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Petra Jacobi

Ward profile map drawing for monitoring UA activities and land use changes in Dar Es Salaam

Appropriate Methods

research, planning, implementation and evaluation for Urban Agriculture

Editorial

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Agricultural activities within the city limits have existed since the first urban populations were established thousands of years ago. Yet only recently has urban agriculture become a systematic focus of research and development attention as its scale and importance in the urbanising world we live in become increasingly recognised.

Urban agriculture has been recognised as a cross-sectoral issue that requires a multi-sectoral and multi-actor approach and active participation of the direct and indirect stakeholders in the planning and implementation of policies and action programmes. This requires the adaptation of the methods used in rural agricultural research and development for the specific urban conditions and to realise an innovative integration of these methods with the methods applied by urban managers and planners and other relevant disciplines.

Urban farmers and urban farming conditions differ from those in rural areas. One should ask the question whether there currently is a gap that needs to be bridged between agricultural methods oriented towards rural conditions and urban planning and management methods? The urban farming population is more heterogeneous. A proportion of the urban farmers are former rural farmers (whose traditional technical and social knowledge may be of limited value in the urban conditions). One also encounters urban people farming out of need (the urban poor) or by choice (citizens with more resources that see in agriculture a good income earning or investment opportunity, see Fall and de Zeeuw, this issue). Whereas for rural farmers agriculture is their only occupation, for urban households agriculture may be just one of many livelihood strategies. Urban agriculture is further characterised by high levels of land tenure insecurity and space limitations. However, it has the advantages of being close to markets and having access to resources (including urban wastes and waste water) not available to their rural counterparts (Campilan et al., Martin et al. in this issue).

Urban farming conditions differ from rural areas

Rapid change is characteristic of many urban environments hence there is a need for practical methodologies capable of capturing ongoing trends in intra-

urban and periurban agriculture as well as the dynamics of the urban environment at different levels of influence (intra-household, group/neighbourhood, city) urban agriculture Another difference between rural and urban farming is the more complex relations between a wider range of stakeholders operating at different levels in the urban setting.

Understanding the variety and dynamism of livelihood strategies and farming styles is a prerequisite for improving agriculture in the city, how city governments can incorporate and support agriculture, whilst addressing potentially conflicting interests and responsibilities. Appropriate methods to aid both these requirements are certainly necessary and that perceived need lay behind the workshop on which this UA-Magazine is based.

THE RUAF-SIUPA WORKSHOP IN NAIROBI

In view of the above The Resource Centre on Urban Agriculture and Forestry (ETC-RUAF) and the CGIAR Strategic Initiative on Urban and Periurban Agriculture (SIUPA) took the initiative to organise an expert workshop "Appropriate Methodologies for Urban Agriculture". Discussion on methodological development for urban agriculture was divided into six key thematic areas:

Understanding how city governments can support and incorporate agriculture

1) Situation analysis in urban agriculture
2) Policy development and action planning in urban agriculture
3) Land use planning that integrates urban agriculture
4) Participatory technology development and dissemination in urban agriculture
5) Evaluation and monitoring of policies and interventions in urban agriculture.
6) Enterprise development and marketing in urban agriculture

This issue of the *Urban Agriculture Magazine* contains the synthesis papers produced by the six topic co-ordinators and selected contributions submitted to the editor and written for the workshop. Nearly all fifty papers that were produced in the context of this Workshop are available on the RUAF website.

Inevitably the thematic areas have overlaps and these became apparent in the papers and during the discussions. This was not perceived as a problem, rather it resulted in an enrichment of particular thematic areas, as a wider range of different experiences – use of situation analysis for example in the assessment of technological or market needs – helps to pool a larger number of methods. Neither the workshop nor this issue of the *UA-Magazine* claim to give a comprehensive coverage of all the methods that can be of use in research into, and further development of, urban agriculture. The discussions in Nairobi and this Magazine form the basis of an E-mail conference (see the back side of this Magazine).

The objectives of the Nairobi workshop were:

- To bring together, exchange and discuss field experiences within a variety of methodologies related to (intra- and peri-) urban agriculture research, policy formulation and planning, implementation and monitoring/evaluation.
- To assess the appropriateness of the methodologies actually in use in UPA-activities and to identify adaptations needed.
- To identify additional methods for participatory, inter-institutional and inter-disciplinary research, planning, etc. that are used with success in other areas of work and could be of importance for UPA.
- To suggest improvements in the approach, methods and instruments used in UPA and to indicate ways to introduce such improvements.

