, the city's most pressing environmental issues were prioritised by public, private and popular sector representatives during the "City Consultation. A rapid assessment of the environment issues was conducted, key actors were drawn in, political commitment achieved and 9 key environmental issues to be worked upon identified and prioritised. One of them being "the management of open spaces, recreational areas, hazard lands, green belts and urban agriculture potential".

g) *Mini-consultations and UA Working Group (1993-1997)*

As a third step, a series of mini-consultations on each of the 9 issues identified were held, in order to prioritise the most important problems, agree on strategies and actions and formulate, mobilise and launch cross-sectoral and multi-institutional working groups to prepare detailed spatial, financial and institutional actions plans for each strategy. As a result of the mini-consultation an UA Working group was formed, which worked out strategies to prepare strategies and action plans on the development and management of UA in relation to recreational areas, open spaces, hazardous areas and greenbelts.

During the period 1993-1997, the working group applied the following EPM steps:

- Clarifying issues to be addressed;
- Involving those whose co-operation is required;
- Setting priorities;
- Negotiating management strategies;

⁵ Based on the summarised contribution of Asteria Mlambo (Sustainable Dar es Salaam Project, Dar es Salaam City Council) titled "Institutionalising urban agriculture in Dar es Salaam City through the EPM process". See also Urban Agriculture Magazine No 4.

- Agreeing on environmental issue-oriented (that cut across the concerns of various actors) and actor-specific (that cut across various issues) action plans;
- Initiating and implementing demonstration projects in collaboration with respective institutions;
- Monitoring and evaluating progress and making periodic adjustments and
- Provided input to the Strategic Urban Development Plan.

h) Preparation of a strategic urban development plan for Dar es Salaam

The plan combines and integrates the action plans and strategies developed by each of the thematic working groups and providing the co-ordinating mechanism to replicate successful demonstration projects throughout the city.

4.3. Actors involved

- City Council
- Village governments
- Urban Farmers and CBO's
- NGOs, other social groups
- Various National Government ministries

4.4. Results

- Inclusion of UA into the Strategic Urban Development Plan
- Multi-Sectoral UA Working Group established
- City Action Plan on UA approved and the City Council defined as co-ordinating institution
- Proposals for revising municipal by-laws and regulations (some of them approved)

Overall, the EPM process contributed to sustainable development of the city region by:

- Strengthening the local capacity of partners to jointly plan, co-ordinate and manage environmental and development activities;
- Preparing a long-term strategic and integrated investment and urban development plan through policy formulation and implementation.

The approach piloted in the city of Dar Es Salaam has been widely accepted by the Ministry for Land Development. The present challenge is to replicate the EPM process in all the nine municipalities and assure its integration at national policy level.

4.5. Lessons learned

In the past, public participation in policy formulation and implementation was low. The EPM process has shown that communities are capable entities in developing their own priorities, working out solutions and arranging for implementation. Strategies that relate project support to priorities developed by the communities themselves stand better chances to succeed.

Effective adaptation of the EPM process calls for new institutional relationships and compatible political and social norms.

The EPM process in Dar es Salaam has demonstrated that, starting from a perspective of environmental management, UA can effectively be integrated into urban (land use) planning. However monitoring and evaluation are essential elements to monitor and minimise negative impacts (for ex. environmental pollution) and inform decision-making.

5. Analysis of the case studies: drawing conceptual and Methodological lessons

The cases present us various methodological aspects to be considered when developing a facilitating policy and planning framework.

5.1. Planning and policy on urban agriculture require multi-thematic, multi-level and multi-actor approaches.

The initial entry point varies between each city, but in general there is a bond with strategies on poverty reduction. In Cuenca the thematic entry point for the UA program concerned local economic development with a pro-poor emphasis as part of a City Development Strategy. In Santiago, food security oriented to poverty reduction guided the programme, while in Dar es Salaam, environmental sustainability and poverty reduction as part of City Planning Process oriented the development of an UA programme. In the 3 cases, the existence of traditional practises and the spontaneous urban agriculture are important. The municipal programs have served to provide visibility and generate awareness on the need to incorporate these from the planning stage of the city.

The case studies show, that although the entry point for policy development and intervention, might have been restricted to one development concept (investment versus environmental management or territorial planning), all processes ended up dealing with various concepts, like urban land use management, urban food security systems, urban survival strategies (income and employment generation), urban environmental management (a/o. waste recycling and green spaces) and participatory governance (community development and involvement). They show us that UA interacts with multiple facets of and has the potential to diversify and strengthen strategies for sustainable municipal development.

In all cases there is an ample spectre of local actors involved and the municipalities always play an important role as facilitators. Only the Dar es Salaam project is starting to have an influence on national level policies, even though these can greatly influence municipal policies.

To assure participation and involvement of these various actors, who not necessarily share common goals and visions, municipal policy and planning interventions should be linked with specific development objectives for different urban groups, to which UA is expected to make a significant contribution, and be based on participatory and multi-stakeholder diagnosis and planning processes.

5.2.A common methodological set-up for development of a facilitating policy and planning framework

All above described experiences, although separately developed, followed a similar logic and methodological process. In general, in each process five distinct phases can be defined:

Phase 1: Awareness raising and lobbying

Phase 2: Diagnosis and stakeholder commitment

Phase 3: Strategy formulation and action planning

Phase 4: Implementation

Phase 5: Follow-up and consolidation, institutionalisation and anchoring

Below, each phase will be illustrated and discussed.

a) Awareness raising and lobbying

In all cases, an ample composition of the multi-actor bodies has been a key factor for the diffusion and generation of awareness amongst the institutions and communities.

A critical condition for improved urban governance and participatory development, is local ownership and commitment that requires consensus building and consultations involving the full range of actors involved. Whilst the initial focus will be on key or lead stakeholders, ultimately all relevant stakeholders should be involved in the process needed for strategy formulation and implementation, including:

- Those who are affected by, or affect, a priority issue
- Those who possess information, resources and expertise
- Those who control implementation instruments

A major challenge during this phase is to find ways and means to identify and involve vulnerable and marginal groups, especially those representing the poor and women, to be truly inclusive. That leads us to the question: Who do we want to address? How to address them? Who are the urban poor and socially vulnerable groups (women, migrants, elderly, indigenous people)? What specific interventions are needed to reach them?

None of the experiences describes how the different involved stakeholders are identified, why they were selected to participate and apparently neither identifies or addresses specific needs and problems, and operative solutions for the different stakeholder groups (the community or civil society is considered as a more or less homogeneous group). As such no detailed reflection is made related to the specific target groups of the programmes, and perhaps because of that reason no specific emphasis is (or seems to be) given to either social inclusion or gender analysis nor do they sufficiently clarify the role of specific actors, like for example the private sector (*see also article Martin*).

The motivation and or dissemination strategies together with the implementation of demonstration projects have an important function in the up scaling of the citizen and institutional awareness.

In Cuenca, the UA working group, consisting of 28 institutions, amongst which NGO's communal organisations and municipal management, has been the engine of the initiative, promoting the opening of spaces in the municipal management and legislation.

In Santiago lobbying was supported by international expert (updating the classification and identification of available land using maps and GIS). Agricultural use of the available land has been stimulated through a communication strategy (workshops, seminars, journal articles, and radio and television appearances), and demonstrative projects in selected areas of the city, which were implemented with the support of different actors.

In Dar es Salaam, the EPM process adopted advocates dialogues and participatory city planning. The Inter-Sectoral Working Group was formed to work out strategies for putting urban agriculture on the city agenda. Differences in opinion were managed in a participatory way. Demonstrative projects were set up in selected areas.

b) Diagnosis and stakeholder commitment

Next in the participatory development of a facilitating framework is the Diagnosis and Stakeholder Commitment phase. This phase has three main stages:

- Participatory diagnosis
- Building collaboration and forging consensus
- Formalising commitments on the way forward

Elaborating issues is usually done through the process of developing base-line studies or proposition papers (Santiago, Dar Es Salaam- environmental profile) field visits and interviews (Cuenca, Dar Es Salaam) to get a better idea of the present state of the thematic area under study within the local socio-economic, cultural and political-institutional context, its present impacts on urban management, the actors involved, their roles, needs and visions. These papers or interviews are carefully structured and highly focussed, specifically to highlight issues, show how they are manifested and perceived, and set the stage for reflection and debate.

With participation of various actors involved (local government, civil society, community), through discussion meetings (Santiago, Cuenca) or consultations and stakeholder working groups workshops (Dar Es Salaam) key issues identified are debated, a consensus on issues to be addressed reached and institutional arrangements to implement actions are agreed upon. Relationships among various actors are thus established or strengthened (additional actors might be mobilised and involved) and general elements and commitments for further action programming and co-ordination defined and formalised through inter-actor agreements.

c) Strategy formulation and action planning

In this phase the actors involved further identify, review and expand upon those issues to be agreed of priority concern, evaluate various options and elaborate approaches and activities by means of multi-actor platforms (Cuenca) or working groups (Dar Es Salaam, Santiago). This process can be aided by further spatial, economic and social analysis.

Conflicting interests are to be resolved and through negotiation lead to agreement to pool resources for the co-ordinated implementation of strategies and activities, and define responsibilities and time-lines. This is often the most difficult stage in the process.

The results of the first phase lead to an Action Plan formulated by consensus of the local actors involved. The general aim is not only to identify operative solutions to local needs and problems, but also the strengthening of the capacities of local actors. The Plans are operational tools designed by local actors, identifying local or (inter) national resources for its implementation and social and political support is thought for so as to allow their implementation and validation within the system of municipal management.

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Concerted definition and adoption of action strategies Formal adoption of Action Plan by local authorities (signing of agreements) is found in all 3 cases.

d) Implementation

The Action Plan represents the turning point between a process of diagnosis of problems and definition of strategies to solve those problems and a process of programming and implementation of activities to take forward those proposals. The implementation can take different forms and can include:

- Implementation of specific pilot projects (Santiago and Dar Es Salaam)
- Elaboration and adoption of a facilitating normative and legal framework/municipal policies (Santiago and Dar Es Salaam)
- Setting up new models of financial management and allocation of funds (Cuenca)
- Formation of new institutional devices that facilitate participation (Santiago, Dar Es Salaam)

Pilot or demonstration projects are usually small-scale, local oriented capital investment or technical assistance projects, which are designed to demonstrate a new approach. Being small, they can be implemented rapidly, assure early on visible results and thus strengthen social and political commitment and participation.

e) Follow-up and consolidation, institutionalisation and anchoring

Monitoring and evaluation are essential elements to provide a flow of systematic information feedback during which allows for appropriate adjustments to be made continuously during implementation and inform decision-making. This also allows the lessons of experience, especially the demonstration projects, to be captured and synthesised, which gives a firmer basis for replicating the process and a larger and wider scale. Monitoring should address institutional, managerial and technical issues, this leads to a focus on how to build participatory processes and implementation. The experiences implement participatory monitoring through:

- the multi-actor or working groups (Santiago, Dar Es Salaam)
- in specific workshops or focal groups (Cuenca).

However none of the experiences describe in detail the monitoring and evaluation framework used, neither do they define specific techniques, criteria or indicators used (*see also article Campilan and Dreschel*)

Institutionalisation and anchoring are the long-term processes of changing ways in which things are done, of building in new issues and participatory processes into procedures, norms and ideas of local stakeholders and institutions until it becomes routine. In all cases UA was officially acknowledged and this recognition expressed in institutional plans and commitments. The founding of inter-actor or inter-institutional working groups has been of fundamental importance. Santiago and Dar es Salaam have advanced more in the legislative and regulative aspects.

Considering the risks and limitations of “project cycle and exit strategies”, long-term support is necessary through which the various actors can act on the identified issues within the constantly changing local economic and political contexts. Inclusion of the processes and its results into the normative, legal and operational instruments of the cities: Strategic Plans, Zoning Plans, District Development Plans, etc, would give them a much more permanent and firmer basis and supports as well integration of UA into other environmental, economic, social and health programmes. However, this requires, on its turn, the development of methodological tools to facilitate this integration and inclusion. Facilitating frameworks should thus combine policy proposals, action strategies and provide local governments and other urban actors with practical tools for their implementation.

Up scaling and replication capitalises and builds on what has been done to extend it to a more widely and bigger scale. With the exception of Dar es Salaam, where they are starting with taking steps for the national projection, the up scaling is mainly in a horizontal level within each city. In Cuenca and Santiago de los Caballeros up scaling is considered in enlarging the number of farmers and micro-enterprises in the city and its surroundings. In Dar es Salaam , up scaling is also vertically oriented: the ongoing process to prepare other Strategic Urban Development Plans in nine municipalities with the EPM approach provides evidence of its integration at national policy level. This is a process that requires favourable political conditions in the relevant national bodies (ministries etc.) In all 3 cases, inter-institutional co-ordination problems and the availability of resources emerge as the most important conditions for up scaling.

6. References

- Caridad Cruz, M. , 2001. La planificación participativa en la agricultura urbana: experiencias de trabajo –el caso de Santiago de los Caballeros. (workshop contribution)
- Carrion A., 2001, El Plan Estratégico de Inversiones: una estrategia para la planificación y la formulación de políticas. Lectura a partir del proceso desarrollado en Cuenca – Ecuador. (workshop contribution)
- De Zeeuw H., S. Gundel S. and H. Waibel, 2000. The integration of agriculture in urban policies. In: Growing Cities Growing Food, urban agriculture on the policy agenda (ed. Bakker et al, 2000).DSE, Germany
- Mlambo A., 2001. Institutionalising urban agriculture in Dar es Salaam City through the EPM process. (workshop contribution)
- Urban Agriculture Magazine, 2001. Issues No. 4. ETC-RUAF. Leusden, The Netherlands
- UMP-LAC, IDRC, IPES, FAO and Municipality of Quito 2001. Urban agriculture in the cities of the 21st Century- innovative approaches by local governments from Latin America and the Caribbean. Urban Management Programme, Quito-Ecuador
- United Nations Centre for Human Settlements (HABITAT), 2001. Tools to support participatory urban decision-making, Nairobi-Kenya.
- Patiño F., 2001, Cosechando Democracia en las Ciudades con la Agricultura Urbana; Lineamientos metodológicos para el impulso de procesos consultivos locales en agricultura urbana (workshop contribution).
- Quito Declaration on Urban Agriculture, April 2000

2.4 Technical tools for urban land use planning

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In spite of ongoing research on urban agriculture, in most of the world's cities, little is known about the actual extent of urban agriculture in inner city areas. Also, little is known about the spatial distribution of urban agriculture in the cities.

Many questions arise: Where do urban agricultural activities concentrate and why, who is involved, what kinds of crops are grown and by which groups of city dwellers, what is the contribution of the product to nutrition and food security, which kinds of soils are occupied, how is water availability and quality, what is the distance to markets?

An important and so far in many countries unsolved problem are appropriate methodologies to integrate agricultural activities in cities into urban planning processes.

1. Basic principles of and tools for urban planning

The most commonly used planning tools include master plans, strategic plans and structure plans (Dowall & Giles 1997). Different zoning measures are part of those plans. Experience has shown that **general and master plans** tend to be static, prescriptive or assume slow-growing cities. They also tend to ignore how households and the commercial sector alter their demand for land as prices change (VAN DEN BERG 2000).

A more appropriate and dynamic planning tool for developing countries is structure planning. It provides a broad framework for local decision-making and it involves public participation. Being more indicative than master plans, it requires projections of future demands and needs of the community such as housing, infrastructure, employment, transport, local markets etc., but also environmental aspects like waste management.

Land zoning dictates to the landowner the purposes he or she can use the land for and what can be built on that land. Zoning regulates the use of land in areas for residential, commercial, industrial, agricultural or other land use (DOWALL & GILES 1997). Zoning is a means to control urban sprawl, population density, traffic, and other urban problems. Land in Asian cities is frequently used for other or mixed purposes such as residential and commercial use. Especially with regard to the clustered type of development --whereby working sites and residential areas are planned to be together mixed zoning has to be applied. In many developing countries the spontaneous squatter settlements at the city periphery are mixed zoning models, where housing, small-scale industries **and** agriculture are located in proximity to each other.

Site and Service Schemes provide the target group with a plot and basic infrastructure like water, roads, and sanitary facilities. Upgrading of squatter settlements provides an opportunity to build on existing structures, already partly developed, and does not interfere with well-established communities and social structures.

Land sharing is based on an agreement between the landowner (private or state) and the land occupants to develop the land according to their specific interest. Land sharing is a means to increase land tenure security and land value and can be considered as a specific form of leasehold (DOWALL & GILES 1997).

1.1. No land for urban agriculture?

No question – in many countries open space for agriculture is limited and gets more and more limited through accelerating urbanisation. But on the other hand there is huge, by law unused potential for this activity in many cities of the world. Railway strips, power lines, seasonally inundated areas, riverbanks, road strips and others partially unproductive areas could be used for agriculture if done in a proper, environmentally sound way. Meantime power lines are non-housing areas in most countries and are often used as illegal dumping sites similar to riverbanks – and nobody cares about. Community gardens can prevent such areas from pollution as examples from Tanzania prove. GIS is an excellent mean to map those potential productive areas – taking into consideration environment, quality of resources, access to resources by the poor and other relevant planning factors.

To avoid land speculation however the status of agricultural land in cities better remains public land with long term leasehold contracts – in order to avoid selling of land when land prices rise. Efficient protection of inner city open spaces is required.

1.2. Land markets and poverty alleviation

Land tenure and land security rather than the availability of land—are the key to affecting poverty, as pointed out above. Nevertheless there are big regional differences regarding the space available in cities, the prices of land and land tenure regulations. The key question is how to bring the poor into the formal land market (FERNANDES & VARLEY 1998). The past approaches of poverty alleviation did not aim to increase the flexibility of the poor but rather led to dependence on government and non-government organisations (DOWALL & GILES 1997). Urban planners tackle this question in the context of housing schemes rather than agricultural land use. We learn from this example that sometimes we need to take valuable existing thinking and strategies as a starting point and try to incorporate agricultural land use in those. Site-and-services schemes and squatter settlement upgrading are common measures taken by councils to provide or improve housing for the poor.

2. The use of GIS as a tool for land use planning

The use of Remote Sensing (RS) for mapping and monitoring intra-urban and peri-urban green spaces facilitates the mapping process but needs to be combined with truth ground data evaluation. Geographical Information Systems (GIS) have been widely used for urban planning purposes for decades but open spaces management was hardly ever included.