E-mail Conference

From 14 to 16 February ETC-RUAF and CIP-SIUPA will organise a Conference by Email on the subject of "Appropriate Methods for Urban Agriculture, for Research, Policy Development, Planning, Implementation and Evaluation".

The topic (key) papers and a selection of the case studies, mostly shortened version, are given in this Magazine. The longer versions and the other papers can be downloaded from **www.ruaf.org/conference**. For more information on the conference, see the back side of this magazine.

ADAPTING METHODS TO THE URBAN SETTING

Most authors agree that the urban setting does indeed require adaptations of existing methods, and/or the development of new ones. Learning from experiences existing within the field of urban agriculture as well as from experiences in related fields (like the Agenda 21 methodology, Healthy Cities approach, up to date Urban Planning Approaches, Participative Research and Extension Approaches, Farmer Field Schools, or Participatory Natural Resource Management) is of prime importance.

Martin et al. argue in this issue that the definition and use of concepts, needs attention: the terms 'urban', 'periurban' and 'rural' agriculture are sometimes used as broad descriptions of a continuum and sometimes as discrete categories. Conceptual clarity is especially important as urban agriculture is marked by the diversity of actors and plurality of countries involved. Similarly, it was found important to clarify basic assumptions underlying particular methods. This was particularly clear in the case of methods applied to situation analysis.

Among new paradigms developed over the last few years, which seem likely to be very important for application to urban agriculture is the concept of livelihoods. This is used to clarify the diverse ways individual and household assets and capacities are deployed in different spatial, temporal and institutional contexts and the implications of this for different kinds of development interventions (Vazquez and Anderson, page 4). Other fruitful methodological approaches include studies which have looked at eco-

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nomic tools to address assets without a clear monetary value (see for instance under topic 5, the paper by Henn and Henning), and approaches that focus on multifunctional land use, in which different functions to society can be combined, amongst which urban agriculture (Deelstra et al., 2001).

The participation of farm households as well as other actors involved in the production – consumption chain in research and development activities has been increasingly recognised as an important pre-condition for sustainable agricultural development. Discussions continue however about the type of participation, and on effective combinations and sequencing of more participatory and more conventional methods (see for instance the paper on Tanzania on page 43). There are some interesting examples of the use of participatory approaches in analysis of urban agriculture. Despite the growing incorporation of participatory approaches in rural agriculture referred to above, their adaptation to the urban context is in the early stages, and a number of challenges remain (as described on page 33 by Fall and de Zeeuw). Accessible methods are required to foster the participation of urban agricultural producers.

Accessible methods are required to foster participation

Gender has been addressed in most of the projects (and is specifically addressed by Hvorka on page 7), but there may still be a lack of a systematic consideration of gender analysis in the context of urban agriculture, especially in the operationalisation of tools. Of particular importance will be the likely differences in power relations between the sexes in the urban context, the different types of social networks present and perhaps different educational opportunities.

Another important area for exploration is the development of appropriate methods for institutional co-operation in urban agriculture. Urban agriculture is a cross-sectoral issue requiring inter-institutional co-operation and co-ordination, of which some hopeful examples are available (Dubbeling in this issue). The development of an adequate framework for participatory and multi-actor development of policy and action plans on urban agriculture will facilitate inter-institutional co-operation and improve the communication between the urban farmers and other direct stakeholders and the local decision makers, and link the different levels of analysis and intervention.

Although there is strong support for seeing urban agriculture as part of poor people's livelihood strategies capable of producing positive impacts on their quality of life (including ecological, economic, socio-political and socio-cultural aspects) it was pointed out at the Nairobi workshop that urban agriculture also offers opportunities for economic benefits to different sectors of the population and these should not be ignored. This issue deserves further attention.

Please help continue the discussion on these and many other emergent issues by joining the Email Conference in February, or by sending your comments to the Editor.

From Video "Urban Agriculture", RUAF 2001

Children school vegetable garden in Ecuador

Developments in urban agriculture have been practitioner-led. Researchers are trying to catch up and identify what contributions they can make. Research could learn from the successes and failures addressed in other forms of agriculture, and thus identify and address the researchable questions in a pro-active way. Those who wish to engage in the development of agriculture in cities will need to take a constructivist approach to innovation facilitation, whereby they should recognise that they are just one of a set of actors involved in the process.

The Contribution of **Research**

a Methodological Review

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Here, the authors review some methods that have been used in the study of urban agriculture, from actor-oriented and action-research perspectives. The term *methodology* will be used to designate a system of methods and principles used in a particular discipline or set of disciplines. *Methods* can be defined as the techniques of a particular field or subject. A *tool* is any object, skill, etc. used for a particular task.

Different disciplinary have been used to study urban agricultural dynamics

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; and commodity and food systems. Many of the approaches aim to involve different actors by consultation through questionnaires, survey, interviews or participatory methods.

METHODOLOGICAL IMPLICATIONS OF URBAN AGRICULTURE CHARACTERISTICS

Urban agriculture is prone to change. Space and available resources vary both quantitatively and qualitatively over short periods of time. This dynamic causes heightened degrees of complexity in the relationship of agricultural use with its environment. The urban setting can present people with different opportunities of employment and income generation (formal and informal). Urban agriculture is therefore one of a repertoire of livelihood activities, especially so in the more marginalised sectors of the urban population.

Researchers are thus facing a system that is prone to change (pressure exerted by exogenous forces), and where a complex set of relations exist with other land uses and activities in the same context. Research then needs to take a dialectical approach to any situation analysis and impact assessment whereby the current mode of urban agriculture is understood as a response to exogenous and endogenous factors.

The contribution of indigenous technical knowledge (ITK) of agriculture from rural settings has yet to be evaluated. However, given the different context, the different resource base and the different functions urban agriculture fulfils, it is safe to say that the process of adaptation and development of knowledge and technology for urban agriculture will generate a need for innovation.

RESEARCH METHODS

Social science

Social research methods such as surveys, questionnaires, case studies and interviews have been widely used to assess the impact and contribution of urban agriculture on food security and nutrition, and in terms of management decision-making (see Table 1 for examples). Methods have been adapted from Farming Systems Research to provide typologies of production systems, target group identification, system characterisation and problem diagnosis as elements towards the implementation of effective solutions to the problems identified. Information collection and data analysis is very often carried out by multidisciplinary approaches.

The case study approach has been used by many to understand specific urban agriculture systems seeking more generic lessons. Nugent (2000) analysed several case studies and found that they are extremely variable in their sampling methods, scope and presentation of data. Gender analysis is another methodology that has

been adapted recently to the study of urban agriculture (Hovorka 1998 and in this issue on page 7). To assess temporal changes, historical analysis and documentary investigation have been used to evaluate the evolution of agriculture in the city and to synthesise different information sources in an attempt to explain its present forms.

Participatory methodologies for appraising local living conditions and natural resources are increasingly widespread, but approaches that involve local people in evaluating urban agriculture projects or monitoring local conditions are less well-developed and documented. In order to analyse allotment management and use in terms of gender and ethnic identity, methods of Rapid Rural Appraisal have been used such as semi-structured interviews, seasonal calendars, mapping, time lines, SWOT (Strengths, Weaknesses, Opportunities and Threats) and force field analysis (Perez-Vazquez and Anderson 2000).

Approaches that involve local people in Monitoring and Evaluation are less well documented

Economic research methods

For some urban farmers, particularly where the food produced is traded, financial costs and profit maximisation are very relevant. For those for whom agriculture is a form of subsistence or a hobby, other economic issues are important. For this reason selecting the appropriate techniques according to the socio-economic context and purpose is a priority. Other less tangible economic benefits that should be valued include the reduction of risk, less dependence on external inputs and demand for credit.

A quantitative technique often used is cost-benefit analysis (CBA). CBA uses market prices to value inputs and outputs, but it only offers partial results, however. The production function approach measures different input quantities and the amount of physical or monetary output (Ruben and Heerink 1998). The production function approach is very data intensive. Jansen et al. (1996) estimated the profitability and sustainability of peri-urban vegetable production in Vietnam. Little attention has been given to livestock rearing in this context, and its role in providing income for urban families and its role in social integration.