Some limited experience with the application of GIS to urban food production activities has occurred e.g. from Santiago de los Caballeros (Dominican Republic), Hubli-Dharwad (India), Kumasi (Ghana) and Dar es Salaam (Tanzania) (DEL ROSARIO et al. 1999; BROOK & DAVELA 2000; DONGUS 2000). GIS are used for urban planning and open space mapping but also for monitoring loss of agricultural land within city boundaries or measuring urban greening indicators (IDBAMERICA 1998; FAZAL 2000, AMERICAN FORESTS 2000). GIS will allow planners to monitor changing urban food production trends more easily as cities continue to undergo rapid changes (DONGUS & DRESCHER 2000).

Nevertheless, institutional difficulties in planning become apparent through the use of RS. Efficient planning requires the linkage of different data on space,

infrastructure, markets, nutrition, health, soils, water, waste, socio-economy, agriculture etc. that operate under the responsibilities of different, un-linked departments. Furthermore, the technical equipment (data, computers, plotters, computer networks) and know-how in the use of RS is often missing. Another interesting open question in this context is if the use of RS can increase participation in the planning process (NEDOVIC 1999).

2.1 Some areas where GIS can be used as a tool

Situation Analysis

GIS is an ideal tool to visualise the spatial distribution of urban agriculture in the cities, as well as changes in the space it occupies. With the help of aerial photographs, even using series from different years, land use changes can be documented and analysed.

Situation analysis may also include a resource inventory of water, soils, vegetation, services, micro enterprises, institutions, and other relevant data. This activity can be done on different levels:

Independently through government organisations, private planning companies, NGO's or other institutions or in close co-operation with the local communities, or both in combination.

The co-operation with local communities requires tools for community research, one of those being action research. Action research can be used in situation analysis to draw community maps using the capability of local communities to visualise their situation. Examples here for are:

- Actual land use and land use conflicts
- Quality of soils and water and sources of pollution
- Access to resources (space, water, markets, inputs etc.)

Land tenure and land use arrangements is critical with respect to sustainability. The preservation of urban land for farming activities is seen to be of public interest and importance for sustainable urban development and requires to be needs oriented. Community participation in the design of master or structure plans is essential.

Needs and Vision Analysis

Needs analysis requires the participation of the local communities and is a further step in community based mapping. Here a vision is developed together with the communities on how they expect the future to be – where do they want to produce their crops and animals, what minimum areas do they need to produce, how would they like to have their situation improved, how can access to water and soils be improved, which conflicts need to be solved and what role plays spatial planning for the future to avoid conflicts. Needs analysis also may also include the stock taking of community demands for space for agricultural production, including demographic factors influencing development (birth rates, population growth, influence of AIDS and HIV etc.).

2.2 How to integrate community mapping into formal planning processes

Community mapping allows an analysis of demands and constraints of local communities to be considered in the planning process and combined with the capabilities (financial or/and administrative) and intentions of local governments. All these often different positions, opinions and intentions can enter into a GIS database, which can be used as an analytical tool to find “all winner” solutions to satisfy demands from different origin.

Community maps are not “scientific” maps at all, but contain valuable information on the local situation, often overseen by local governments because of lack of information. The information provided by the communities needs to be “translated” into GIS usable data to enable conflict management, zoning, spatial planning and sustainable community development.

Participatory urban planning is a new, most complex and difficult process. Many stakeholders have to be involved. Experience from many cities in Europe shows the difficulties of this process, now embedded in the Local Agenda 21. Communities often organise themselves when they face a common threat or need. As soon as the threat is over the community organisation falls apart (DOWALL & GILES 1997).

Nevertheless community organisation, capacity building, and access to finance remain key issues in participation.

Participation requires extensive information and communication, as well as consultation and moderation. There is a need to develop platforms for all stakeholders, which should, at least initially, be of an informal nature. GIS can contribute to more participatory approaches in urban planning when used appropriately.

2.3 Problems arising with the use of GIS in urban land use planning

GIS is a tool. The integration of this tool into planning processes requires policy decisions and an infrastructure that allows different stakeholders in the planning process access to the data. This is in most cases not given.

In many countries GIS is already used as a planning tool but often based in universities and research institutes without access and connection to policy makers and planning divisions.

Urbanisation is sometimes such a dynamic process that a continuous data update is required. Especially in the peri-urban sector uncontrolled land use changes are frequent.

A still open question is how GIS can be made a participatory tool for land use planning. The traditional way of using GIS is rather centralised, which means that one institution takes the leading part in planning with little or no participation of other units. GIS does not automatically facilitate the dialogue with the decision makers but needs to be used in innovative ways. One pre-requisite to enable participatory planning is community building.

3. References

American Forests Web Page: CITYgreen Software

http://www.americanforests.org/garden/trees_cities_sprawl/citygreen/index.html

Del Rosario, P. J. , Y. Cornelio, L.Y. Polanco, A. Russell, H. López & P. Escarramán (1999). Manejo de Residuos Sólidos y Agricultura Urbana en La Ciudad de Santiago de los Caballeros. CEUR, Santiago.

Dongus, S. & A.W. Drescher (2000). La aplicación de Sistemas de Información Geográficos (GIS) y Sistemas de Posición Global/Global Positioning Systems (SPG/GPS) para trazar un mapa de actividades agrícolas urbanas y el espacio abierto en ciudades. Presentation to the Workshop "La Agricultura Urbana en las Ciudades del Siglo XXI", Quito, Ecuador, 16 - 21 April 2000.

Dongus, S. (2000). Vegetable Production on Open Spaces in Dar es Salaam – Spatial Changes from 1992 to 1999. Urban Vegetable Promotion Project, Dar es Salaam, Tanzania.

Dowall, David & Clark Giles (1997). *Urban Land Policies for the Uninitiated. Economic and Social commission for Asia and the Pacific.* http://www.unescap.org/huset/land_policies/

Dowall, David & Clark Giles (1996). A framework for reforming urban land policies in developing countries. Urban Management Programme Discussion Paper no. 7, The World Bank, Washington DC, 53 p.

Fazal, Shahab (2000). Urban expansion and loss of agricultural land: a GIS-based study of Saharanpur, India. In: Environment and Urbanization Vol. 12 No. 2 London and Buenos Aires p. 133-150

Fernandes, Edésio & Ann Varley (Eds) (1998). *Illegal cities: law and urban change in developing countries.* Institute of Commonwealth Studies, University of London, UK. Plymbridge Distributors, Estover, Plymouth PL6 7PZ, UK: 256 p.

Idbamerica ONLINE (1998). Who owns this lot?. In: *Idbamerica* (September-October 1998) p. 13.

Nedovic, Zorica (1999). Urban and regional planning - Scope and description of the application challenge. Urban and Regional Information Systems Association. http://www.ucgis.org/apps_white/urban.html

UN (1996). An assessment of urban environmental problems and policies in selected ECA member states. Ninth Session of the Conference of African Planners, Statisticians, and Population and Information Specialists Addis Ababa, Ethiopia 11-16 March 1996. United Nations Population Division

van den Berg, Leo (2000). Peri-urban agriculture and urban planning. Paper for the CGIAR SIUPA Action Plan Development Workshop South East Asia Pilot Site, Hanoi, 6-9 June 2000, ALTERRA Wageningen.

2.5 Appropriate methods for technology development in urban agriculture

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1. Introduction

The urban agricultural production system is characterised by a variety of agricultural micro-enterprises (apart from a minority of industrial producers around cities), the performance of which is not only limited by bio-climatic, land and socio-economic restrictions but also by important technical restrictions (Fall et Fall., 2001).

Although urban farmers are quite dynamic and innovative and have a vast scope for technical improvement, the rate of development and diffusion of technologies to these systems is still limited (USAID, 1989; Fall and Fall, 2001, FAO, 1995).

This low level of technology development in urban farming systems, adaptation of agricultural production technologies to the specific conditions of the urban context, and the low level of acceptance by the urban farmers, is a/o due to the following factors:

- The bias towards rural agriculture in the agricultural research and extension institutions and the limited attention given to agriculture by most urban authorities, until recently
- The lack of technologies well adapted to the urban production conditions (adapted varieties, technologies for space confined production, technologies for safe use of urban wastes and waste water, a/o)
- Lack of attention for the innovations made by the urban farmers themselves
- Lack of participation of the urban farmers in the identification of the priorities for technology development and in the testing and evaluation of new or adapted technologies

This poses multiple questions concerning the approach and methodologies applied in urban agricultural research and extension. This article will seek to answer these questions by exploring the methods and procedures that may be applied with success in urban agriculture.

2. Urban agriculture compared to rural agriculture

Urban farmers and urban farming conditions differ from those in rural areas, which has important consequences for the research and extension methodologies for urban agriculture.

The urban farming population is more heterogeneous in social, economic and cultural background. In rural communities, farmers conform a large part of the community, they know each other and exchange of information and technologies is continuously taking place. In the urban setting farmers may live in neighbourhoods where most of the people are involved in other economic activities, their agricultural plots may be far apart from their houses, and they may know few other farmers, or these may come from another socio-cultural background which hinders communication and co-operation.

In the rural setting farmers have developed a whole body of traditional technical knowledge over time. Part of the urban farmers may be farmer by origin, but others are farmer by need or choice and may lack such traditional technical knowledge. But also the knowledge of the original farmer may have limited value in the city: soil and water conditions are different, other crops should be grown, and other constraints and opportunities have to be dealt with.

Contrary to rural farmers, urban farming households are most often combining farming with multiple other economic activities, but may have a much better insight in the urban market and the food demands of urban citizens than their rural colleagues.

A farm in the rural area normally involves various components that mutually reinforce each other. In the city farmers may be just concentrate on one component (e.g. production of fodder) and leave the other components to other households (e.g. raising animals) .

Other important differences with rural areas that have to be taken into account when developing agricultural technologies in the urban context include:

- * High pressure from competing land uses and high insecurity of land tenure.
- * Space for agriculture is limited, leading to a high need for space saving technologies and intensification of production.
- * In many cases, the urban environment is already contaminated (air, soil and water pollution by cars, industry and households wastes) and waste management remains a serious problem. Use of agrochemicals in agriculture may easily affect urban drinking water or the neighbouring households. Certain diseases may be propagated by agriculture if not properly managed. In urban areas -due to the closeness to large numbers of people- such effects are more damaging than in the rural areas. Environmental and health concerns require serious consideration when developing appropriate technologies for urban agriculture.
- * Marketing opportunities are stronger than in rural regions. There is a demand for a great amount of good quality, fresh and transformed products. Direct access of producers to consumers is possible. There is high demand for low cost food processing technologies
- * Labour cost is higher as compared to rural areas

3. Identification of Technology Needs

The identification of the need for specific technologies is the first step in the research-development chain. This involves characterisation of the production systems and farming households present in the selected area in order to arrive at a reliable diagnostic of the problems and their ranking, and further to identify the technology to be developed, jointly with the urban farmers. Also other stakeholders at various levels of the production, distribution, transformation and consumption chain should be included in this analysis (Drechsel, 2001).

The study of the location implies physical and socio-economical characterisation of the target area. Special attention should be given to the analysis of the direct stakeholders: number, ethnic group and social behaviour. This analysis need to be participatory and ending with a consensual characterization of the various social groups involved, especially concerning their skills, preferences and technology needs (Quansah, 2001). A whole variety of participatory and other rapid appraisal methods and instruments can be applied in the situation analysis, like focus groups interviews, community resources mapping, seasonal calendar, problem trees, Venn diagram and

ranking (see also the synthesis by Martin et al. on Methods for Situation analysis). Adaptations of these methods to the specific urban setting are needed

The participation of the direct stakeholders in the process of situation analysis is an important condition for identification of priority technology needs and the criteria that should be taken into account during technology development and testing in urban agriculture. But one should also take into account the limitations of participation: for the farmers transaction costs of participation may be high, reliability of the information gathered in participatory processes should be guaranteed by triangulation (combining various sources and methods), intensive participation may generate expectations that are beyond the resources or mandate of the researchers, etc. Furthermore, the complexity of information levels after consulting stakeholders, usually of different social origin can be high and thus a stratification is recommended.

Special attention needs the direct and active participation of sensitive groups. The leadership of men often prevents young people and women from expressing themselves, which can lead to biases in the information gathered regarding the functioning of the farm households and their technology needs.

4. Technology development

The objective of technological development, after identifying the technology needs or registering the demands, is to develop schedules and/or procedures that allow the improvement of production. Related but equally important questions in urban and peri-urban sites such as the protection of the environment also allow considering elements other than simple production performance criteria.

Research in research facilities

Tests and laboratory work may be needed during the first phase of the technology development process, in order to get a good grasp of the technological basis, especially when the technology is still in a basic stage with high uncertainties on performance, resource requirements and risks involved. But this work must be focused on the identified priority need identified, and take into account the characteristics of the main stakeholders and farming systems and the agreed criteria to monitor and evaluate performance of the technology.

Maintenance of communication with the direct stakeholders during this stage is recommended to enhance transparency and ensure successful participation in later stages of testing and diffusion of the technology

Participatory technology development

Participatory methods for development, adaptation or evaluation of technologies have gained wide acceptance since they offer a number of advantages over station research. The technologies are tested and adapted in the conditions where they have to be applied, which often differ widely from the conditions in the research station. By doing so the chances to adapt the technology to the local conditions and farmer preferences are enhanced substantially. Especially in the urban environment this is of crucial importance since most agricultural researchers are not very well acquainted with the urban farming conditions and the preferences of urban farmers.

The farmer involvement enables to make use of farmers' knowledge of local conditions, and their creativity and problem solving capacity. Due to the adaptation to the local farming conditions and the evaluation criteria of the direct stakeholders, the resulting technologies will be more easily adopted by the local farmers.

Researchers, urban farmers and other stakeholders should closely co-operate in the design, implementation and evaluation of local experiments, going through a number of steps or stages

The identification of urban farmers willing and able to participate in the local experimentation is a first and crucial step. The project « Senegal food system SAFIETOU, do you have reference?» identified producers that are characterised by their flexibility and openness to innovation, patience and discipline (crucial for the successful implementation of the experiments)..REFERENCE?

The Participatory Technology Development project in Peru and Bolivia asked local farmers to identify the farmers that are well known for having innovative ideas and trying them out on their own farm (Trying out PTD with NGOs in Peru and Bolivia, DeZeeuw, 2001). Other criteria used were:

- Their knowledge of and interest in the crop, animal or cultural practices the new technology relates to
- Their capacity and willingness to share their knowledge with others.
- Their representativity for the various social strata and farming systems in the area
- Equal participation of male and female experimenters.

After identifying the farmer-experimenters, the points of view of researchers and farmers are brought together concerning the objectives and expected outcomes of the experiments, the design of the experimental plan, the selection of the site(s), the establishment and management of the experiments, as well as its monitoring, registration and evaluation.

Technicians will make suggestions on the criteria to be used to choose the experimental sites and take a leading role in the design of the experimental plan. However, the producers will make decisive contributions as they know their surroundings and will have to be able to manage and evaluate the experiment as their own.

The experimental plan should be simple. It is not a matter of transferring protocols from facilities or experimental models from laboratories to the field. Rather, it implies translating biological or socio-economic indicators into more accessible terms. The monitoring and evaluation of these experiments must involve all partners, especially the users. The establishment of follow-up calendars will aid in planning this activity. The organization of follow-up teams that include representatives of partners, researchers, extensionists and producers seems effective to exchange and harmonize their views on the development of the experiment and the results obtained.

The dissemination of results deserves special attention. The farmer experimenters may also act as farmer-extensionists during and after the realisation of the experiments and the organisation of field days on the experimental plots. Networking with other local organizations appears to be a useful tool to secure appropriate follow up of the experimentation in an extension program (Cardinale et al., 2001 ; Fall, 2001).

During the whole experimental process emphasis should be given to strengthening the experimenters group, to enhance their experimental capacities and their direct linkages with research institutes, NGO's and other sources of technical information and to assure small funds for the local experiments, in order to ensure continuation of the experimentation and technological innovation process after the researchers have left (Niang, 2001; Diop and de Jong, 2000).

There is a quickly growing repertoire of approaches, steps, techniques in Participatory Technology Development (see for instance: CIAL approach developed by Ashby (Ashby and Sperling, 1998, PTD-approach by ETC (van Veldhuizen et al. 1997), Farmer to Farmer approach (Campesina a Campesina,), the Farmer Field School approach (Gallager et al; Van der Fliert and Braun, 2001). Some of the experiences with such approaches and methods will be included in other articles in this magazine.

5. Conclusions

A large number of conventional and participatory methods and instruments exist that are developed for use in rural areas. However, their adaptation to the urban context is in the early stage, and the challenges indicated in the initial sections of this article still largely remain.

It has been observed during the recent workshop in Nairobi on Appropriate Methodologies for Urban Agriculture, that agricultural researchers who enter the urban sphere tend to become more conventional in their choice of methods (e.g. survey type of methods for the situation analysis, classic experimental designs and researcher controlled experiments, etcetera) to gain recognition and to reduce their feelings of insecurity in this new field.

Such tendency should be reversed and conscious attempts are needed to carefully adapt existing methods and instruments -and create complementary ones- in order to make these methods and instruments more appropriate and effective for use in urban agriculture.

Most urgently needed are concerted efforts of national governments, research institutes and universities in cooperation with NGO's, extension organisations and Municipal Departments, to set up projects oriented at facilitating technology development and diffusion in urban agriculture. Within such programmes room should be created for the careful design of the (preferably participatory) methodology and the documentation and evaluation of the experiences gained with the application of such methods.

6. References

- USAID, 1989. Inventaire des technologies basées sur la gestion des ressources naturelles et utilisées dans la production des céréales. Rapport de consultation 186p.
- Cardinale E., Porphyre V., Bastianelli D., 2001. Promotion de méthodes saines de production animale : exemple de l'aviculture périurbaine autour de Dakar. Nairobi, octobre 2001 11p.
- De Zeeuw H., 2000. Trying out PTD with NGOS in Peru and Bolivia. ETC Ecoculture, The Netherlands, 12p.
- Diop J ; M., De Jong M., editors 2001. Participatory Technology Development. ETC Ecoculture, The Netherlands 30p.
- Drechsel P., Cofie O., Vazquez R. and Danso G., 2001. Technology development for municipal organic waste recycling for urban and peri-urban agriculture - a holistic approach. Nairobi octobre 2001 11p.
- Fall S. T. et Fall A. S., 2001. Cités horticoles en sursis: l'agriculture urbaine dans les grandes Niayes au Sénégal. CRDI ISBN 0-88936-936-4. 139p.
- FAO, 1999. Technology assessment and transfert towards sustainable development, food security and poverty alleviation in sub-saharan Africa. FAO, regional office for Africa, Ghana; juin 1999. 447p.
- Niang S., 2001. Maîtrise des risques dans la réutilisation des eaux usées en agriculture urbaine. Nairobi, octobre 2001 12p.
- Ouedraogo C. L., Yaméogo-Bougouma V., Kondombo S. R., Nianogo A. J., 2001. Méthodologie de recherche sur la production animale en zone urbaine et périurbaine : étude de cas du Burkina Faso. Nairobi octobre 2001 22p.
- Seck M. A., 2001. Appropriate methods for technology development in composting and waste re-use in urban and periurban agriculture. Nairobi, octobre 2001 11p.
- Smith O. B., 1999. L'agriculture urbaine en Afrique de l'ouest: une contribution à la sécurité alimentaire et à l'assainissement des villes. CTA CRDI. ISBN 0-88936-890-2 201p.
- Van de Fliert E., Braun A. R., 1999. Farmer field school for integrated crop management for sweetpotato ; Field guides and technical manual. Bogor International Potato Center; 197p.