Only recently, the non-material benefits and externalities derived from urban agriculture such as leisure, relaxation, exercise and others have been evaluated using ecological economic methods. There are several that have been used to value non-market benefits, and a choice among these methods should be based on the aims and object of the valuation study. Usually three sets of techniques are used for valuing or estimating the values of services not explicitly priced by markets. Those are: a) the hedonic technique, which measures the value of resource services that are obtained through the purchase of some market good (Freeman 1979); b) the travel cost technique estimates values using the travel costs that individuals incur to access a resource service; and c) contingent valuation method (CVM) that elicits values directly from the individuals who are potentially affected by a change in management policy (see Henn and Henning on page 49). The CVM has been used to estimate the "whole" value of benefits and services derived from allotments, through assessing individuals' willingness to pay (WTP) and willingness or intention to accept (WTA) in compensation, comparing plot holders with residents (Perez-Vazquez 2000).

Ecological research methods

Ecological methods have been used to evaluate and determine the significance of biodiversity, particularly agro-diversity, and its contribution to food production. In addition, ecological methods

Table 1

Study purpose	Reference
❖ To determine urban gardens used at different housing densities in the suburban areas of London	Mackintosh and Wibberley 1952
❖ To acquire information about two types of urban cultivation (plot gardens and front yard) in Lusaka, Zambia	Sanyal 1986
❖ To examine the situation of UA in South Africa	May & Rogerson 1995
❖ To provide donors, researchers and development practitioners with an overview on research and development projects in the tropics and subtropics	Gura 1995
❖ To identify the influence of the policies changes on the income and cropping system of peri-UA in Vietnam	Jansen et al. 1996
❖ Evaluating environmental degradation caused by keeping livestock in Dar es Salaam, Tanzania	Molongo 1997
❖ To evaluate household food production in Harare, Zimbabwe	Smith & Tevera 1997
❖ To examine the urban popular gardens in Havana, Cuba as food security	Chaplowe 1998
❖ To test the positive impact of UA on household food security and nutritional status in Kampala, Uganda	Maxwell et al.1998
❖ To investigate the amaging effects of the environment for keeping dairy cattle in the city (Dar es Salaam, Tanzania)	Mlozi 1997
❖ To analyse the characteristics of UA in Kenya set within a wider conceptual and socio-economic context	Memon and Lee-Smith 1993
❖ To collect data on the socio-economic situation, goals and problems of sheep keepers (72) and non-keepers of small ruminants (64) in two locations, a central and a peripheral quarter of Bobo Dioulasso, Burkina Faso	Siegmund-Schultzea et al. 1998
❖ To determine the contribution of urban gardens to the nutritional intake and the effect of the gardens on the community in Havana, Cuba	Moskow 1999
❖ To describe commercial vegetables produced in Lagos & Port Harcourt, Nigeria and to determine the profitability of farm resources in UA	Ezedinma and Chukuezi 1999

have been used to study positive and negative impacts of the urban agriculture activities on the environment and to determine undesirable side effects such as urban sanitation (Siegmund-Schultzea et al. 1998), contamination and various types of damage, and to quantify the effects. A few studies have attempted to identify the beneficial aspects of growing food in urban areas, providing habitats for wildlife and many other environmental benefits. However, studies to determine the significance of encouraging biodiversity in these open spaces, for example, as a way to preserve natural or native resources have not been carried out.

In order to determine soil quality, the soil macro- and micro-organisms have been used as a reliable bio-indicator of soil quality in addition to other chemical and physical analyses (Lavelle et al. 1992, Linden et al. 1992).
For analysing spatial change, land-use and landscape change, Geographical Information Systems (GIS) have been used as a tool for planning and understanding these changes (See under topic 3).

Effective knowledge networks are required

Environmental methods have focused on ways of dealing with wastewater and organic wastes (Lewcock 1995, Nunan 2000). Entomological methods have also been used to identify the main crop pests in allotments (Atkinson et al. 1979). In addition, environmental indicators have been used to assess sustainability of urban agriculture, including a diverse set of other indicators (Jansen et al. 1996, Barret and Browne 1991, Lynch 1995, Rees and Wackernagel 1996).

THE NEED FOR NEW METHODS FOR ASSESSING URBAN AGRICULTURE

A closer examination of the literature on research on urban agriculture reveals that most studies have used methods such as interviews and questionnaire surveys. These studies are associated with ideas of home-consumption in cities and the household economy. Studies are essentially related to empirical investigations of the incidence and importance of urban agriculture for urban food production with an emphasis on the descriptive verification of their significance. The methodologies used may be grouped in three broad categories:

- research based on questionnaires;
- use of participatory methods and case studies; and
- a combination of economic and ecological methods.

New or adapted methods are required for a better diagnosis and design of urban agriculture related activities in order to identify their importance and contribution, the roles of the different stakeholders, and to assess the rapid changes. These methods should enable the use of different approaches (qualitative and quantitative) to assess biological, social and economic aspects, as to provide better knowledge of the urban environment and the available resources and constraints.

If research is to make a valid contribution to the development of urban agriculture and to the sustaining of urban centres, effort is required for the establishment of effective knowledge networks whereby researchers can engage with urban agriculture and try to find answers to the researchable questions. There is also a need to investigate rural-urban linkages through flow analysis and impact of flow analysis, to identify actors involved, to evaluate income derived, to evaluate income distribution, and to access benefits in terms of resource access and control (Tacoli 1998).

New paradigms like pro-poor research & action have been developed over the last few years based on the need to understand livelihoods as a result of the access to and use of assets by households within the context of formal and informal institutions. The Sustainable Livelihoods Approach http://www.livelihoods.org developed by DFID UK presents a checklist for research and action on poverty, and frameworks such as this need to be incorporated into research protocols on urban agriculture.

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From Video "Urban Agriculture", RUAF 2001

Irrigation of the crops takes a lot of time each day

The incorporation of gender considerations into 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.

Gender Considerations

for Urban Agriculture Research

Many researchers have begun to emphasise differences amongst urban farmers, thus highlighting the distinct agriculture systems that form along gender, race, ethnicity, class, age, etc. lines. The recognition of context-specificity and distinct standpoints provides greater scope and richness to research. Recognising differences amongst urban agriculture practitioners avoids a single conceptualisation of the needs, interests, and experiences of persons. In this context, gender becomes a theoretical, analytical and methodological tool through which to better understand the dynamics of urban agriculture systems.

It is not enough to document the differences

Gender is the socio-cultural construction of roles and relationships between men and women. The assigned roles and relative position of men and women in society delineate access to opportunities and resources as based on local perceptions of masculinity and femininity.Gender relations reflect the continual interaction and (re-)negotiation between men and women regarding their respective roles and responsibilities.

Gender as an analytical category is meant to capture this complex set of social processes that are inextricably linked with power relations. Gender analysis involves the examination of men's and women's roles, responsibilities, and social status in relation to cultural perceptions of masculinity and femininity (CCIC 1991, Feldstein and Poats 1989, FAO 1995, Overholt, et al. 1991, Thomas-Slayter, et al. 1995, Woroniuk, et al. 1997). To this end, 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 (Hovorka 1998).

GENDER FRAMEWORK

The incorporation of a gender framework into urban agriculture research involves a two-tiered process of gender-disaggregated data collection, as well as gender interpretation and analysis.

First, researchers must collect information on the different experiences, needs, interests, and access to opportunities and resources of both men and women so as to establish an accurate picture of the local context. This stage of the research aims to answer the questions who, what, when, where, and how urban agriculture systems function with regard to gender dynamics.

Second, researchers must ask why such gender dynamics occur. It is not enough to document differences; rather, researchers must probe deeper and examine the factors that create and influence differential opportunities and constraints for men and women at the local, regional and global level.

It is important to make clear the need for a two-tiered gender framework, for while urban agriculture literature contributes

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to the understanding of women's roles and responsibilities regarding city farming, it does not often illuminate or question the form, significance, and impact of gender dynamics. Women farmers are often dealt with in isolation from other research components, resulting in a single sentence or paragraph documenting data on, for example, women's relative lack of socio-economic status compared to men's. Researchers do not often go beyond the collection of gender-disaggregated data. Hence there is a tendency to overlook the underlying power relations and structures that create imbalances and inequities between men and women. It is important to remember that gender does not refer to women alone, rather it refers to the dynamics between men and women. Researchers that go beyond simply gender-disaggregated data collection to explore gender dynamics in-depth, provide some of the most comprehensive, interesting, and thought-provoking pieces in the field of urban agriculture (e.g.Freidburg 1997, Lee-Smith and Memon 1993, Maxwell 1994, Mbiba 1995, Mianda 1996, Mudimu 1996, Rakodi 1991).