2.6 Appropriate Methods for Micro enterprise Development in Urban Agriculture

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1. Micro enterprises and development

Much of the developing countries' rapidly growing population forms part of the economy that lies outside the regulatory framework of governments in what is known as the informal sector. Although the definitions vary according to the country context, it is generally agreed that the informal sector, whether rural or urban, comprises small and micro enterprises producing and distributing basic goods and services in unregulated, but competitive markets. Micro enterprises provide income and employment for significant proportions of workers in rural and urban areas. In the developing member countries of the Asian Development Bank (ADB), they account for more than 60 percent of all enterprises and up to 50 percent of paid employment (ADB, 1997).

As per definition of the ADB, micro enterprises refer to enterprises employing less than ten workers, including the owner-operator and family workers. Professionals or groups of professional service providers and high-technology firms are not included. There is, thus, an implicit income and asset limit by the term micro enterprise. It is widely understood that micro enterprises are enterprises of the poor. Micro enterprise development, hence, can serve four major development objectives: (1) poverty reduction, (2) the empowerment of women (3) employment generation and (4) enterprise development as an end in itself.

The USAID Office of Micro enterprise Development suggests the following criteria for evaluating micro enterprise service programs (EDGCOMB, 1996). Ideally, those should lead to:

(1) at the household level

- increased income
- increased assets
- increased welfare

(2) at the individual level

- increased control of resources (especially on the part of women clients)
- increases in paid employment
- increased self-esteem

(3) at the business level

- increased net worth
- increased net cash flow
- increased differentiation between the micro enterprise and household

(4) at the community level

- increases in paid employment by client

Additionally, micro enterprise services should contribute to an increased diversification of household economic activities and should not have negative impacts on natural resources and environmental quality.

2. Business opportunities in urban agriculture

Business opportunities in urban agriculture abound (i.e. BONCODIN et al., 2000, FAO, 1999, HOLMER, 1999, LEE-SMITH & LAMBDA, 1991, MARULANDA, 2000, MBIBA, 1994, TEGEGNE et al., 2000) resulting in different kind of enterprises that can be classified into four major categories:

- Production enterprises (i.e. production of vegetables, fruits, ornamentals, livestock as well as aquaculture and forestry),
- Processing enterprises (i.e. food preparation, packaging, milling, drying and others),
- Input delivery enterprises (i.e. agricultural supplies such as fertilizers, compost, soil media, seeds, pesticides, water, tools, feeds),
- Service delivery enterprises (i.e. special labour services such as milking or seedling production, agricultural advisory, animal health assistance, accounting, bookkeeping and others).

The emphasis of this paper is on micro enterprises since larger ones are already better established. It is, however, recognized that the latter are also important actors in urban agriculture, particularly in terms of technology development (i.e. seed companies breeding appropriate varieties for urban conditions, irrigation companies developing specific irrigation devices such as bucket irrigation systems, and others).

3. Methods for micro enterprise development

As regards methods for micro enterprise development in urban agriculture, it is necessary to distinguish between 1) analytical methods and 2) methods for intervention. They may interrelate and be combined to a different extent depending on the type of enterprise they apply to. **Table 1** lists some examples of analytical and intervention methods for micro enterprise development in urban agriculture.

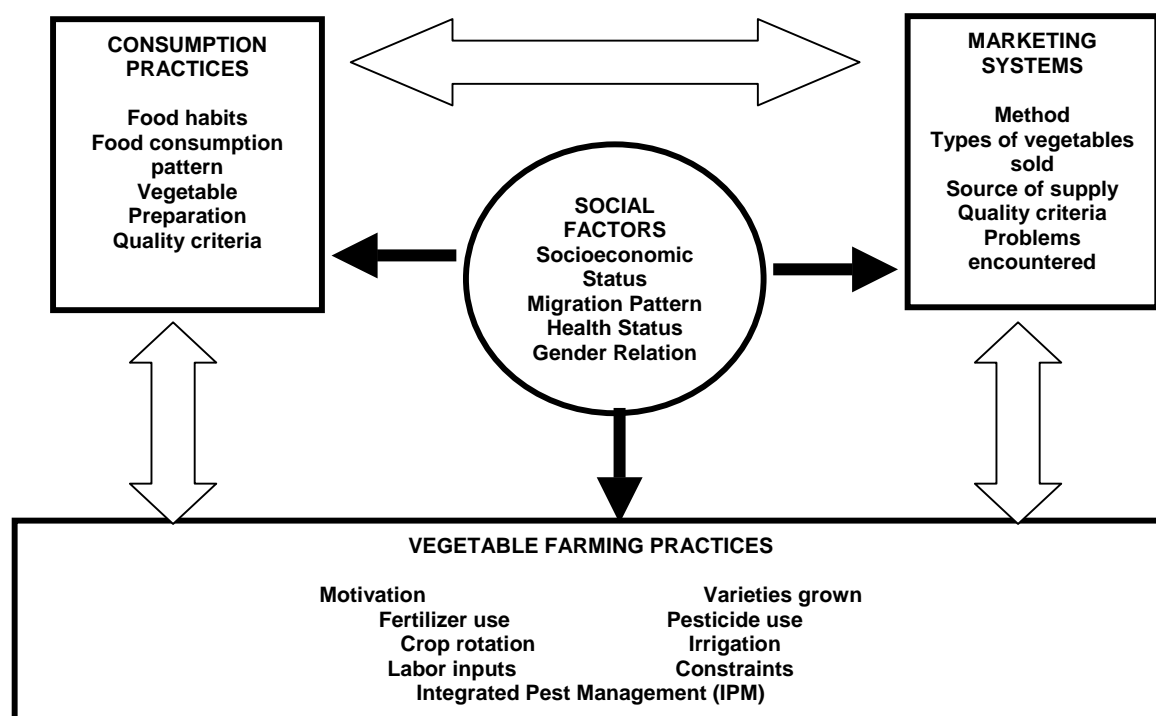
Table 1: Examples for analytical and intervention methods for micro enterprise development in urban agriculture

| Analytical methods: | Intervention methods: <i>(based on the needs identified by analytical methods)</i> |
|---|--|
| <i>Explanatory study/Situation analysis</i> <ul style="list-style-type: none"> - Inventory of main types of UA entrepreneurial activities | <i>Human resources development</i> <ul style="list-style-type: none"> - Enterprise management training - Group and cooperative management |
| Feasibility Study <ul style="list-style-type: none"> - Identification of demand for specific product or service - Identification of potential markets (quality and quantity requirements) - Identification of technical needs - Competitiveness - Profitability - Risk analysis - Availability of inputs - Identification of human resources - Forecasting of above-mentioned items - Financing | Start-up assistance (initial enterprise plan)/ Strengthening assistance (for further enterprise improvement) <ul style="list-style-type: none"> - Removal of constraints as identified in feasibility study - Attract capital - Start business - Develop linkages |
| <i>Market/Network/Cluster analysis</i> <ul style="list-style-type: none"> - Who are the actors involved? - What relations do already exist? - How do these networks work? - What are the gaps? | <i>Influencing conditions/platform advocacy</i> <ul style="list-style-type: none"> - Favourable policies - Institutions involved (access to credit, land tenure, etc.) - Market infrastructure - Training programs - Trading support |

3.1. Example for analytical methods: Identification of present practices of urban food production

Surveys to determine the economic, sociological, and anthropological situation of peri-urban food production in three Southeast Asian cities were conducted by the European Union funded Peri-urban Vegetable Project (PUVeP) in 1998. The surveys were aimed at evaluating and prioritising the different socio-economic and anthropological constraints for urban vegetable production and its impact on community, farm enterprises and city administration (**figure 1**).

Figure 1: Conceptual framework of socio-economic interactions of peri-urban vegetable production, marketing and consumption in Southeast Asia



Specifically, they sought to (1) describe the socio-demographic and economic characteristics of the vegetable growers, vendors and consumers in the three cities, including loans and savings, health status and gender relations; (2) determine the vegetable consumption pattern, quality criteria and household waste disposal practices; (3) identify the vegetable production practices such as pesticide and fertilizer use, integrated pest management, crop rotation, irrigation and labour inputs; and (4) describe vegetable marketing systems including methods of marketing, types of vegetable sold, source of supply, quality criteria and common problems encountered by vendors (POTUTAN et al., 2000; SCHNITZLER et al, 1999 abc).

FEREWDE (2001) uses a similar approach in identifying the present horticultural production and marketing systems in the intra-urban and peri-urban areas of Addis Ababa, Ethiopia. A study to identify the quality and quantity requirements for vegetables of private households, traders and institutional users in Cagayan de Oro, Philippines, is described by AGBAYANI (2001). WHEATLEY (2001) analyses root crop starch clusters in Vietnam in order to understand how these types of urban agriculture and agro-processing are linked to the urban poor and what opportunities exist for enhancing its contribution to sustainable development.

Business clusters

'Clusters' are groups of similar micro and small-scale enterprises, which are commonly found in concentrated geographical areas of many developing countries, especially in Asia. Working with clusters of enterprises and their associated support services, rather than with individual enterprises, can be both efficient in using scarce resources and effective in facilitating change in a wide number of enterprises, through a small intervention leveraged across the cluster. Cooperation between enterprises within a cluster can also be a means to overcome scale disadvantages while maintaining flexibility, creativity and agility in an uncertain commercial environment, e.g. for raw material sourcing, or creating a supply of skilled labour (WHEATLEY, 2001).

3.2. Examples for intervention methods**Human resources development**

Important elements of human resources development in urban agriculture encompass entrepreneurship training such as the CEFE methodology (Paje, 2001), continuous updating and improvement of the curricula of agricultural universities and colleges, improved group and cooperative management, a sensitive bureaucracy, responsive local governments, and - last but not least - good program and project management.

The lessons learnt in a case study linking small potato growers in the Philippines with the formal market (the agro-industrial processing industry) are summarized by ANSALDO (2001) as follows:

- Poverty alleviation is one of the greatest concerns of governments in developing countries.
- One key intervention to alleviate poverty is human development.
- An important component of the human development strategy is enterprise development to allow people to provide goods and services and thus earn income.
- This can be done most effectively through cooperatives to address the most number of people, particularly small farmers in urban and rural areas who remain marginalized notwithstanding globalisation and liberalized trade.

The CEFE Training Methodology

The CEFE Training Methodology, which stands for Competency-based Economies, Formation of Enterprise, is a comprehensive training methodology developed by GTZ which is designed to evoke enterprising behaviour and competence in a wide variety of situations. The fundamental assumption is that people with a clearer vision of their goals and equipped with the skills to achieve them are far more likely to become productive individuals in society. It develops and enhances the business management and personal competencies of entrepreneurs and the personnel or enterprise support and regulatory institutions. A full CEFE course covers a period of three to five weeks depending upon the time required for the potential entrepreneurs to do their field work and to write their business plans (PAJE, 2001).

Vertical integration

One example of a successfully implemented strategy to enhance micro enterprise development in urban agriculture is the Brazilian initiative PROVE which stands for *Small Agricultural Production Promotion Program* (DE CARVALHO, 2001). PROVE is a program designed to promote and sustain small agricultural production, processing and trade involving several urban agricultural systems such as vegetable gardening, fruit production and livestock systems with low-income groups as the principal beneficiaries.

4. Conclusion

Urban agriculture micro enterprises constitute an important factor to provide food, income, employment and ecological services for significant proportions of the populace in cities of developing countries. However, despite the tremendous opportunities that they offer for the well being of current and future generations and the environment, their potential is oftentimes only poorly exploited.

A variety of methods and tools are available that are relevant for micro enterprise development in urban agriculture. However, there are certain limitations of the methods described earlier. As regards the analytical methods, major constraints of feasibility studies are the costs involved and the qualification needed to carry them out. Oftentimes, it is also difficult to find the right balance of either being overly broad or being too narrow, i.e. where to start and where to end. As regards the intervention methods, many projects by NGOs failed due to lack of qualified personnel. There is a need of highly technical people to come up with appropriate and applicable solutions as well as for more research efforts on appropriate technology development. The lack of audience with policy makers and institutions where urban agriculture is not recognized as a legal activity is a further major limitation in those countries.

The methods described above show also some insufficiencies for forecasting of supply and demand (modelling) as well as for combining and integrating technical, social and ecological concerns (micro-macro linkage). Further gaps are methods on how to identify the aptitude of somebody to be a potential entrepreneur and, particularly, on how to ensure proper integration of already existing gender tools or development of more appropriate ones into micro enterprise development programs.

Additionally, the following is needed to further enhance micro enterprise development in urban agriculture:

- Publication of relevant materials,
- Training of urban agriculture actors to attain more sensitivity for gender issues in micro enterprise development,
- Incorporation of models (forecasting prices, etc.),
- More research on identifying existing urban agriculture systems to increase market transparency for micro entrepreneurs, investors and other actors in urban agriculture,
- Awareness creation and better linkage of urban agriculture to existing micro enterprise development programs.

This all must be encompassed by an "enterprise paradigm" both acceptable to the government, business and civil society sectors understanding that urban agriculture is a force in its own to benefit cities and its residents.

5. References

- ADB, 1997. Micro enterprise development: Not by credit alone. Asian Development Bank, Manila, Philippines.
- Agbayani, A.P., Holmer, R.J., Potutan, G.E., Schnitzler, W.H., 2001. Quality and quantity requirements for vegetables by private households, vendors and institutional users in a Philippine urban setting. Resource paper prepared for this workshop
- Ansaldo, R.W., 2001. Identification and improvement of market linkages between producers and institutional users: A case study on potato contract growing in the Philippines. Resource paper prepared for this workshop.
- Boncodin, R., Campilan, D., Prain, G., 2000. Dynamics of tropical home gardens. Urban Agriculture Magazine (1) 1:19-20.
- Edgcomb, E. 1996. PVO/NGO Tools for household and business impact assessment: Report of a planning meeting. Assessing the Impact of Micro enterprise Services, Management Systems International. Washington D.C., <http://www.mip.org>
- FAO, 1999. Urban and peri-urban agriculture. Food and Agriculture Organization of the United Nations, Rome, Italy. COAG (15th Session), <http://www.fao.org/unfao/bodies/COAG/COAG15/X0076e.htm>.
- Ferewde, S., 2001. Urban Agriculture in Ethiopia: Urban Horticultural Production and Marketing System in the Urban and Peri-Urban Areas of Addis Ababa. Resource paper prepared for this workshop.
- Holmer, R.J., 1999. Potential and constraints for micro-enterprise development in urban horticulture. Paper presented at the Xavier University Ateneo de Cagayan Alumni Association Grand Y2K Homecoming, Lecture on Agribusiness, Cagayan de Oro, Philippines, December 11, 1999.
- Homen de Carvalho, J.L., 2001. PROVE – Small agricultural production verticalisation program. Resource paper prepared for this workshop.
- Lee-Smith, D., Lamba, D., 1991. The potential of urban farming in Africa. Ecodecision (Dec.):37-40.
- Maraluanda, L.S., 2000. The greening of Ahmedabad: An innovative community forestry model. Urban Agriculture Magazine (1) 1:21-23.
- Mbiba, B., 1994. Institutional responses to uncontrolled urban cultivation in Harare: prohibitive or accommodative? Environment and Urbanization 6/1:188-202.
- Paje, B. G., 2001. Methodologies to improve entrepreneurial skills of urban agriculture entrepreneurs. Resource paper prepared for this workshop.
- Potutan, G.E., Schnitzler, W.H., Arnado, J.M., Janubas, L.G., Holmer, R.J., 2000. Urban agriculture in Cagayan de Oro: a favourable response of city government and NGOs. In: Bakker, M., Dubbeling, M., Sabel-Koschella, U., Zeeuw, H. (Eds). *Growing Cities Growing Food; Urban Agriculture on the Policy Agenda*. DSE, Feldafing, Germany. ISBN 3-934068-25-10, pp. 413-428.
- Schnitzler, W.H., Kham Sanatem, Potutan, G. E., Janubas, L. G., Holmer, R. J., 1999a. City harvests in Vientiane City. *Gate – Technology and Development*. 2:23. <http://www.puvep.com>

- Schnitzler, W.H., Pham Van Bien, Ngo Quang Vinh, Potutan, G. E., Janubas, L. G., Holmer, R. J., 1999b. Urban agriculture in Ho Chi Minh City, Vietnam. Gate – Technology and Development. 2:26. <http://www.puvep.com>
- Schnitzler, W.H., Potutan, G. E., Arnado, J. M., Janubas, L. G., Holmer, R. J., 1999c. Urban agriculture in Cagayan de Oro, Philippines. Gate – Technology and Development. 2:46-47. <http://www.puvep.com>
- Tegege, A., Tadesse, M., Yami, A., Mekasha, Y., 2000. Market-oriented urban and peri-urban dairy systems. Urban Agriculture Magazine (1) 2:23-24.
- Wheatley, C., 2001. Fostering innovation in urban and peri-urban based clusters of small-scale agrifood enterprises. Resource paper prepared for this workshop.

3. WORKING GROUP DISCUSSIONS

3.1 Working Group 1: Situation analysis (topic 1) and Monitoring and Evaluation (topic 5)

Participants: Gez Cornish (Chair) Adrienne Martin, Pay Drechsel (rapporteurs), Andres Dasso, Suzan Kiango, Dindo Campilan, Zarina Ishani, Davinder Lamba.

1. Introduction

The group looked at the relations between situational analysis and M&E. We decided to address them in parallel as most questions were common to both. We first brainstormed definitions, then discussed the issue of when participatory methods were, or were not appropriate. We discussed two main frameworks for holistic situational analysis, with some attempt to integrate gender into the discussion. We considered the question of limited resources for situational analysis, and the definition of impact indicators. Finally some gaps were identified and recommendations were made on the way ahead.

We distinguished between method, tool and technique:

Analytical framework or Method = how to go about obtaining knowledge which is credible and defensible? (e.g. Household survey)

Tool = the instrument used (e.g. Questionnaire)

Technique = how you apply it (e.g. interview technique)

Situation analysis

In discussion of the dimensions of 'situation' analysis we identified a temporal process (phasing), a logical process (activities) and a decision making process (political). Elements of the situation include the participants; temporal, ecological and spatial dimensions, institutions, organisation and outcomes.

Situation analysis is important in order to understand a specific context and the dynamics of changes.

- It should take into account historical antecedents and be institutionally, ethically and politically situated. Situation analysis is influenced by the purposes of the enquiry whether to raise public awareness and generate information, or for academic research or for advocacy. It is for many different things, influenced by interests, the problematic, and ethical concerns of the instigators.
- Explicit documentation is required to support democratic decision-making. Situational analysis has a role as the first step in an advocacy.

Relationship of Monitoring and Evaluation (M&E) to Situation analysis (SA)

- M&E follows from a situational analysis which identifies the objectives and focus of the work and the relevant indicators of change. The methodology of M&E derives from a means and ends relationship and relates closely to objectives. It involves defining a baseline and tracking change. It looks at what is happening and why, and the differences it makes. It is also important to monitor unintended consequences and pick up emerging strategies which might not be part of the original intervention.
- 2 types of M&E were identified – monitoring of specific project intervention(s), or tracking changes without an intervention (e.g. baseline data and follow up of extent of food growing in cities) or in relation to a particular driving force, such as

a policy change. The use of M&E to track change is akin to ongoing situational analysis.

- There can be retrospective and prospective M&E. In the case of M&E of an intervention it examines whether change can be attributed to the intervention, e.g. whether there is any increase in the diversity of varieties in urban vegetable gardens resulting from a project to promote this diversity.
- M&E requires investment and integration into the management function. Some tensions are common between M&E and project implementers.
- Since statistics not usually available, tools are needed for people to construct their own baseline.

The diagram (see presentation) shows the linkage between situation analysis and M&E. M&E in the context of a deliberate intervention needs SA as the starting point. SA provides the broad understanding to focus an intervention or strategy. It can be both a snapshot and a serial analysis. When it becomes serial it is closely associated with M&E. Problems result when SA is undertaken, but not followed with M&E, or M&E is undertaken without a prior sound SA..

2. What analytical frameworks/methods could apply to SA and M&E in UA?

There are no UA specific frameworks or methods

Many of the existing and well-documented methods for SA and M&E can be taken and used, (with some possible need for adaptation) in UA studies. An important lesson is that special attention needs to be placed on getting local collaborators knowledgeable in urban situations.

Some analytical frameworks are conceptual frameworks – e.g. the DFID Livelihoods framework. Others are cohesive theoretical and practical tools e.g. the Dynamic Causal Analysis framework (also known as PASIR: Pressure- Activity - Status - Impact – Response).

Other types of analysis set out steps and techniques rather than provide a conceptual or theoretical framework .

Livelihoods analysis

Facilitates holistic interdisciplinary thinking, links household level findings with the policy and institutional context; it is people focused and prompts gender analysis. It helps in thinking about the interconnections between different aspects of livelihoods. It is valuable where livelihoods are vulnerable, such as in UA., and deals well with multi faceted livelihoods.

Constraints: Danger of doing everything in too much detail, no help in defining boundaries, needs broad skills base and interdisciplinary thinking.

Dynamic causal analysis (PASIR)

The driving force can be an independent variable (could be a policy) which is bringing about change. The framework looks at activity and its consequences, the ecological and social state which is changed by the pressure, and the impact made on income and well being, and the response, what needs to be done.

It analyses the root causes rather than symptoms, it is relevant in highly dynamic environments, it is gender friendly, it helps to clarify theory, it integrates different disciplines and is time scaled. (UA). It looks at payoffs and options among stakeholders and helps to identify winners and losers.

Constraints: Needs unbiased co-ordination, may need calibration, needs interdisciplinary team, computational capacity and multiple sources of data.

Household surveys in the urban situation are problematic because of the nature of the household. There are possibilities of reaching people through other routes, e.g. through school children.

There are important issues of sampling. Research is required before the design of instruments of investigation (to conceptualise UA, to understand tenure etc). This increases the resource requirements of time, money and skills.

3. When are Participatory Methods appropriate?

We noted that participatory methods do not necessarily imply qualitative data, nor non-participatory methods, quantitative data.

There was concern among some members of the group that donors were making participatory methods a general requirement.

The choice of whether to use Participatory Methods or not, depends on the objectives of the study and for whom the analysis is done. It was felt that the decision making process should be democratic and accountable whether or not the methods of enquiry were themselves participatory. A purpose may be arrived at with participation but the kinds of interaction may differ, particularly if addressing issues of public policy. Some scientific methods have to be participatory – e.g. studies of attitudes, studies of social and political processes. Participatory methods are useful to explore a diversity of perspectives and definitions. Their use can be a pragmatic choice to improve data collection and findings or may be motivated by a desire to promote empowerment. The combination of participatory and non-participatory methods is possible e.g. entomological monitoring by experts to address a need for solutions to pest problems defined through participatory diagnosis; or participatory nutritional record keeping by households as part of a government inspired nutritional survey. A distinction was drawn between the development of indicators and the collection of data for indicators, both, either or neither might be participatory.

Participatory methods are of special value to:

- Capture complexity and permit better problem definition
- Avoid misfit between intervention and need
- Empowerment of urban agricultural groups, etc

The study of UA does not only rely on participatory methods. For UA studies Participatory and Non-Participatory methods should be used in a complementary way.

Criteria helping to choose methods to solve a problem:

| FEATURES | Participatory methods | Non Participatory methods |
|-----------------------|-----------------------|---------------------------|
| Perspective | multiple reality | simple truth |
| Design/predictability | Evolving & flexible | Pre-designed |
| For whom?/users | Insiders | External |
| Expertise | Local knowledge | External expert |
| Resources + | Higher | Lower skills |

4. Main impact indicators

We identified different types of indicators; input, process and output indicators. The first two are important for project management. There are safe minimum standards which are a control indicator. Indicators can be quantified or non quantified, tangible or intangible. They relate closely to objectives and success criteria and should be flexible to be adapted to the UA context.

Three dimensions of indicators were suggested:

- indicators of well being,
- indicators of environmental services (including safe minimum standards)
- indicators for ecological functions both quantity and quality.

Indicators will have to be adapted for UA e.g. in monitoring food consumption in the urban context, it is necessary to include food consumed outside the home.

We concluded that more discussion was needed on the following questions:

- *Why are we worried about indicators – why are they needed?*
- *How do you select indicators for UA?*
- *How do you identify the main impact indicators?*
- *Why is there a need for adapting generic indicators for UA*
- *Do we need guidelines on how to develop indicators for UA?*

5. Gaps

The following gaps were identified for further work:

- Need to elaborate links between frameworks and tools
- The need to standardise definitions and approaches e.g. the boundary between intra-urban, peri-urban and rural? What constitutes a backyard?
- The need for tools for understanding linkages and networks such as: urban - rural linkages, support between households, marketing chains.
- Understanding transaction costs. Participation and trade offs.
- The need for tools to understand informal institutions – rules of the game.

5. Where to go from here?

On the basis of presently available resource papers we are not ready to create training modules or a methodology toolbox. Rather, we can provide resource materials in the form of case studies and examples of SA methods and M&E indicators adapted for UA setting.

Products need to be tailored for specific users – researchers, development practitioners, policy makers.

The E- conference should explore further examples of UA related SA methods and M&E indicators to establish a better knowledge base for follow-up publications

PLENARY DISCUSSION FOLLOWING DISCUSSION GROUP FEEDBACK

Regarding selection and further development of the methods

- Methods depend on objectives. It is important whether the analysis is for development projects, academic research or information for policy makers.
- The methodologies covered in the synthesis paper embrace a range of levels. Suggest separating frameworks (e.g. the DFSR framework, livelihoods framework) from tools and techniques.
- In order to facilitate the application of the recommended for policy development and action planning in the various sectors (environmental management, food security and nutrition, local economic development, etcetera) it would be important to begin to cluster methods around these policy areas groups.
- We need to focus on the adaptations needed in methods and tools for application in the urban environment
- How do we identify the impact of participatory research on communities?
- Often practical gender needs are considered in projects, but strategic gender needs not taken care of, e.g. information needs, health, education and well-being. It is recommended that more attention is given to the strategic needs.

Regarding Situational analysis.

- Should situational analysis be undertaken in the context of particular framework? The Livelihoods framework encourages holistic thinking and the integration of different issues. However, the need for holistic understanding should be balanced against the practicalities of limited resources, etc.
- We identified a dilemma in situational analysis of deciding when information and understanding was sufficient to justify action. How to decide on an appropriate starting point – especially for a practical technical intervention?
- Is it possible to link methodologies used for situation analysis with different types of research or inquiry and different stakeholders involved? Choice of methodologies would relate to the research question posed, who the research is for, and who will use the results.
- We need more elaboration of the methods and tools for analysis of networks in the UA situation. Rural /urban linkages are one important aspect of networks.
- Household food consumption analysis – not much was included on this area of situational analysis.
- Methods for prioritisation of research needs can include the use of causal diagrams.
- How to integrate and validate community mapping with more technical information?
There is experience of this in the rural context, which could provide some assistance, although adaptations will be needed for urban areas.
- Gender analysis is needed to identify the particular needs and problems of specific social groups, e.g. disaffected young men.

Regarding Monitoring and Evaluation

- Ownership is crucial – the design of M&E depends on who the information is for, and on the objectives and orientation of the work e.g. whether focused on poverty, food security, local economic development etc.
- Impact evaluation is needed and for this baseline data is required.
- In general it is useful to set out criteria and indicators for a particular area e.g. nutrition, water quality, agro forestry. There will be multiple indicators in any particular discipline.

- There is a need for indicators which can be used within the urban agriculture setting. What is already used?
- Indicators also depend on the country and cultural context. There will be different transaction costs and costs of participation.
- Indicators for intangible things are needed, for example, human attributes, increased knowledge.
- There is a need for integrated indicators of poverty in urban areas – embracing food availability and accessibility, education, water and environment.
- More attention is needed for the problem of definition of units and areas in M&E for UA. For example one could look at profit/earnings per capital invested rather than by area in assessing profitability. This is a measure of capital and labour efficiency.

3.2 Working Group 2: Policy and Planning (topic 2) and Integration into urban land use planning (topic 3)

Participants: Axel Drescher, Wimpie Nell, Beacon Mbiba, Rose Muraya , Marielle Dubbeling, Shinghiray Mushamba, Fernando Patiño, Asteria Mlambo, Andres Bucio

1. What should be the entry-point and level for policy and planning?

An analysis of the case studies discussed in the workshop paper “Facilitating framework for Policy and Planning on UA”, show that the entry-point for development of such a framework varies from city to city (local economic development, food security, environmental management), although all cases do have a strong focus towards poverty reduction.

It was discussed if the entry point should be pre-defined by the actors that would like to support development of policy and planning on UA. The group concluded however that this definition should be done, based on the direct needs and existing situation in each city, be it:

- pro-poor/poverty reduction
- local economic development
- environmental management
- social inclusion of disadvantaged groups,
- in order to promote participatory governance and democratic cities: facilitate farmer citizenship and promote sustainable development.

In that sense, the group also made a distinction between pro-active (selection of entry-level is possible) and re-active policies (entry -level determined by the situation).

It also implies that Urban Agriculture development is a means to sustainable development, not just an end in itself.

Policy/planning may take place at different levels, each with a different objective:

- community
- town/municipal
- regional
- national

Most experiences known by the group do focus on community or municipal level. Only in the case of Dar Es Salaam, integration is assured at national policy level, although these may greatly influence municipal policy making.

In conclusion: the entry-point is determined by the local context, community needs, level of policy making. In turn the entry point determines the methodology to be used. Adaptation of the methodologies and tools to the specific UA context requires a lot of communication between various actors in order to generate common understanding.

There are several sets of frameworks/sets of methodologies, tools and techniques which can be utilised in advancing the goals of UA. Examples are poverty alleviation, mainstreaming gender, EPM, Local Agenda 21, etc.

2. Participation of the community and urban poor in policy and planning?

The group recommended combining community needs with objectives of town planning.

The group discussed specific limitations and opportunities for the participation of the urban poor in policy and planning processes:

Limitations

- Inadequate organisational infrastructure
- Lack of access to resources and information
- Lack of confidence among the poor
- Political impediments

Opportunities

- vibrant civil society
- network locally and internationally
- global trust towards human rights and social inclusion

However, to assure participation and involvement of the urban poor and other actors, who not necessarily share common goals and visions, municipal policy and planning interventions should be linked with specific development objectives for different urban groups, to which UA is expected to make a significant contribution, and be based on participatory and multi-stakeholder diagnosis and planning processes. In all studied cases, the local governments were supporting participatory processes of development, a factor contributing the success of the programmes.

Tools as *stakeholder analysis and gender analysis* can be used to respond to questions like: Whom do we want to address? How to address them? Who are the urban poor and socially vulnerable groups (women, migrants, elderly, indigenous people)? What specific interventions are needed to reach them? Specific mention was made of the necessity to incorporate gender analysis and monitoring of impact that certain activities have on specific gender and generational groups.

3. How to facilitate sustainability of the process?

First the group discussed the need to differentiate between:

- sustainability of an UA programme or project, and
- sustainability of the city (UA being a strategy to facilitate that)

The following recommendations were made to assure sustainability:

a. Institutionalisation

Institutionalisation is the long-term process of changing ways in which things are done, of building in new issues and participatory processes into procedures, norms and ideas of local stakeholders and institutions until it becomes routine.

Rather than creating new specific programmes one should seek the integration of UA into existing programmes and instead of creating new organisational structures one should seek to anchor UA in existing organisations

In all cases reviewed the creation of inter-actor or inter-institutional working groups has been of fundamental importance to get UA officially acknowledged and expressed in institutional plans and compromises.

b. Integration in normative and legal structures

Inclusion of the processes and its results into the normative, legal and operational instruments of the cities: Strategic Plans, Zoning Plans, District Development Plans, etc, would give them a much more permanent and firmer basis and supports as well integration of UA into other environmental, economic, social and health programmes. Santiago and Dar Es Salaam have advanced a lot also in integrating UA in the legislative and regulative aspects.

c. Integration into land use planning

Of special importance is the integration of UA into *land use planning* as a permanent urban land use, and not only as a reminiscent from the past. Little is known about the spatial distribution of UA, and even less about changes in agricultural land use and its dynamics.

The participants pointed out that land tenure and security of access to land- rather than the availability of land- are the key for UA development with a pro-poor focus. Agricultural land use can be included in zoning plans or given a more permanent space as mixed land use, integrated with housing or recreational functions. The status of agricultural land in cities might better remain public land with long-term and socially inclusive lease-contracts, taking into considerations environmental quality and access to resources by the poor. On the other hand, there is huge potential for agricultural land use next to railway strips, under power lines, on riverbanks or seasonally inundated areas. Community agriculture can prevent these areas from illegal squatting or use as dumpsites. However, efficient environmental protection of these spaces is needed (specific cultivation techniques).

Access to land and secure tenure (not necessary linked to possession of land titles) is a critical issue. It is therefore needed to:

- preserve inner city open spaces and allocate land for agricultural use
- support both temporal (for example on areas awaiting construction) or permanent agricultural land use
- support mixed land use, combining agriculture with housing or recreational use.

d. Exit strategies

All projects on UA should have clear strategies regarding the institutionalisation of the project activities and their continuation at longer term. Those strategies may include longer term external support to the local organisations involved in order to facilitate that the various actors can act on the identified issues within the constantly changing local economic and political context.

f. financial sustainability

Financial sustainability has to be sought. Projects should start modest, try to entice private investment, network and combine local resources, creating revolving funds and use of municipal resources.

g. training and capacity building

In all components mentioned above, training and capacity building are essential.

4. What specific methodologies and tools can be used in the above-mentioned processes?

The group differentiated a series of 5 phases in the development of policies and action plans on UA. For each phase different tools and methods were identified (see the table below):

| PHASE | METHOD/TOOL | PURPOSE | |
|--|--|--|--|
| Phase 1: Awareness raising and lobbying | Municipal checklist | To assess the local situation for participatory decision making and to customise the process accordingly | |
| | Stakeholder analysis | To identify stakeholders and analysis their roles | |
| | Gender analysis | To ensure equal participation of men and women in decision making and gender responsive strategies and actions | |
| | Fact sheets Policy Briefs | To present summarised information on the impact and presence of urban agriculture in a specific situation to support discussion, awareness raising (and political decision-making) | |
| | Situation analysis and mapping (and quantification) of land use, production, etc. (use of GIS) | To provide an overview of situation analysis | |
| Phase 2: Diagnosis and stakeholder commitment | Communication strategy: Personal lobbying, media notice, Workshops and seminars, Newsletters and Shows | To communicate to other stakeholders the importance and impact of certain issues and to stimulate their involvement | |
| | Position paper or base line study | To provide an overview of situation analysis (for specific tools see paper Martin) and review options for focussed discussions | |
| | Consultations | To promote stakeholder dialogue, consensus building and commitment | |
| | Stakeholder Working Groups | To create a mechanism for cross-sectoral and multi-institutional co-ordination | |
| | Needs and vision analysis (making use of specific tools like cognitive mapping etc.) | To map and visualise the needs and visions of the stakeholders involved | |
| | Facilitation | To enhance stakeholders' contribution and to ensure effective participation and focus | |
| | Inter actor agreements | To allow negotiated agreements between partners to be formalised and their commitments towards further action concretised | |
| | Phase 3: Strategy formulation and action planning | Facilitation (cont.) | To enhance stakeholders' contribution and to ensure effective participation and focus |
| | | Conflict resolution | To facilitate negotiations leading to consensus and/or win-win situations |
| | | Action Planning, through for ex. Programme Formulation or Logical Framework Approach, | To elaborate general strategies into actor-specific and time-bound targets and commitments |

| | | |
|---|---|--|
| | making use of various tools like problem tree, matrix ranking, and cost-benefit analysis | whose results can be monitored. |
| Phase 4: Implementation | Demonstration projects | To demonstrate new approaches and solutions and thereby induce replication |
| | Participatory Technology Development (for specific tools see paper Fall & De Zeeuw) | To develop appropriate technologies with direct involvement of the end-users in planning, implementation and evaluation. |
| | Micro-enterprise development (for specific tools see paper Holmer) | To develop small (agro)industries that through processing and commercialisation add value to the original product (agricultural product, waste etc) |
| | Participatory budgeting | To involve the population in decisions about public resources allocation and making the budget process more transparent |
| | Participatory progress monitoring (for specific tools see further paper Campilan and Drechsel) | To gauge progress in actual delivery of services and integration of the process and to feed-back for replication, up scaling, adjustment and improvement |
| Phase 5: Follow-up and consolidation | Participatory impact monitoring and evaluation (for specific tools see further paper Campilan and Drechsel) | To assess programme success and provide the basis for better programme design and implementation |
| | Institutionalisation/anchoring (implying tools used as during Phase 1) | To ensure that new approaches are understood, accepted and routinely applied and practised |
| | Land use planning (implementing specific tools like Mater Plans, Zoning, GIS) | To provide a framework for decision making on planning and regulation of land use |

Each method or tool has its specific resource requirements (human, time and financial resources) and its implementation depends on the context, the specific programme objectives and the target groups involved. Methods and tools can be applied individually or in combination (for example a combination of more conventional and more participatory methods).