Power relations are central

Finally, a gender framework must highlight the issue of scale to unearth the complex linkages involved in understanding gender dynamics. Not only is it essential to analyse intra-household relations, it is also important to explore larger social, economic, political, organisational, legal, and ideological structures that shape and reinforce gender differences and inequalities. Rather than considering a particular scale (e.g. micro, meso or macro) in isolation, the application of gender analysis leads to the fundamental examination of social structures and institutions that create specific power dynamics at the local level (Rathgeber 1990: 494). Research may focus, for example, on the gendered effects of urban policy, macro-economics, or cultural traditions on the organisation and functioning of local urban agriculture systems. In turn, localised gender relations
can influence structures and processes at the meso and macro scale.

EXAMPLES OF GENDER ANALYSIS IN UA LITERATURE

Some researchers in the field of urban agriculture have done well to illuminate how gender hierarchies are constructed, legitimated, maintained, and challenged in specific contexts. Mianda (1996: 91), for example, illustrates how women in Kinshasa, Zaire (now the Democratic Republic of Congo) utilise strategy and tactic to gain advantage over their husbands and hence control over the garden enterprise. Men were found to refuse participation in feminine tasks such as agriculture, allowing women to gain their husbands' approval to begin production on the basis of its contribution to family welfare. The resulting sexual division of labour thus establishes gardening as an entirely female activity and women rely on this categorisation to control the entire process of production from price setting and negotiation to marketing. Women were found to hide portions of profits from their husbands by storing monies in kitchen pots. Again the cultural perceptions of domesticity as women's domain dissuades men from handling cookware for fear of becoming the victims of sorcery. Women in this context thus take advantage of cultural traditions that tend to marginalise them into particular social spheres.

Such investigations of power relations are central to understanding gender dynamics of urban agriculture systems. Mbiba (1993), for example, reveals that while women have control and decision-making power regarding cultivation, the husband's consent is still required due to his potential assistance with financing or dealing with local authorities. Shehu and Hassan (1995) note that dairying activities of female household members serve to balance household power relations by providing women with their own enterprise. It is necessary to understand who in the household actually controls produce or income generated from farming activities and why this is the case. Investigating issues of control and power relations sheds light on how and why distinct urban agriculture activities are chosen by, or assigned to, particular household members.

Beyond household gender relations, some researchers explore the complex linkages embedded in urban agriculture systems at multiple scales. This again can be seen in Mianda's (1996) study, which demonstrates how cultural traditions and

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ideologies delineate masculine and feminine roles that form the basis of a power struggle in the household garden produce sector. Structural adjustment policies in particular have created different problems for women as compared to men. Friedberg (1997) explores trade liberalisations in Burkina Faso that have prompted urban gardeners to adopt more entrepreneurial strategies in order to secure access to external markets and aid. Economic reforms have failed to create a market free of gender biases, leaving women gardeners at a disadvantaged position compared to men. The above researchers make an important contribution to UA literature by advancing our understanding of gender dynamics through both gender-disaggregated data collection and gender analysis.

METHODOLOGICAL CONSIDERATIONS

The two-tiered gender framework presented above allows researchers to investigate who, what, when, where and how via gender-disaggregated data, and to explore why such dynamics occur through in-depth gender interpretation and analysis. Examples from urban agriculture literature demonstrate the complex structures and processes that are revealed through a focus on gender differences amongst urban farmers. Uncovering such dynamics may seem daunting to researchers, particularly those unfamiliar with gender concepts or feminist approaches to science. Yet gender considerations in urban agriculture research can be applied in varying degrees and through a variety of methods. Indeed, researchers from all theoretical and philosophical standpoints can explore gender dynamics in urban agriculture systems, albeit from different perspectives.

The process of incorporating a gender framework into research design begins by asking key questions to unearth gender processes and structures in a particular context. Table 1 is adapted from an earlier publication (Hovorka 1998: 15) that details a gender methodology for urban agriculture research. This "Gender and Urban Agriculture Issues List" illustrates the types of questions that may be considered using a variety of methodological tools. The list is not inclusive and should not be used as a rigid tool. Researchers are encouraged to draw on those issues from the list that are relevant to and appropriate within a particular context. Moreover, researchers are encouraged to explore gender and urban agriculture issues that are not found on the list (Hovorka 1998: 14).