Neither of the case studies described in great detail the methods and tools used in the different situations, and pay even less attention to describe if and how certain methods or tools were adapted to the specific circumstances and UA context.

5. On the use of Geographic Information Systems

The use of Geographic Information Systems (GIS) was discussed more profoundly. The group understood GIS to be much more than just a software. It is the geo-referencing and digitalised storing of information, its analysis, its presentation on thematic maps and the combination of these maps in order to generate new information, to simulate future developments and to support decision-making.

GIS is a tool for situation analysis. It helps visualising the spatial distribution of urban agriculture in the cities, as well as changes in the space it occupies. With the help of aerial photographs, even using series from different years, land use changes can be documented and analysed. Situation analysis may also include a resource inventory of water, soils, vegetation, services, micro enterprises, institutions, and other relevant data:

- Environmental/physical (soils, pollution, agro-meteorological data, slopes, existing land uses)
- Infrastructure (market spaces)
- Social (demography, cultural diversity, access and tenure to resources)
- Economic (market offer and demand)
- Land use demands

GIS activities can be done on different levels by government organisations, private planning companies, NGO's or other institutions or in close co-operation with the local communities.

The co-operation with local communities requires tools for **community research**, one of those being action research. Action research can be used in situation analysis to draw community maps using the capability of local communities to visualise their situation. Examples here for are:

- Actual land use and land use conflicts
- Quality of soils and water and sources of pollution
- Access to resources (space, water, markets, inputs etc.)

Community mapping allows an analysis of demands and constraints of local communities to be considered in the planning process and combined with the capabilities (financial or/and administrative) and intentions of local governments. All these often different positions, opinions and intentions can enter into a GIS database, which can be used as an analytical tool to find "all winner" solutions to satisfy demands from different origin.

Community maps are no "scientific" maps at all, but contain valuable information on the local situation, often overseen by local governments because of lack of information. The information provided by the communities' needs to be "translated" into GIS usable data to enable conflict management, zoning, spatial planning and sustainable community development.

Participation requires intensive information and communication, as well as consultation and moderation. There is a need to develop platforms for all stakeholders, which should, at least initially, be of an informal nature. GIS can contribute to more participatory approaches in urban planning when used appropriately.

Use of GIS is not a panacea for all problems. It is a tool and it has various limitations including the following:

- The integration of this tool into planning processes requires policy decisions and an infrastructure that allows different stakeholders in the planning process access to the data. This is in most cases not given. In many countries GIS is already used as a planning tool but often based in universities and research institutes without access and connection to policy makers and planning divisions. GIS requires specialised training and recurrent costs of manpower, satellite images, soft and hard ware, inputs, etcetera are relatively high.
- Urbanisation is sometimes such a dynamic process that a continuous data update is required. Especially in the peri-urban sector uncontrolled land use changes are frequent.
- Not all information can be represented spatially (e.g. cultural habits) and high degrees of heterogeneity are difficult to map.

- A still open question is how GIS can be made a participatory tool for land use planning. The traditional way of using GIS is rather centralised, which means that one institution takes the leading part in planning with little or no participation of other units. GIS does not automatically facilitate the dialogue with the decision-makers but needs to be used in innovative ways. One prerequisite to enable participatory planning is community building.

6. Recommendations for follow up

The group recommended the following:

- To identify additional existing case studies describing (following specific guidelines) the application and results of the various tools/instruments/techniques and their adaptation to the urban conditions
- To prepare technical papers to further illustrate the various methodologies
- To undertake more practical tests and to monitor their applicability in UA and their efficacy in solving specific problems
- To share all workshop materials, comment on them and improve them (for example through an e-conference)
- To prepare a working document or a book on the workshop and disseminate it widely to the target groups
- To engage practising planners and policy makers in order to obtain feedback on the applicability of the methodologies and tools
- To identify missing tools
- To identify lines for action research to facilitate integration of participatory/community demands with scientific research.

3.3 Working Group 3A: Methods of technology development and diffusion

Participants: **Charles Quansah (chairperson), Safiétou Fall (rapporteur), Robert Holmer, Amelia Luz Agbayani, Dai Peters, Will Frost, Pham Van Bien, Naomi Gitau, Henk de Zeeuw**

1. Specific characteristics of urban vs. rural agriculture

The group started by looking to differences between urban and rural agriculture that needed consideration to identify technology adaptations that make methods more adapted to urban agriculture.

- Over population is the main characteristic of urban context fed by high natality and also rural urban migration. In the following years, the majority of African population is expected to be living in towns.
- That urban population is heterogeneous as compared to the rural area. That heterogeneity is linked to social, economic and cultural background. Participation requires an other approach in the urban setting.
- Part of the urban producers are not farmers by origin but by necessity or choice. Traditional agricultural knowledge may not apply in the urban setting. However, urban farmers may have a much better understanding of consumer needs, marketing opportunities, etcetera
- Lack of space in the urban environment. Therefore need for space saving technologies
- While having a piece of land is not that difficult in rural areas, access to land in the urban areas is a problem and land tenure is complex and less secure. This requires adaptations in developing the technology.
- Economic crisis and urban poverty are very important in many cities. That emphasize food needs but also difficulties in getting the required inputs and a very hard economic environment.
- Environmental sensitivity is among the main constraints that require serious consideration in developing technology. In many cases, that environment is already polluted by chemicals and disease vectors due to waste management problems.
- In urban areas, market is very strong calling for the offer of great amount of good quality products while transformed products are highly demanded.
- Labour cost is higher in urban areas as compared to rural areas. There is a need to develop less labour intensive and time consuming technologies in cities.

2. Are sufficient technologies available for urban agriculture? Are there specific conditions to be taken into account ?

Yes various technologies are available for use in urban areas. However, they may have to be modified in the urban context with regards to specific conditions in which UA is being carried out. For example, in the case of composting the input will be from household waste instead of animal output as in the case of rural areas.

The following examples of technologies for UA and adaptations needed were given:

- The urban environmental sensitivity calls for the promotion of ecological farming methods and soil and water protection measures;
- Techniques for safe reuse of urban organic wastes as well as the dung from intensively kept livestock enterprises are needed

- The re-use of wastewater requires irrigation and cropping techniques that reduce the health risks.
- Urban areas needs technologies that require less labour
- The lack of space calls for intensification and verticalisation in order to enhance output per surface unit
- In urban livestock systems the available space often does not allow the production of fodder. Linkages with fodder growers in the peri-urban area and the production of animal feed from residues of agro-industries, breweries and markets, etc. is needed - There is a need to optimise input utilization with eyes to the poverty situation of many urban producers
- UA is sensitive to market demand and availability
- Issues of technologies and health is to be considered fully when developing technologies

3. Opportunities for and limitations of Participatory Technology Development (PTD)

Opportunities

- PTD offers direct interaction between the producers and researchers which facilitates the use of available local knowledge and innovative capacity of the local producers, the adaptation of the technology to the specific urban conditions and thus the degree of adoption by the urban producers
- PTD encourages people to get together and to organize.
 - Urban farmers often are more literate than their rural counterparts which makes their participation in experiments more easy
- Most research and extension institutes have their offices in the cities, which enables to engage in experiments with urban producers
- Closeness to markets and knowledge of users demands stimulates the drive for innovation and technology development in the urban area.

Limitations

- The high diversity of stakeholders: the existing diversity of urban farming systems, problems and conditions may make it difficult to define priorities and set up experiments
- The highly dynamic situation, the poverty of large part of the urban farmers, the low degree of organization and their geographical spread make it more difficult to work with them in experiments during an extended period of time
- Land scarcity may limit the possibilities to experiment on urban farmers fields; herds may be dispersed over the town during the day
- Urban agriculture is often not a priority for the agriculture research and extension institutes and researchers and extensionists are often not familiar with participatory methods for technology development for the specific urban conditions
- Rural based traditional agricultural knowledge of farmers is often not applicable in the urban conditions (other crops, use of other inputs, land scarcity, other markets, etcetera)

4. Adaptations in the PTD method needed for the urban context

The following adaptations are proposed that may stimulate PTD in urban agriculture:

- Use of aerial photo's or satellite images to identify the main farming areas.
- Preliminary situation analysis is required to the various types of urban farmers and farming systems and their main characteristics and to understand the socio-economic and political context. The preliminary analysis will form the basis to identify the most appropriate methods to select most relevant farming types and to engage with the producers involved in a participatory process of situation analysis and technology development
- Recognize local knowledge (if not in the technical knowledge than the knowledge of social relations, local land tenure arrangements, informal marketing channels, etcetera)

5. What are the main actors involved in PTD in urban agriculture?

In the urban area next to farmers also other actors have to be involved in the technology development process. UA actors are characterized by a great diversity. PTD in urban agriculture can relate to or need the involvement of:

- Farmers
- Food processors (cleaning/packaging, food preparation for small restaurants and street vending), small scale processing enterprises)
- People involved in the marketing (small shops, carts, stalls at local markets, food box schemes, school kitchens,...)
- Consumers
- Research workers (multidisciplinary)
- Extensionists
- NGO's
- local government units

It is important to recognize existing linkages and networks of urban producers and to take into account the specific criteria and demands of the various actors in the network or marketing chain.

6. How to facilitate uptake and institutionalisation of technology development for UA?

Municipal agricultural departments can play a stimulating and co-ordinating role in facilitation of PTD. Municipalities that lack such an office should be encouraged to create one.

Ministry services can be stimulated to give more attention to research on rural agriculture and include UA in their priority setting and funding schemes.

Research institutions have to integrate UA in their research agendas.

Universities can develop with their senior students guided PTD – activities with urban farmers and related micro-enterprises . Educational modules on (participatory) technology development in UA to be introduced in the university curricula

Urban farmers and gardeners associations can create a Technology Innovation Committee that organizes training in technology development and helps (groups of) producers to design and implement local experiments

NGO's may give more attention to urban farming and include agricultural technology development and training in their development programmes.

Networking to strengthen the linkages and co-operation between the various actors involved in technology development in urban agriculture

7. How do we ensure proper attention to gender issues in technology development in UA?

- Ensure direct and active participation of female producers and micro-entrepreneurs in the situation analysis, planning and implementation
- Gender disaggregated data gathering
- Gender differentiated farming system analysis; Make visible existing division of labour among men and women, their contributions to the household economy and their specific fields of knowledge and expertise
- Clarify practical and strategic interests of the women farmers
- Ensure independent access of women to credit, training, extension, etcetera
- Involve women in representative bodies and committees.
- Introduction of female labour saving technologies

8. How to continue from here?

- Develop a course on PTD in UA: develop a training cycle for young students and technicians
- Create space on the RUAF website to continue the debate on methodology
- Further development and adaptation of the methods for use in urban conditions (e.g. other experimental designs for home gardens)
- Prepare brochure to ask more attention for PTD and UA in Agricultural ministries, research and extension institutes and universities

PLENARY DISCUSSION FOLLOWING DISCUSSION GROUP FEEDBACK

- Lot of technologies are available but few of them are adapted to the urban conditions (small spaces, use of urban wastes, urban-rural interaction, heterogeneity, closeness to markets, niche products, etcetera). The differences between the rural and urban farming conditions are still largely neglected in present research activities.
- The concept of a farm system is in the urban context quite different from the rural farm. The latter often consist of various sub units that are mutually dependent and complementing. The urban farms tend to become more specialized and each of these independent specialized units maintain exchange and market relations with various other units (conforming in this new way the urban farm): fodder is grown in the peri-urban area by farmer X, sold directly or on local market to an inner-city farmer who is stall feeding his dairy cows, who sells part of the milk to a women group producing cheese and his cow dung to a farmer producing ornamental plants nearby, etcetera
- There is a need to analyse in more detail what adaptations are needed in the methodologies for (participatory) technology development for use in urban areas, especially for the phases after the situation analysis (trial designs, addressing specific UA issues, participation, PTD in processing technology, etcetera)
- In UA it is much more difficult to define on what to focus and to identify potential technologies due to the diversity in the situation.
- The social knowledge of urban farmers (networks, markets, sources of inputs and information) might be more substantial and a more important contribution to the technology development than their technical knowledge.
- On farm experimentation may be difficult not only due to plot sizes but also due to the fact that part of the urban farmers are living far a way from the land areas they use for farming (roadsides, along canals, on premises of institutions, etcetera)

It is suggested to create a multi-disciplinary masters education in UA as a joint effort of various universities

3.4 Working Group 3B: Methodologies for micro enterprise development in urban agriculture

Participants: **see working group 3A**

1. What kind of enterprises do we need to focus in UA?

- Production enterprises: *vegetables, fruits, ornamentals, livestock, aquaculture, forestry...*
- Processing: *food preparation (cheese making, etc.), packaging, milling, drying, packaging*
- Input deliveries: *agricultural supplies (fertilizers, compost, seeds, pesticides,...), soil media, water, tools, feeds,...*
- Service delivery enterprises: *landscaping, special labour services (milking, seedling production,..), advisory, animal health assistance, accounting, bookkeeping*

The emphasis should be particular on micro enterprises since larger ones are already better established and receiving more attention. It is, however, recognized that those are also important actors in UA, particularly in terms of technology development (examples: seed companies that develop appropriate varieties for urban conditions, irrigation companies developing specific irrigation devices for UA, chemical companies developing less toxic agrochemicals responding to requirements for specific urban environments, etc.)

2. What are the specific limitations/opportunities of UA micro-enterprises compared to informal enterprises in the rural areas?

| Item | UA micro enterprises | Rural micro enterprises |
|-------------------------------------|---|---|
| Credit | Difficult (private/informal lenders) | Better access |
| Space | Limited (costly) | Available (less costly) |
| Market access | Better | More difficult |
| Market transparency | Better | More difficult |
| Security of tenure | More vulnerable | Less vulnerable |
| Extension work | More difficult since urban communities are more heterogeneous | Less difficult since communities are more homogeneous |
| Transportation cost | Lower | Higher |
| Environmental issues | Higher due to closeness to residential areas | Less |
| Internal recycling of crop wastes | Difficult due to lack of integrated farming systems | Easier |
| Use of urban wastes and waste water | Easier | Difficult due to distance |

3. What are the main methods that can be used in micro-enterprise development?

There are basically 1) analytical methods and 2) methods for intervention which apply to the four different kinds of UA micro enterprises (production, service delivery, processing and input supply).

Some of the participants assumed that the methods used would basically apply for all four types of enterprises, although in different degrees. However, little systematic research and experimentation has been done.

4. What are the main potentials and limitations of each method?

Analytical methods

- One of the limitations of a feasibility study is to find the balance of either being overly broad or too narrow (one may overlook certain issues, since everything is interrelated; where to begin, where to end);
- Who will carry out the feasibility study for those who do not know how to do?

Intervention methods:

- Lack of technology development (need of highly technical people to come up with appropriate and applicable solutions; many projects by NGOs failed due to lack of qualified personnel)
- Lack of audience with policy makers and institutions if UA is not recognized as a legal activity

5. What is the potential of farmer cooperatives for micro enterprise development?

Potentials:

- as regards input supply, they can buy inputs cheaper due to larger amounts ordered
- they can access funds easier
- they also can market better (better supply power)

Disadvantages:

- Mistrust towards cooperatives if they are not conceived as a business entity (instrumentalised for political agenda or other social issues), leaders of cooperatives are sometimes more politicians than business managers
- Members sometimes press their co-operative too much for individual and social benefits at the cost of re-investment
- Agricultural production better to be maintained as an individual or family enterprise

6. What gaps exist in the methodologies presented?

Insufficient are methods for

- Forecasting of demand and market prices (modelling). However, is it economic to do that?
- Keeping up with government policies, for example in terms of subsidies for certain food products
- Combining/integrating technical, social and ecological concerns into methods (micro-macro linkage)
- Identification of innovative ideas (for example new ways of marketing such as "food subscription schemes", "fruit streets", etc.)
- How to identify the aptitude if somebody can be trained to be a successful entrepreneur?

7. How to ensure proper integration of gender issues?

- Identify gender roles in different processes of UA micro enterprises. If one wants to assist women, it has to be identified where women are involved in the process
- Empower/promote women to (co-) own the enterprise from the very beginning (but even then: men tend to take over the control over the assets when the business grows and normally act as the legal owner)

8. What should be done after the workshop to further elaborate the methodologies?

- Publication of the workshop materials (including abstracts of the papers prepared by the resource persons)
- Develop training materials on enterprise development in UA including gender aspects
- Integrate in the methodology for micro enterprise development in UA already existing gender tools or develop more appropriate ones
- Possibility of incorporating models (forecasting prices, etc.)
- More research on identifying existing urban agriculture systems to increase market transparency for micro entrepreneurs, investors and other actors in UA
- Awareness creation among existing micro enterprise development programs regarding the importance to incorporate urban agriculture enterprises

PLENARY DISCUSSION FOLLOWING DISCUSSION GROUP FEEDBACK

- The emphasis on micro enterprises might conflict with the need for competitiveness. The development of strong clusters of micro and small enterprises might form the way out.
- There is a need to specify more the specifics of enterprise development for each type of enterprises in urban agriculture
- The experiences in Vietnam illustrate that urban farmers are much more than rural farmers inclined to seek to enhance than value of their products by small scale processing and packaging, which makes them more entrepreneurial
- The issue of the role of cooperatives and associative enterprises in urban agriculture needs more reflection and study

4. CONCLUSIONS AND RECOMMENDATIONS OF THE WORKSHOP

4.1. Conclusions

1. It was noted that there is a difficulty of focusing exclusively on methods, because the discussion can become very abstract. It was therefore important to ground discussions in specific examples and contexts.
2. The contextualization of methodological experiences raised another point: a large variety of methods and tools are available that are of relevance for research, planning, implementation and evaluation in UA. However, many of these methods have been developed in a rural setting and lack adaptation to the urban context, or have been developed in an urban setting but lack adaptation to the agricultural sector. It was observed that during the workshop it was not always easy to see the urban specificity of the use of a particular method
3. Following on from the above, there is a need to draw comparative or generic lessons relating to the application of particular methods in the urban context.
4. Comparisons and cross learning was also felt to be made more difficult by the lack of standardized definitions. This is a gap.
5. When talking about appropriate methodologies for UA it is convenient to distinguish between appraisal and diagnostic methods on the one hand, and intervention methods on the other. However, such a distinction should not lead to separation. On the contrary, there is a need for strengthening their interrelation and combination in a single, approach (methods for policy and action-oriented research; careful documentation and evaluation of policy formulation and implementation processes in UA).
6. UA is a cross cutting issue, requiring an interdisciplinary and multi-sectoral approach.
In practice, one observes that research and intervention regarding UA often start with a more narrow focus and broadens in scope over time.
7. It was also observed that past methodologies applied to research, planning, implementation and evaluation in UA have included participatory and innovative approaches in only a limited way. Gender analysis seems not yet to be fully incorporated into methods approaches.
8. In UA the agriculture sector meets with the urban planning and development sector, and in some cases they have distinct conceptual frameworks, methods and instruments. Sometimes what is considered common in one sphere can be innovative in the other. It is necessary to create more opportunities for exchange and integration of frameworks, methods and instruments, seeking complementary and mutual reinforcement and joint field-testing.
9. Nevertheless, in some cases there is overlap of methods across different sectors or areas of research. This underlines the fact that some key methods are relevant for several areas and these need also to be highlighted.