Simply asking key questions, such as those listed above, can be used as a springboard for the incorporation of gender issues into urban agriculture research. Certainly the breadth and depth of such inquiry will depend on the scope or focus of research endeavours. It is a commitment to recognising that different people, in this context men and women, have unique experiences and insights that cannot be easily standardised. By disaggregating data along gender lines, researchers can begin to identify where such differences, or similarities, occur, and what implications they have on farming in cities. Further analyses should investigate why such gender relations of power exist and the impacts felt by men and women involved in urban agriculture.

Table 1 — Gender & Urban Agriculture Issues List: Key Questions to Consider

Division of labour
- Who are the urban farmers?
- What roles do male/female adults/children play within the household?
- What is the division of labour with regard to food security (e.g. planting, weeding, water, harvesting, processing, selling, etc.)?
- How much time is spent on each UPA-related activity?

Economic factors
- What employment activities are male/female household members involved in?
- Are there barriers to entry for new UPA producers? If yes, who is excluded & why?
- What sources of income are invested in or derived from UPA? Who controls and/or makes decisions about these sources?
- What training do/have male/female household members receive(d) (e.g. business planning, production techniques)?

Resources
- What economic inputs, resources and services for UPA do men/women have access to and control over (e.g. land, equipment, tools, labour, cash/credit, skills, information, etc.)?
- What political resources or social networks do men/women have access to and control over (e.g. organisations, education, leadership, etc.)?
- How are men/women affected by shortages/surplus in a particular resource? How does this affect division of labour and time commitments to various activities?
- Who owns the land used for UPA? Who controls the land/water sources? Who has access?

Social Networks
- What types of social relationships exist between men/women involved in UPA?
- Who has access to information, resources, marketing channels, etc., on UPA activities and through what social networks are these achieved?
- What cooperative organisations exist? Who are the members? How are responsibilities, activities, decision-making processes, and revenues shared amongst male/female cooperative members?

Policy and Legal Structures
- Is there official policy or government support for UPA and does it favour any particular gender (e.g. by-laws, UPA definitions, recognition to only certain social groups)?
- Do men and women have equal status under the law?If no, how does the law discriminate and what are the repercussions for involvement in UPA activities?
- Do government authorities engage in dialogue with urban dwellers? How? Who has a voice?

Topic 1

SITUATION ANALYSIS, DIAGNOSIS AND BASELINE STUDIES

Situation analysis in urban and peri-urban agriculture 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 situation analysis in the urban and peri-urban context.

Methodologies for Situation Analysis

Adrienne Martin

Angeline Mbavu cleaning mangos, Harare, Zimbabwe

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In considering methodologies for situation analysis, two useful frameworks were identified. A first is the Livelihoods Framework, which assists in conceptualising interrelationships between the different dimensions of people's lives and helps to reveal the complexity of urban livelihoods and poverty. It further assists in making a conceptual link between understanding at the household level and at the meso and macro level, encouraging the analysis of how livelihoods are influenced by institutional and policy processes and vice versa (Sanderson 2000, Martin et al. 2000). Another framework is the Pressure – Activity - State- Response (PASIR) framework. This framework is both theoretical and practical. It focuses on dynamic causal analysis by identifying factors bringing about change and exploring the consequences and impact.

Conceptual challenges concern defining and specifying the UPA type and household.
The definition and use of concepts, which 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 urban agriculture is marked by the diversity of actors and plurality of countries involved. It is important to define urban agriculture in each context rather than relying on pre-established definitions (see Santandreu in this issue, Adam 1999).

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 household livelihoods, both in terms of food and income. A further problematic issue is the nature of 'households'. In urban areas, households are complex with household members in different places in different seasons, or with multiple occupancy of houses, and sub-letting and renting arrangements (Beall and Kanji 1999).

PARTICIPATORY APPROACHES

There are some interesting examples of the use of participatory approaches in analysis of urban agriculture (see Santandreu and Slater in this issue). 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 environmental aspects in the development of problem definitions and project proposals.

The use of PRA tools such as transect walks and plot land-use mapping are usually recommended as introductory participatory exercises to provide an initial overview of the area to the researchers, while the participants can take a lead in identifying which issues are important to them. There are important differences between conducting PRA in urban and rural contexts, which 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, 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. This has impli-

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cations on wealth ranking, social mapping and calendars.