10. With the growing recognition of the importance of UA there is a clearly expressed need, especially at municipal policy and planning levels, for general methodological guidelines that clarify the range of methods across sectors and underline commonalities and complementarities.
11. A complicating factor in pursuing this goal is the range of objectives in UA policies and programmes. The selection of methods, and the definition of what is "appropriate" is closely related with the objectives chosen.
A way out may be to develop guidelines and methods for research, planning, implementation and evaluation grouped around each of the main policy objectives to which UA can contribute:
 - Food security and nutrition
 - Sustainable urban environmental management
 - Local economic development
 - Poverty alleviation and social inclusion

In this way it would also become possible to relate these policy objectives to existing appropriate frameworks for those policy areas (e.g. the DFID livelihoods framework for the UA and Poverty alleviation guidelines; the Agenda 21 and Environmental Management Planning framework for the UA and sustainable urban development guidelines). Again, it need to be emphasized that many of the key methods and tools may have appropriate application across several policy areas.

12. Within the group there was a strong feeling that methods should focus on food security/poverty/sustainability issues, but this was not a completely unanimous opinion.
13. Despite the identification of gaps and constraints, there was a feeling that considerable progress was made by the workshop in identifying methods appropriate for urban areas. There were some differences of opinion on the balance between problems and constraints on the one hand, and progress on the other, especially regarding the extent to which "guidelines" can now be formulated.

4.2. Recommendations

To RUAF/SIUPA

1. To produce and distribute the proceedings of the workshop including the synthesis papers, the results of the group and plenary discussions and abstracts of all the case studies prepared for the workshop as well as the follow up action plan.
2. To publish all papers produced in the context of this workshop and the proceedings on the RUAF website
3. To publish a special issue of the Urban Agriculture Magazine on the basis of the workshop inputs and outputs
4. To stimulate and co-ordinate the planned follow up actions in coordination with the editorial team appointed during the workshop.

To donor organisations interested to support UA

1. To support **activities directed to fill in existing gaps**, gathering of additional case studies and the adaptation of existing methods derived from a rural context to the specific urban conditions of UA.

Special attention need:

- Methods for awareness raising and lobbying at national and municipal policy levels regarding the potentials and risks of urban agriculture and the need for integration in urban planning and sectoral policies
 - Methods for analysing networks or clusters of informal and formal actors involved in or related with agricultural production in (intra- and peri-) urban agriculture and for understanding informal networks involved in allocation of scarce local productive resources
 - Efforts to further clarify the distinctions in rural, intra- and peri-urban agriculture and their interlinkages and their methodological consequences. Special attention is needed for the adaptations needed in the methods for situation analysis, technology development and monitoring and evaluation.
 - The identification of opportunities and limitations for participation of the urban poor in efforts to integrate urban agriculture into urban policies and planning (both land use planning and project planning and implementation) and related transaction costs.
 - Efforts to understand and try out the effective combination and sequencing of more participatory/qualitative methods and more conventional/quantitative methods
 - Improvement of the integration of gender issues into the various methodologies, especially regarding:
 - Issues of access to and ownership of productive resources for UA in the intra- and peri-urban environments
 - Development of tools for integration of gender issues in enterprise development in UA
2. To support the preparation, editing, publication and distribution of a **resource book on appropriate methodologies in UA**, including guidelines for researchers,

planners, and other practitioners, summary descriptions of the repertoire of methods and cases of the practical applications of such methods.

3. To support efforts to the **development of training modules on appropriate methodologies for UA and their integration in regional and national training workshops** (organised by IDRC, MDP, PGU-Lac, FAO, CGIAR institutes, among others) and **the curricula of universities and training centres**
4. To support efforts to **bring researchers, planners and practitioners together at Municipal level in order to exchange their methodological experiences** in situation analysis, formulation of policies, integration of UA into urban planning and/or the preparation, implementation and evaluation of action programmes in relation to urban agriculture.

5. ABSTRACTS OF THE PAPERS PREPARED FOR THE WORKSHOP

5.1 Topic 1: Methods for Situation Analysis

Martin A., N. Oudwater, S. Guendel (2001) Methodologies for Situation Analysis in Urban Agriculture.

Synthesis Paper for topic 1 of the workshop "Appropriate Methodologies for Urban Agriculture", October 2001, Nairobi, Kenya. A shortened version is taken up In: *Urban Agriculture Magazine, no 5*, Appropriate Methodologies for Urban Agriculture, December 2001, RUAF, Leusden The Netherlands.

R&D Methodology;
Diagnosis; PRA; Participation; Stakeholder analysis.

Situational analysis in urban agriculture is often a starting point for many programmes and projects supporting interventions to improve the contribution of urban agriculture to income, family nutrition, social and environmental benefits and well being. Yet there has been little specific consideration of appropriate methods and tools for assisting situational analysis in urban agriculture. We begin by considering some of the conceptual challenges in investigating urban agriculture and the broader analytical frameworks for understanding. The paper discusses some specific contexts of investigation in an urban (agriculture) setting and identifies and critically assesses relevant methods and tools.

S. Gabel. (2001). Methodological Reflections on Using Participatory and Action Oriented Research with Women Farmers in Harare.

Paper for the workshop "Appropriate Methodologies for Urban Agriculture", October 2001, Nairobi, Kenya.

The task of conducting qualitative, participatory and/or action research in a setting that is far removed from one's own, can be somewhat daunting, especially for a student organising her field work independently for the first time. The author, in doing her Master study with the Municipal Development Programme in Harare, Zimbabwe, experimented with more 'participatory' and 'action' oriented research from many academics and practitioners of participatory development. In this paper she gives the results and reflects upon the use of these methods.

Torres-Lima, P., L. Rodríguez-Sánchez and O. Sánchez-Jerónimo. (2001)

Sustainable Urban Agriculture Development in México. a methodological approach
Paper for the workshop "Appropriate Methodologies for Urban Agriculture", October 2001, Nairobi, Kenya.

R&D Methodology;
Diagnosis; Economic analysis; México; Policies.

Mexico has embarked on a course of economic openness, and unless that whole effort is reversed, the process will require an allocation of labor away from agriculture toward the production of other goods and services or into the informal economy. Urban agriculture is a food production alternative that directly influences on household labor allocation at urban regional level. Our methodological approach is a mix of regional economic analysis with survey and life-history interviews of participants in the process

towards sustainability. By assessing economic, social and agro-ecological indicators that enhance or decrease sustainability in the process of urban agriculture, our methodology contribute to development strategies and policies in defining a framework that lead to more or less sustainability in different regional and economic contexts.

Mbiba, B. (2001) Participatory methodologies for policy development in urban agriculture: visualisation and the Harare experience in the early 1990s.

Paper for the workshop "Appropriate Methodologies for Urban Agriculture", October 2001, Nairobi, Kenya.

R&D Methodology;

Diagnosis; PRA; Participation; Group Research; Policies.

This paper reflects on a combination of techniques that were deployed to implement a focus group research design whose objective was to simultaneously: (a) share preliminary survey results (b) collect information from policy makers (c) influence the thinking of policy makers and (d) develop a strategy for further research in a policy environment that was at that time hostile to urban agriculture. At the core of the techniques was use of photographs and visualisation.

Nugent, R. A. (2001). Using economic analysis to measure the sustainability of urban and peri-urban agriculture: A comparison of cost-benefit and contingent valuation analyses. Paper for the workshop "Appropriate Methodologies for Urban Agriculture", October 2001, Nairobi, Kenya.

R&D Methodology; Economic Impact

Diagnosis; Economic method; Sustainability

One of the claims made about urban agriculture is that it adds to the "sustainability" of an urban area. This has been used as a selling point for local, national and international policy-makers to support the development of it, with clear and fair policies, and to integrate it with other components of the food, planning, and agricultural systems under their jurisdictions. But whether urban agriculture really makes a city more "sustainable" is an open question and will remain so until methods are developed to measure what is meant by sustainability. This paper describes several economic methods, a combination of standard and recently-developed economic methods, and seeks answers to the following questions about the social, environmental, and economic impacts of urban agriculture: In what ways does UA affect the community, and why? Are the positive and negative effects temporary or permanent and how might they change over time? Who are the important stakeholders affected by UA, what conflicts arise among them, and how might they be resolved? Are the impacts of UA better for the community than an alternative use of the resources, and how should choices be made about alternatives? How do factors from outside the community affect UA and its role in the community?

Santandreu, A. (2001) Rapid Visual Diagnosis applied in Montevideo; a rapid, low cost, participatory methodology.

Paper for the workshop "Appropriate Methodologies for Urban Agriculture", October 2001, Nairobi, Kenya. A shortened version is taken up In: *Urban Agriculture Magazine, no 5*, Appropriate Methodologies for Urban Agriculture, December 2001, RUIAF, Leusden The Netherlands.

R&D Methodology;

Uruguay; PRA; Diagnosis;

The article describes a methodology, applied in Montevideo, Uruguay. The team of investigators used Rapid Visual Diagnosis (RVD), a participatory methodology of diagnosis in urban agriculture, developed by the Latin American Center of Social Ecology – CLAES (Montevideo, Uruguay). RVD allows for the incorporation of local groups and communities in a participatory process of knowledge development that takes place "from the bottom up".

Slater, R. (2001) Understanding women's involvement in urban agriculture in Cape Town: A social development perspective. In: *Urban Agriculture Magazine*, no 5, Appropriate Methodologies for Urban Agriculture, December 2001, RUAF, Leusden The Netherlands.

UA & gender; R&D Methodology;
South Africa;

Urban agriculture research in Southern and Eastern Africa has concentrated largely on the use of questionnaires and surveys, usually with a view to understanding the economic benefits accruing to those who practice urban agriculture. For researchers, the focus has been on identifying and analysing the contribution of urban agriculture to income generation, subsistence and food security or on considering its environmental and planning implications. In Cape Town, however, the economic benefits of urban agriculture are limited. In 1989 an investigation found that, where practised, urban agriculture contributed less than one per cent of household income. Questions remain of what are the dynamics behind urban agricultural activity in this context? Why do people living in low-income settlements in Cape Town invest time and money in agriculture in the absence of economic benefits? To try and answer this question an alternative analytical and methodological approach was developed and applied during 10 months of interviewing in three townships in Cape Town. The approach relied on an understanding of how people came to live in Cape Town and the impact of apartheid on opportunities to find work and a place to live. During 1996, 169 people were interviewed in Langa, Khayelitsha and Lower Crossroads settlements and the life histories of fourteen women were recorded. Through the use of an alternative framework, urban agriculture was found to be important in a number of ways.

5.2 Topic 2: Methods For Policy Development And Action Planning

Dubbeling, M (2000) (with contributions from: A. Carrion, M.C. Cruz, A. Mlambo and F. Patino). **Appropriate Methodologies for Development of a Facilitating Framework for Planning and Policy in Urban Agriculture.**

Synthesis paper for topic 2 the workshop "Appropriate Methodologies for Urban Agriculture", October 2001, Nairobi, Kenya. A shortened version is taken up In: *Urban Agriculture Magazine, no 5*, Appropriate Methodologies for Urban Agriculture, December 2001, RUAF, Leusden The Netherlands.

R&D Methodology;
Latin America; Cuba; Ecuador; Tanzania; Brazil; Policies;

Often initiatives to develop agricultural practices and improve urban food security are often supported by civic groups only and not supported or even disjointed by municipal legislation and planning, potentially resulting in wastage of scarce resources, competition for space and conflicts. A facilitating policy and planning framework (including legislation, normative and financial aspects, and institutionalisation of processes) can catalyse promotion and support urban agricultural development in the context of sustainable development. This article gives an overview of the discussion (nicely set out in a framework) and discusses the contributions made to the workshop (notable four cases of Cuba, Ecuador, Tanzania, and Brazil).

Carrión, A (2001) El Plan Estratégico de Inversiones: una estrategia para la planificación y la formulación de políticas. Lectura a partir del proceso desarrollado en Cuenca – Ecuador.

Paper for topic 2 the workshop "Appropriate Methodologies for Urban Agriculture", October 2001, Nairobi, Kenya.

R&D methodology
Ecuador, Policies

The development of the strategic investment plan for local development of the Cuenca City, Ecuador (SIP) is undertaken in the context of the Cities Alliance Program. This programme pretends to generate in the cities participative processes addressed to the identification, formulation and execution of one or several strategic and relevant programmes and projects for local economic development which need investments either reshaping the already existing budgets, or receiving new investments which may be added to the existing funds at global, national or regional level.

This process has been developed between September 2000 and August 2001 and contains the participative formulation of a group of projects, management tools, development strategy based in 4 strategic areas, including urban agriculture, and two transversal themes.

This article describes the methodology (phases, activities, instruments), actors involved, results achieved, main lessons learned and requirements for replication in other cities in the region.

Cruz, M. C. (2001) Participative Planning in the Development of Urban Agriculture in the city of Havana, Cuba.

Appropriate Methodologies for Development of a Facilitating Framework for Planning and Policy in Urban Agriculture. Paper for topic 2 the workshop "Appropriate Methodologies for Urban Agriculture", October 2001, Nairobi, Kenya. A shortened version is taken up In: *Urban Agriculture Magazine, no 5*, Appropriate Methodologies for Urban Agriculture, December 2001, RUAF, Leusden The Netherlands.

R&D Methodology;
Cuba; Policies;

This article describes the process of integration of urban agriculture into planning in the City of Havana. The author describes the events and crucial steps taken in the popularisation of urban agriculture in the city. However, it is concluded, that the integration, that is institutional and community participation is not yet optimal.

Mlambo, A. (2001) Institutionalising Urban Agriculture in Dar Es Salaam City through the "EPM" Process.

Paper for the workshop "Appropriate Methodologies for Urban Agriculture", October 2001, Nairobi, Kenya. A shortened version is taken up In: *Urban Agriculture Magazine, no 5*, Appropriate Methodologies for Urban Agriculture, December 2001, RUAF, Leusden The Netherlands.

R&D Methodology;
Tanzania; Policies; Environmental Management;

Urban Agriculture is pronounced in the city of Dar Es Salaam however, in its present form, agricultural activities in the city of Dar Es Salaam often conflict with proper planning of urban land-uses. In some cases, agricultural activities are conducted in fragile environments or hazardous areas of the city resulting in land degradation and water pollution. In other cases the activities are carried out in areas, which are affected by industrial pollution. The keeping of livestock in the city's residential areas is also hazardous to the health and safety of city residents. The initiative by the Dar Es Salaam City Council to adopt Environmental Planning and Management (EPM) approach in the city planning in 1992 was timely and most welcome. Achievements accrued from the new approach have provided significant change to the common practices, and are described in this article.

Patino, F. and F. Cordero (2001) Lineamiento metodologicos para el impulso de procesos consultivos locales en agriculktura urbana

R&D methodology
Ecuador, policies

This paper presents a reflection on the specific applicability and utility of several methodologies and mechanisms for working with bottom level groups and community organizations based on the methodology of urban consultation applied by Habitat (UNCHS).

It presents the experiences gained with these methodologies in Quito, Ecuador and describes the 3 step process consisting of participatory diagnosis of the Urban Agriculture and Food Security situation and the formulation and implementation of an Action Plan for a pilot neighbourhood named Barrio El Panecillo, in the future to be evaluated and used as a basis for the Municipal Urban Agriculture Program.

The article stresses the need of reevaluating cultural practices developed in urban and peri urban agriculture and the need to set up specific regulations.

5.3 Topic 3: Methods for Integration of UA in Urban Land Use Planning

Drescher, A. (2001) Technical tools for urban land use planning.

Synthesis Paper for topic 3 of the workshop "Appropriate Methodologies for Urban Agriculture", October 2001, Nairobi, Kenya. A shortened version is taken up In: *Urban Agriculture Magazine, no 5*, Appropriate Methodologies for Urban Agriculture, December 2001, RUAF, Leusden The Netherlands.

R&D Methodology; Land use planning
Planning; GIS;

In spite of ongoing research on urban agriculture, in most of the world's cities, little is known about the actual extent of urban agriculture in inner city areas. Also, little is known about the spatial distribution of urban agriculture in the cities. Many questions arise: Where do urban agricultural activities concentrate and why, who is involved, what kinds of crops are grown and by which groups of city dwellers, what is the contribution of the product to nutrition and food security, which kinds of soils are occupied, how is water availability and quality, what is the distance to markets? An important and so far in many countries unsolved problem are appropriate methodologies to integrate agricultural activities in cities into urban planning processes.

Bucio, . (2001)

"Actor's Interplay Affecting Urban Agriculture: Exemplifying the use of a Compatibility Matrix With the Mexico City's Case Study"

Paper for topic 3 the workshop "Appropriate Methodologies for Urban Agriculture", October 2001, Nairobi, Kenya. Proceedings, available On: www.ruaf.org.

A shortened version is taken up In: *Urban Agriculture Magazine, no 5*, Appropriate Methodologies for Urban Agriculture, December 2001, RUAF, Leusden The Netherlands.

R&D Methodology; political ecology, actor oriented approach

The purpose of this article is twofold, first to point out at the relevance of a *political ecology* of *urban agriculture*, in other words to highlight the importance of an *actor oriented approach* in understanding the link between urban planning and urban agriculture; secondly, to use this approach to refer to Mexico City's actors' interplay in the context of a local and global politicised environment. In doing so it is our purpose to show how to use a Compatibility matrix as a methodology, not to present a handbook on how to implement agriculture in Mexico city.

Dr. Julio D. Dávila, . (2001)

“Guidelines for strategic environmental planning and management of the peri-urban interface”

Paper for topic 3 the workshop "Appropriate Methodologies for Urban Agriculture", October 2001, Nairobi, Kenya. Proceedings, available On: www.ruaf.org.

R&D Methodology; environmental planning, peri-urban interface

The aim of this paper is to present the principles and components of a strategic environmental planning and management of the peri-urban interface in a developing country context. The work presented here is the result of a research project co-ordinated by staff of the Development Planning Unit (DPU), University College London, in a number of cities in Asia, Africa and Latin America, with funding from the British Government's Department for International Development (DFID).

The main aim of the project was to produce a set of guidelines to be used as the basis for action at the local and peri-urban levels. These sought to provide potential users at different levels (from communities, to local and regional officers, and national and international experts) with a basic understanding of the processes involved in the environmental planning and management of the peri-urban interface, as well as with a clear appreciation of the principles and components within these processes. The research team sought to disseminate findings to as wide a public as possible; with this aim in mind, accessibility and simplicity were given preference over technical jargon. Whenever possible, this style has been preserved here.

Ishani Z. and D. Lamba (2001) Applications of Methods and Instruments in Urban Agriculture Research: Experiences from Kenya and Tanzania.

Paper for the workshop "Appropriate Methodologies for Urban Agriculture", October 2001, Nairobi, Kenya.

UA & Gender; R&D Methodology;
Kenya; Tanzania; Gender

The paper deals with methodology applied in two studies of urban agriculture in Kenya and Tanzania, conducted by, and in collaboration with Mazingira Institute. The first study titled "Urban Food Production and the Cooking Fuel Situation in Urban Kenya" was published by the Institute in 1987. The second study on " Gender and Urban Agriculture and its Implication for Family Welfare and the Environment in Dar Es Salaam, Tanzania." was completed in 2000 (not published). The Kenyan study comprised six cities and towns covering the various agro-climatic zones. It analysed the patterns of food and fuel production and consumption by the urban households in Kenya by considering the socio-economic characteristics of the sample population, crop production, livestock production and fuel. In addition, it raised issues for consideration by policy makers. The Tanzanian study " Tanzania - Gender and Urban Agriculture: Cattle Raising and its Implication for Family Welfare and the Environment in Dar es Salaam, Tanzania" was at a city level. It analysed the gender roles in cattle raising in the district of Kinondoni in Dar Es Salaam.

W. T. Nell & S. J. Wessels (2001)

**Agricultural Development Within The Holistic Integrated Approach:
Mucpp/Chesp As A Case Study In South Africa**

Paper for topic 3 the workshop "Appropriate Methodologies for Urban Agriculture", October 2001, Nairobi, Kenya. Proceedings, available On: www.ruaf.org.

One of the most recognised fundamental weaknesses of many institutions in Africa today is the lack of appropriate and effective governance and management systems that are dynamic enough and can adequately respond to the diverse, complex and dynamic problems and challenges of achieving sustainable holistic integrated development.

This paper refers to a holistic integrated, interactive, flexible, dynamic, multidisciplinary planning and development followed for over the past ten years by the MUCPP/CHESP in Bloemfontein, South Africa – which is the abbreviation for the Mangaung–University of the Free State Community Partnership Programme and the Community–Higher Education Services Programme which was incorporated into MUCPP since 2000 – followed a strategy of holism to try to avoid the shortfalls of other development projects in the world. This strategy focuses on the facilitating and strengthening of partnerships towards achieving holistic and sustainable development.

5.4 Topic 4: Methods for Technology Development In UÄ

Fall S.T. and H. de Zeeuw (2001) **Appropriate Methods for Technology Development.**

Synthesis paper for topic 4 of the workshop "Appropriate Methodologies for Urban Agriculture", October 2001, Nairobi, Kenya. A shortened version is taken up In: *Urban Agriculture Magazine, no 5*, Appropriate Methodologies for Urban Agriculture, December 2001, RUAF, Leusden The Netherlands.

R&D Methodology;
Methods; Participative Technology Development;

Although urban farmers are quite dynamic and innovative and have a vast scope for technical improvement, the rate of development and diffusion of technologies to these systems is still limited. This low level of technology development in urban farming systems, adaptation of agricultural production technologies to the specific conditions of the urban context, and the low level of acceptance by the urban farmers, is also due to the bias towards rural agriculture in the agricultural research and extension institutions; the lack of technologies well adapted to the urban production conditions; lack of attention for the innovations made by the urban farmers themselves and a lack of participation of the urban farmers in the identification of the priorities for technology development and in the testing and evaluation of new or adapted technologies. This poses multiple questions concerning the approach and methodologies applied in urban agricultural research and extension. This article seeks to answer these questions by exploring the methods and procedures that may be applied with success in urban agriculture.

Ly (2001) **Outils participatifs d'identification des priorités et d'analyse des discours et des pratiques dans le domaine de l'agriculture urbaine (Participatory tools for the identification of priorities and for the analysis of discussions and of practices in the field of urban agriculture.)**

Synthesis paper for topic 4 of the workshop "Appropriate Methodologies for Urban Agriculture", October 2001, Nairobi, Kenya.

R&D Methodology; Basic rapid, participatory research and analysis

The integration of urban agriculture into town policies and planning requires the identification and analysis of the present debates and practices of the various actors.

A number of methods from the rapid participatory research and planning approach serve to classify priorities and understand the challenges facing urban agriculture. The following methods and the expected results are described in this document, subdivided in three categories:

- 1) Tools of research and investigation
Participatory observation, semi-structured interviews, focus group, the making of maps, calendars, charts, the problem tree, Venn diagrams and polarisation diagrams
- 2) Stakeholders analysis
- 3) Participatory Institutional Diagnosis (DIP)

C. L. OUEDRAOGO, V. YAMEOGO-BOUGOUMA, S. R. KONDOMBO, A. J. NIANOGO (2001) Méthodologie de la recherche sur la production animale en zone urbaine et péri-urbaine (Research methods in animal production in the urban and peri urban zone)

R&D Methodology; short, middle and long term studies

This article contains a summary description of research methods that can be used in animal production in the urban and peri-urban zone, a literature review of urban animal husbandry in Burkina Faso and some case studies from Burkina Faso. The research methods are classified in three categories according to their duration: short (bibliographic study, rapid formal or informal investigations), middle (three to eight months) or long term (two years or more). The most complete methods are those of long duration but in view of the time they take, they can only be employed in specific circumstances. Nevertheless, the methods chosen here reflect the authors' objectives and the means put at their disposal.

An examination of some of these studies reveals that an improvement of the methods is needed, since the majority have been executed without a consequent planning, or with insufficient means, which has seriously limited their outreach.

Dr. Mamadou Amadou SECK (2001), Appropriate methods for technology development in composting and waste re-use in UPA

R&D Methodology; group formation
composting, Senegal, Rufisque

In the Rufisque suburb of Dakar, capital of Senegal, a group of eighteen unemployed formed an association to combat their poverty by creating work and incomes. The association approached the author and his colleagues from the University of Cheikh Anta Diop with the idea of utilising organic garbage for use in the vegetable gardens and nurseries. The idea was to compost this garbage by aerobic treatment and thus add value to this waste material. The compost is intended for a group of farmers who are asked to use following the guidelines set by the researchers. These farmers were also invited to follow a number of extension sessions and on plot demonstrations. The municipality of Rufisque provided for a one hectare area of land where the composting was to be practised.

The population of this suburb was invited to a number of meetings in which the purpose and importance of waste separation and collection was explained. The population contributes by paying a slight amount for each bucket of collected organic waste.

The association of the youths takes care of the collection, transport and composting. The composting method is taught by the author and his colleagues from the University.

There are two main aims of this research and action strategy. The first is to make compost and to improve the soil for urban agriculture. The second is to investigate the phyto-sanitary effects of using water soluble extracts from compost on a crop of tomato.

The article goes on to describe in great detail the method of composting and the results of composition of the compost and development of various strains of bacteria.

In the conclusion the use of compost is described clearly advantageous and the use of compost extract also but less pronounced. The challenge of getting waste separated was overcome by informing the population and by the help of the youths association who gained also by the selling of compost to farmers.

The use of compost extract is hardly documented in Africa and data thus hard to compare. More study is required.

S. Niang (2001) Maitrise des risques dans la ré-utilisation des eaux usées en agriculture urbaine (Risk management in the re-use of wastewater in urban agriculture)

R&D Methodology; population participation, revolving fund, lagooning, macrophytes, small diameter and low cost sewage, Rufisque.

In an unfavourable context of permanent dry seasons cycles, urban population growth, macro-economical structural adjusting and money devaluation, services are appalling in Senegal cities. Results are progressive degradation of life style and environment. For the few past years, wastewaters disposal have been rising in cities according to the population growth. Hence, a solution for water supply in urban agriculture was offered. Unfortunately health hazards attendant to this practice let policy makers to elaborate tough controls which are slowing down people's eagerness.

In order to find in a global solution including food supply, public health, improved life style, environmental quality, woman's work valorisation into development processes, but further, to make improved sanitation affordable to poor people, ENDA has set an integrated process of disposal and treatment of wastewaters and solid wastes in Castors and Diokoul districts of Rufisque (Senegal). The process consists of collecting the house wastewaters in a little settlement tank (around 8 hours of time stay), after that, they are discharged through a 110 mm pipes and treated into a macrophite's lagooning ponds. Then, treated wastewaters are reused for agriculture, and reforestation. The system funded by CIDA was meant to create a revolving fund at the end of the project with financial participation of the stakeholders with the view to ensure sustainability of the project, through the improved sanitation in poor districts, with community contributions.

Cardinale E., V. Porphyre, D. Bastianelli. (2001). Methods to promote healthier animal production: examples in periurban poultry production around Dakar.

Paper for the workshop "Appropriate Methodologies for Urban Agriculture", October 2001, Nairobi, Kenya.

R&D Methodology; Urban Livestock
Epidemiology, poultry, network, veterinarian, disease, urban agriculture, methods

Animal diseases in periurban intensive poultry production mean economic problem for the producers. There is also health risk involved for the consumer. For instance the evidences of food borne diseases in poultry meat in Dakar. Most contamination and diseases are due to inappropriate practices and buildings, and indirectly to a lack of regulations and controls.

Actions led by ISRA and CIRAD in Dakar are aimed at developing an avian pathology laboratory to support the production sector and at developing; research

into the contamination of poultry products through the production chain; and facilitating a network on epidemiological information (RESESAV). The involvement of veterinarians and field technicians in this effort is considerable. The development of tools and actions for the control of diseases in poultry production appears to be a "virtuous cycle" because the presence of a reliable laboratory encourages veterinarians to provide sound diagnosis and the farmers to adopt a more rational management of health in their flock, which in turn stimulates the activity of the laboratory.

Drechsel, P., O. Cofie, R. Vázquez and G. Danso. (2001) Technology development for municipal organic waste recycling for urban and peri-urban agriculture - A holistic approach.

Paper for the workshop "Appropriate Methodologies for Urban Agriculture", October 2001, Nairobi, Kenya.

R&D Methodology; Waste recycling; Rural-urban linkages
Poultry; Ghana; Nutrient recycling; Sanitation; FAO; IBSRAM; West-Africa

One of the challenges of rapid urbanisation is how to make sufficient food available on a sustainable basis for the increasing urban population. The increase in urban food demand is giving way to intensive food production systems in and around cities often specialised on perishable crops or poultry, and also to export-oriented agriculture using the advantage of urban infrastructure. These types of agriculture require large amount of inputs, including plant nutrients. Once the food is consumed or processed in the city, related market and household refuse as well as human excreta contribute to urban pollution due to the common lack of adequate sanitation services or end in landfills. In both cases large amounts of nutrients are simply 'wasted'. This situation calls for an analysis of options for municipal organic waste recycling for the benefit of agricultural and environmental sustainability in the rural-urban continuum. An international workshop on (peri)-urban agriculture and nutrient recycling was organised for Africa in 1999 by FAO and IBSRAM, where knowledge gaps in waste recycling were analysed and recommendations developed. Many scientists, farmers and decision makers emphasised the need for more information on viable and acceptable options for the recycling of municipal and agro-industrial waste, especially for farmers in urban areas. Subsequently, the Canadian donor IDRC agreed to co-sponsor a corresponding project in three agro-ecological zones of West Africa addressing variations in organic waste generation, quality and availability. The project is an attempt to develop recycling strategies that should result in closing the rural-urban nutrient cycle as well as preserving the quality of the urban environment by reducing the (pollution effects of) waste accumulation. The analysis and its different components are described in this paper.

Duc Vien, T. and D. Thi Sy (2001) The role of aquaculture in pollution-remediation in Tay Lake and Truc Bach Lake of Ha Noi.

Paper for the workshop "Appropriate Methodologies for Urban Agriculture", October 2001, Nairobi, Kenya.

R&D Methodology; Wastewater;
Vietnam; Aquaculture;

In Ha Noi there are 18 lakes ranging from 1 to 526 ha, with a total area of 615.4 ha. All of the lakes of Ha Noi are used for wastewater and storm water storage in the rainy season, and also as a source of livelihood for about 100 fishermen. In order to understand the role of aquaculture in wastewater – remediation, a study was carried

out in Tay Lake from 1997-1998, to follow the application of the Department of Science, Technology and Environment of Ha Noi. This report describes the role of aquaculture in wastewater treatment and use. It gives an overview of the methods used, and gives recommendations to the authorities.

Fall, Abdou Salam (2002) L'approche réseau dans l'agriculture urbaine: Le cas des unités de transformation et leurs liens amont/aval au Sénégal. (The Network Approach for Urban Agriculture: the Case of Transformation Units of Agricultural Products and their Links).

Paper for the workshop "Appropriate Methodologies for Urban Agriculture", October 2001, Nairobi, Kenya. A shortened version is taken up In: *Urban Agriculture Magazine, no 5*, Appropriate Methodologies for Urban Agriculture, December 2001, RUAf, Leusden The Netherlands.

R&D Methodology;
Senegal; Networks; Dairy; Cereals

In this article a social analysis is a proposed and described of network analysis. Taking the products cereals and milk as an example, the relations at different levels in Senegal are discussed.

Quansah, C. and S. Asante-Mensah (2001). Methods to Identify the Priorities for Technology Development: a Case Study in the Use of Local Knowledge.

Paper for the workshop "Appropriate Methodologies for Urban Agriculture", October 2001, Nairobi, Kenya.

R&D Methodology; Rural-urban linkages; Land use planning
Ghana; Land management; Participation;

The increasing conversion of agricultural land for housing development due to urban growth requires the development and adoption of improved land management practices to sustain the requisite food production to feed the masses. Although appropriate land management technologies are available, adoption is very low. This is due, among other factors, to lack of participation of farmers in the technology development. This paper presents a case study in which various participatory methods are used in research priority setting, accommodating local knowledge in appropriate technology development, monitoring and evaluation. The steps in the implementation of the methods are demonstrated and some of the results are presented to show their relevance to enhanced technology adoption and institutionalisation.

Röling, N. and E. van de Fliert (2001) Introducing Integrated Pest Management in Rice in Indonesia: a Pioneering Attempt to Facilitate Large Scale Change.

Paper for the workshop "Appropriate Methodologies for Urban Agriculture", October 2001, Nairobi, Kenya. This paper is a chapter In: "Sustainable Agriculture: Participatory Learning and Action" by N. Röling and M. Wagemakers (Eds), Wageningen Agricultural University, Department of Communication and Innovation Studies. To be published by Cambridge University Press.

R&D Methodology;
IPM; Indonesia; Farmer Field Schools

Integrated Pest Management (IPM) is an important component in sustainable agriculture. The paper describes the National IPM Programme, which the Indonesian

Government is implementing since May 1989. It is the first large-scale attempt to systematically introduce more sustainable agricultural practices as a national, public sector effort. As of October 1995, the Project had trained an estimated 229,000 farmers in season-long Farmer Field Schools. In doing so, the Project had learned immensely important lessons for all of us who are interested in what it takes, in practice, to foster sustainable agriculture. This chapter is an attempt to capture some of these lessons, although the authors realise full well that they can only describe some of the highlights.

Zeeuw, H. de (2001) Trying out PTD with NGOs in Peru and Bolivia. Paper for the workshop "Appropriate Methodologies for Urban Agriculture", October 2001, Nairobi, Kenya.

R&D Methodology;
PTD; Bolivia; Peru; PRA; Sustainable Agriculture

This paper is written as a contribution to the internal workshop on Participatory Technology Development (PTD) organised by ETC Ecoculture in July '98. The project described, originated as part of the follow up activities, undertaken by ICCO, of the study on Sustainable Agriculture that was implemented in 1994. One of the findings of that report was that although the ICCO partners in Peru and Bolivia talked a lot about participation, their actual practice at field level was not participatory at all, particularly not when it came to technology development. Against this background, ICCO supported the suggestion to develop a support programme to introduce and adapt the PTD approach among their partner organisations and other NGOs in the Andean region. This project was further seen as the Latin American part of a global programme on PTD.

5.5 Topic 5: Methods For Monitoring And Evaluation In UA

Campilan D. P. Drechsel, and D. Jöcker (2001). Monitoring and Evaluation and its adaptation to urban and peri-urban agriculture.

Synthesis paper for the workshop "Appropriate Methodologies for Urban Agriculture", October 2001, Nairobi, Kenya. A shortened version is taken up In: *Urban Agriculture Magazine, no 5*, Appropriate Methodologies for Urban Agriculture, December 2001, RUAF, Leusden The Netherlands.

R&D Methodology;
Monitoring and Evaluation; Participatory Monitoring; Indicators;

Monitoring and Evaluation is crucial in assessing outcomes of urban agriculture related projects or policy interventions, as well as changes in urban agriculture itself. The challenge is how conventional M&E methods and indicators, generally used for rural agriculture, can be adapted to the specific context and dynamics of urban agriculture. This paper gives an overview of existing literature the contributions to the workshop. Summaries are given in 11 annexes and 10 tables in the workshop paper. While there is already a well-established general literature on M&E in agricultural research and development, most of the reported experiences are based on the rural setting. In view of the contrasting characteristics often mentioned between rural and peri-urban agriculture, a distinct form of M&E in the UA context is expected. The following questions are touched upon: how far have UA projects taken up the challenge of adapting M&E for urban context? And does M&E require different framework / approach, methods and tools, and/or indicators when applied to UA?

Batac, J. (2001) Performance Measurement within the Municipal Solid Waste/Urban Agriculture Continuum: A Practical Local Governance Methodology.

Paper for the workshop "Appropriate Methodologies for Urban Agriculture", October 2001, Nairobi, Kenya.

R&D Methodology; Waste recycling
Philippines; Compost; Monitoring; Municipal Government

The model of the municipality of Marilao has been presented in three conferences of the League of Municipalities of the Philippines (LMP) involving 1,500 member municipalities. As a result of the presentation, the mayors were able to identify and agree on the indicators for good governance, the replication process in their municipalities, the role of the LMP in the replication, and the policy issues and constraints. Based on the experiences of Marilao on waste management, treatment and re-use for urban agriculture, and assessment procedure is proposed. This assessment covers the existing capacity or strengths, the gaps or weaknesses, issues, challenges and opportunities in the realisation of managing solid waste and the eventual program of urban agriculture by the municipal or city organization. The assessment will involve both formal and informal sector stakeholders. Such an assessment can evolve the existing dynamics of physical resources, cultural or attitudinal mindsets and actions, and, power sharing and motivations among institutions and their actors. These dynamics are necessary in the identification of strategic thinking of positive goals directed at the improvement of service resulting to a favourable impact on the quality of life in an urban setting.

Cornish, G. A. (2001) Assessing water quality and health implications in informal peri-urban irrigation. Case studies from Nairobi and Kumasi.

Paper for the workshop "Appropriate Methodologies for Urban Agriculture", October 2001, Nairobi, Kenya.

R&D Methodology; Wastewater; Monitoring; Kenya; Ghana; Irrigation

This paper draws lessons from work carried out in Nairobi, Kenya and Kumasi, Ghana, where research was conducted into the nature, extent and importance of informal, irrigated agriculture in the intra-urban and peri-urban zones of those cities. The research was funded by the Infrastructure and Urban Development Department of DFID. Fieldwork in Nairobi was carried out in collaboration with a number of independent consultants while in Kumasi the project collaborated with staff from the Institute of Land Management and Development at the Kwame Nkrumah University of Science and Technology. The focus of this paper and the lessons drawn concern only that part of the research addressing water quality and its potential impact on producer and consumer health. The interest of this workshop is in the validity of the methods used to obtain information but the findings of the studies, and their conclusions, are used to illustrate the points made.

Dasso, J.A. (2001) Methodology for Analysing Interventions in Urban Agriculture in Latin America.

Paper for the workshop "Appropriate Methodologies for Urban Agriculture", October 2001, Nairobi, Kenya.

R&D Methodology; Latin America; Peru; Compost; Monitoring; Municipal Government

The present methodological proposal for analysing Interventions in urban agriculture in Latin America was designed to serve as a tool for NGOs and other institutions involved in promoting UA to systematically analyse interventions in this field and determine the effects of these interventions on farming families. The methodology also aimed to draw lessons from previous experiences to enhance the sustainability of actions carried out in this field. The paper describes a methodological proposal.

Drechsel P., L. Gyiele and S. Asante-Mensah (2001) Assessing human capacity building and the potential of technology adoption via KASA analysis.

Paper for the workshop "Appropriate Methodologies for Urban Agriculture", October 2001, Nairobi, Kenya.

R&D Methodology; Ghana; Monitoring;

This article describes experiences of a joint UA project of the Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, and the International Board for Soil Research and Management (IBSRAM). In this project tools for participatory monitoring and evaluation (PME) were used to estimate the adoption potential of technologies at farmers level and the adoption potential of methodological approaches. In both cases, KASA analysis was applied to assess changes in knowledge, attitudes, skills, and aspirations of individuals or groups towards certain activities or innovations. KASA analysis is a generic PRA/PME tool, i.e. not a specific 'UA method', and does not require any special adaptation to the urban situation, but a distinct timetable. The major advantages of the KASA analysis are: (i) addressing changes in views, opinions, behaviour, and feelings; (ii) useful for all kinds of collaborators; and (iii) useful to verify achievements in human capacity building (CB)

e.g. for logical project frameworks. This paper describes KASA and some related methods, which were used in our studies in peri-urban Kumasi.

Jacobi, P. and S. Kiango (2001) Ways to monitor & evaluate Urban and Peri-urban Agriculture – Experiences from Dar Es Salaam, Tanzania.

Paper for the workshop "Appropriate Methodologies for Urban Agriculture", October 2001, Nairobi, Kenya. A shortened version is taken up In: *Urban Agriculture Magazine, no 5*, Appropriate Methodologies for Urban Agriculture, December 2001, RUAFA, Leusden The Netherlands.

R&D Methodology; Land use planning; horticulture
Tanzania; Monitoring and Evaluation; Participatory Monitoring; Indicators;

In Tanzania urban and peri-urban agriculture is a well-known activity and it has reached the level of official acceptance. Systematic monitoring and evaluation as well as channelling generated information and feedback from the field to the relevant levels has supported this acceptance. In the discussion about participatory M&E against conventional M&E it appears that the former should replace the latter. It is argued in this paper that there should be a balance to be struck between "conventional" and "participatory" monitoring. There should be both "hard data" and a system that allows primary stakeholders to monitor and evaluate their activities using different methods and own indicators. Truly appropriate monitoring and evaluation should enhance internal learning and provide evidence to support qualitative statements about the impact of an action.

Moukoko-Ndoumbé, F. (2001). Accounting for UA Real Economic Performance and Environmental Impact at Farm Level Methods - Analytical approach - Pilot applications. Paper for the workshop "Appropriate Methodologies for Urban Agriculture", October 2001, Nairobi, Kenya.

R&D Methodology;
Monitoring; Environmental Impact Assessment; Economic Accounting;

The proximity of urban agriculture to central markets and consumer centres confers to this type of agriculture specific opportunities that often set it apart from rural agricultural production. Taking advantage of these opportunities, urban agriculture has significantly complemented rural agriculture, in many instances, filling critical food security and income gaps. In spite of all this, feelings are mixed as to the suitability of and long-term social sustainability of agriculture in urban areas. Because conventional economic accounting continues to measure farm level agricultural performance and management efficiency essentially in terms of present productivity and profitability of man-produced, market-valued inputs, the contribution of nature and environment to the production process and the impact of agricultural production on the environment are simply ignored. The Plan of Action of the United Nations Conference on Environment and Development held in Rio de Janeiro in 1992, Agenda 21, urged that conventional accounting systems should be expanded to cover concerns related to the environment and natural resource sustainability. In response, the United Nations Statistics Division issued a Handbook on a System of Integrated Environmental and Economic Accounting (SEEA, 1993). Drawing on SEEA guidelines and other relevant works, the FAO Farm Management and Production Economics Service and the Royal Tropical Institute (KIT), the Netherlands, have developed methods/guidelines for monitoring and accounting for soil nutrient inflows, outflows and balances and integrating related physical and monetary values into conventional farm accounting, at farm level, which are described here.

Moustier, P. (2001) Assessing The Socio-Economic Impact Of Urban And Peri-Urban Agricultural Development

Paper for the workshop "Appropriate Methodologies for Urban Agriculture", October 2001, Nairobi, Kenya. A shortened version is taken up In: *Urban Agriculture Magazine, no 5*, Appropriate Methodologies for Urban Agriculture, December 2001, RUAF, Leusden The Netherlands.

R&D Methodology; Economic Impact; Horticulture
West Africa; Central Africa; Policies; Vegetables;

The paper provides practical indicators and field methods for assessing the impact urban agriculture in social and economic terms (employment, income, added value, and food supply). In a context of growing advocacy for policy support in favour of urban agriculture, while public resources are shrinking, it is more and more necessary that researchers provide rigorous assessment of the contribution of urban agriculture to policy objectives. The paper is based on the author's fieldwork in West and Central Africa, mostly centred on vegetable production and marketing, as well as some literature review.

Plastow, J. and S. Pantuliano. (2001). Experimenting with PIM: the ACORD Sudan Urban-Rural Linkages Programme Experience of Adapting Participatory Impact Monitoring. Paper for the workshop "Appropriate Methodologies for Urban Agriculture", October 2001, Nairobi, Kenya.

R&D Methodology; Rural-urban linkages
Participatory Monitoring; Sudan; Migration; Action Research

This paper explores the way in which ACORD programmes in the Horn of Africa have adapted the GTZ inspired Participatory Impact Monitoring (PIM) to their working environments. It begins with an introduction to the methodology and the ways in which it was introduced to non-literate communities. Thereafter the paper explores the results and lessons learnt from a twenty-month action research in the use of PIM with the Urban-Rural Linkages Programme and three of its partner CBO's from amongst the Beja people of Eastern Sudan.

Talukder A. S. de Pee, A. Taher, A. Hall, R. Moench-Pfanner, M. W. Bloem. (2001).

Improving food and nutrition security through homestead gardening in rural, urban and peri-urban areas in Bangladesh.

Paper for the workshop "Appropriate Methodologies for Urban Agriculture", October 2001, Nairobi, Kenya. A shortened version is taken up In: *Urban Agriculture Magazine, no 5*, Appropriate Methodologies for Urban Agriculture, December 2001, RUAF, Leusden The Netherlands.

R&D Methodology; Food/Nutrition; UA & Gender
Bangladesh; Home gardens; Gender; Children;

Malnutrition is a serious public health problem in Bangladesh, and can have serious impacts on the population as malnutrition retards child growth, increases the risk and duration of illness, reduces work output, and slows social and mental development. Improving nutritional status, including micronutrient status, can lead to increased productivity, increased child survival and growth, and reduced maternal morbidity and mortality. Interventions for improving nutrition can address deficiencies of specific nutrients. However, when the goal is to address deficiencies of more nutrients

simultaneously and to target the population throughout the lifecycle interventions such as dietary diversification are more appropriate. Homestead gardening activities are centered on women because they are usually the ones who take care of the homestead garden. These activities empower the women and can increase their income. This combination of empowerment and increased income can result in better use of household resources and improved caring practices. Therefore, homestead food production also addresses a priority area of poverty alleviation and overall development of communities. This article describes the important characteristics of HKI's Homestead Gardening Program in Bangladesh (1990-2001) as well as how it is being monitored and evaluated.

5.6 Topic 6: Methods for Market Analysis and Enterprise Development In UA

Holmer, R. J. (2001) Appropriate Methodologies for Micro enterprise Development in Urban Agriculture.

Synthesis paper for the workshop "Appropriate Methodologies for Urban Agriculture", October 2001, Nairobi, Kenya. A shortened version is taken up In: *Urban Agriculture Magazine, no 5*, Appropriate Methodologies for Urban Agriculture, December 2001, RUAFA, Leusden The Netherlands.

R&D Methodology; Horticulture; Services
Micro-enterprise; Informal Sector;

Much of the developing countries' rapidly growing population forms part of the economy that lies outside the regulatory framework of governments in what is known as the informal sector. Although the definitions vary according to the country context, it is generally agreed that the informal sector, whether rural or urban, comprises small and micro-enterprises producing and distributing basic goods and services in unregulated, but competitive markets. This paper reviews available literature and the contributions to the workshop.

Agbayani, A.L. P., R. J. Holmer, G. E. Potutan, W. H. Schnitzler (2001) Quality and quantity requirements for vegetables by private households, vendors and institutional users in a Philippine urban setting.

Paper for the workshop "Appropriate Methodologies for Urban Agriculture", October 2001, Nairobi, Kenya. A shortened version is taken up In: *Urban Agriculture Magazine, no 5*, Appropriate Methodologies for Urban Agriculture, December 2001, RUAFA, Leusden The Netherlands.

R&D Methodology; Horticulture
Philippines; Market survey;

Two studies were conducted to characterize the demands of private households, vendors and institutional users for fresh vegetables in Cagayan de Oro City, Philippines. Specifically, these surveys aimed to provide baseline data for decision-makers and farmer practitioners to further improve the market transparency for vegetables and, thus, contribute to better producer and consumer linkages. The first survey was conducted in February 1998 within different urban and periurban districts of Cagayan de Oro. The second survey using administered questionnaires was conducted in June 1999. A sample group of one hundred respondents was chosen randomly after clustering the various groups of institutional users of fresh vegetables. The generated data of both surveys were subjected to descriptive statistical analysis.

Ansaldo, R. W. (2001) Identification and Improvement of Market Linkages between Producers and Institutional Users: A Case Study on Potato Contract Growing in the Philippines.

Paper for the workshop "Appropriate Methodologies for Urban Agriculture", October 2001, Nairobi, Kenya.

R&D Methodology;
Livelihoods; Philippines;

Livelihood Enhancement for Agricultural Development, Inc. (LEAD) was established in the last quarter of 1996 between the Ateneo de Manila University, Xavier University and the author. Its main objective was to provide business intermediation services between large business entities requiring agriculture-based raw materials and farmer cooperatives needing markets for their produce. Based in Cagayan de Oro City and working closely with the Xavier University College of Agriculture Complex, LEAD networked with the University's circle of coop federations and members including the Philippine Federation of Credit Coops (PFCCO), Maramag Community Credit Coop (MACCCO) and Northern Bukidnon Free Farmers Coop, Inc. (NORBUFFCI). In this way, LEAD sought to identify cooperatives with the proven history, leadership and business experience needed to make the undertaking successful. The methodology is described in this paper.

Homem de Carvalho, J.L. (2001) PROVE – Small Agricultural Production Verticalisation Programme .

Paper for the workshop "Appropriate Methodologies for Urban Agriculture", October 2001, Nairobi, Kenya. A shortened version is taken up In: *Urban Agriculture Magazine, no 5*, Appropriate Methodologies for Urban Agriculture, December 2001, RUIAF, Leusden The Netherlands.

R&D Methodology; Community development; Services
Brazil; small enterprise development

PROVE is a programme designed to promote small agricultural production, processing and trade involving many urban agricultural systems, including vegetable gardening, fruit growing and livestock systems. The State intervenes at the individual and/or collective level, with low-income groups as the main target audience. The PROVE started in 1995, and in the 1995-1998 period, 132 agro-industrial facilities were built in the Federal District. In following years, the Programme was implemented in different cities in the states of Minas Gerais, Mato Grosso do Sul, and Santa Catarina and in 28 cities in other states. In 2001, the Programme also was implemented in Quito, Ecuador. The different stages of the programme are described as the rungs in a ladder (11 rungs) that small farmers have a very hard time climbing. Enabling them to climb these rungs is a fundamental requirement to ensure the success of the PROVE and, consequently, to ensure their social integration with sustainable development and solidarity.

Paje, B. G. (2001) Methodologies to Improve Entrepreneurial Skills of Urban Agriculture Entrepreneurs.

Paper for the workshop "Appropriate Methodologies for Urban Agriculture", October 2001, Nairobi, Kenya.

R&D Methodology; Services
Philippines; Informal sector; Micro-enterprise;

In developing countries only few job opportunities exist in the formal sector and unemployment rates remain very high, especially in the countryside, triggering the migration of people into the urban centres. However, the industrial sector absorbs new entrants only at a limited scale, forcing these segments to move into entrepreneurship due to lack of alternatives. In the Philippines, by government's definition, small industries include livelihood operations in the informal sector. While the number of entrepreneurship ventures abounds, one sees lots of these slowly dying and some going bankrupt. It is perceived that entrepreneurial activities lack the dynamism and competitive edge of those in more developed countries. One reason that can be advanced is the lack of skills and competencies to manage business enterprises. Corollary to lack of skills is the fact that small entrepreneurs find it difficult to pay for know-how and its application in their enterprises. This paper describes the CEFE's Basic Theory, to improve entrepreneurial skills.

Wheatley, C. (2001). Fostering innovation in urban and peri-urban based clusters of small-scale agrifood enterprises.

Paper for the workshop "Appropriate Methodologies for Urban Agriculture", October 2001, Nairobi, Kenya.

R&D Methodology; Services
Philippines; Micro-enterprise; Agri-food;

In the world of research and development practitioners, small enterprise development has long had an urban bias, with relatively little attention given to agri-food based enterprises, that are seen as falling within the ambit of rural development. Meanwhile, agriculture has long suffered from the view that it is essentially rural and production-oriented, with little emphasis given to a market- or enterprise-orientation. However, the current competitive "operating environment" of small-scale agri-food based enterprises in the developing world is one in which markets and enterprise increasingly matter. In many countries, and especially in Asia, groups of similar micro and small-scale enterprises are commonly found in concentrated geographical areas, or clusters.

Working with clusters of enterprises and their associated support services, rather than on individual enterprises, can be both efficient in using scarce resources and effective in facilitating change in a wide number of enterprises, through a small intervention leveraged across the cluster.

5.7 General

Anderson, S. and A.P. Vazquez. (2001). The contribution of research to Urban Agriculture: a methodological review.

Paper for the workshop "Appropriate Methodologies for Urban Agriculture", October 2001, Nairobi, Kenya. A shortened version is taken up In: *Urban Agriculture Magazine, no 5*, Appropriate Methodologies for Urban Agriculture, December 2001, RUAf, Leusden The Netherlands.

R&D Methodology

Methodologies; Methods;

Developments in urban agriculture (UA) have been practitioner-led. Researchers are trying to catch up and identify what contributions they can make. In this article the authors review some methods that have been used in the study of UA from actor-oriented and action-research perspectives. Different disciplinary foci have been used to study urban agricultural dynamics such as urban development and land use; strategies of urban farmers involved in production; natural resource management; production systems; commodity and food systems. Many of the approaches aim to involve different actors by consultation through questionnaires, survey, interviews or participatory methods. Social, economic and ecological methodologies and methods are discussed, while the need for new methods is discussed.

Havorka Alice (2001)

In: *Urban Agriculture Magazine, no 5*, Appropriate Methodologies for Urban Agriculture, December 2001, RUAf, Leusden The Netherlands.

UA & gender; R&D Methodology;

Urban peri urban, income generation, women's employment, intervention strategy

The incorporation of gender considerations in urban agriculture research is increasing, and indeed, there have been advances over the last decade in our understanding of both men's and women's experiences with farming in cities around the world. There is a move away from the so-called "urban farmer", an undifferentiated, masculine, normalised urban dweller who engages in agriculture. Instead, there is greater recognition that people's experiences with urban agriculture cannot be easily standardised and that gender neutrality does not necessarily capture the breadth of such experiences. Many researchers have begun to emphasize differences amongst urban farmers, thus highlighting the distinct agriculture systems that form along gender, race, ethnicity, class, age, etc. lines. Gender analysis allows us to disaggregate data on urban agriculture and to explore why certain processes and structures generate different opportunities and constraints for different people. This article gives a comprehensive overview

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