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 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.

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 wide range of stakeholders also contributes to the presence of conflicting interests and tensions. To avoid this, the research team has to adopt a position of "critical neutrality" (see Santandreu in this issue). The research approach used successfully in such a complex context should produce information, which is relevant to different stakeholder groups; it should be transparent and participatory in order to allow people with different educational backgrounds to engage.

Methods to identify and explore stakeholder interests include: Small meetings with a few key stakeholders; Stakeholder workshops; Individual interviews; In-depth discussions; and Joint focus groups.

SAMPLING AND FOCUS

As resources are usually limited, situation 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 1995, Adam 1999). The selection of the study area also has a political dimension, linked to the interests of the different stakeholders involved. 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 representation 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. In the longer version of this article you will find more tools described (www.ruaf.org). Some of these are case study approaches; focus group discussions; questionnaire surveys; and the compromise between the case study and inclusive questionnaire surveys; selecting households randomly along a transect walk.

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 terms 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).

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).

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). 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 (O'Reilly 1995).

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.

There is a **need for practical methodologies**

Analysis of social networks can assist the 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. Methods for exploring informal institutions are also particularly relevant. Methodologies for exploring gender relations and urban agriculture are further discussed in detail in Hovorka (this issue).

SUSTAINABILITY

One of the claims made about urban and peri-urban agriculture is that they add to the "sustainability" of urban areas. 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/wastewater utilisation. In many cases the research focus is on technological issues, but here are examples of less conventional ways of analysing waste management issues. For instance, 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. Another example is the Multidisciplinary Situation and Stakeholder Analysis (MSSA) to address waste management (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. 2000, Martin et al. 2000, this issue).

Two methods of economic analysis in UPA are useful to provide robust information for the sustainability discussion. The two methods are cost-benefit analysis and contingent valuation, which not only address trends in production costs or wages, but examine non-market, social and environmental aspects as well (Nugent 2001).

To develop an objective economic evaluation of urban agriculture, negative costs should be included as well (Nugent 2001), like increased risk of health, environmental degradation and availability of land for housing.

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 (see Moustier in this issue). 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.

POLICY AND INSTITUTIONS

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

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. 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.

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 and peri-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 conflicting 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.

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Application of "cognitive map" with gender-perspective

Alain Santandreu

Rapid Visual Diagnosis

a rapid, low cost, participatory methodology

Applied in Montevideo

The local government of Montevideo, along with its citizens and civil organisations, is promoting baseline studies and action plans for the implementation of urban agriculture programmes. Baseline studies should identify the principal practices and their distribution in the city. The fieldwork allows for comprehension of the most relevant characteristics of the urban farmers, as well as experiences of public organisations (Municipality of Montevideo, schools, universities, etc.), NGOs, and producer organisations. In addition, it examines the nutritional state and the current normative and legal framework of the city.

In Los Bulevares, a neighbourhood located in the western part of Montevideo, Rapid Visual Diagnosis (RVD) was used as the principal methodology in a baseline study on urban agriculture including a study on pig-raising in the slums. RVD is a participatory methodology of diagnosis of urban agriculture, developed by the Latin American Centre 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."

The RVD took place between November 1999 and January 2000. Its application permitted the identification of the human, natural and constructed components of urban agriculture, the types of activities included and its relation to urban food security and environment, within a short period of time and with limited resources.

STAGES, OBJECTIVES AND TECHNIQUES

RVD uses a variety of techniques as part of its participatory process of developing and analysing knowledge. Its distinct stages combine fieldwork and academic research.

CONCEPTUALISATION OF THE THEME

Objective: Establish the local Research Team and the Interactive Group
Techniques: Informal meetings, Interviews with key informants, Assembly

In Montevideo, a Research Team (RT) and an Interactive Group (IG) were formed using interviews and informal discussions and meetings with key actors in the neighbourhoods.

The RT consisted of two sociologists, an agronomic engineer, and a small group of residents from the zone of study. This multidisciplinary team also received contributions and support from a veterinarian (professor of veterinary medicine at the *Universidad de la Republica Oriental* of Uruguay) and another agronomic engineer (member of the municipal administration of Montevideo). The IG was formed, consisting of the members of the RT and various residents of the Los Bulevares neighbourhood. The IG carried out the baseline study, and functioned as a local platform for reflection in all stages of the study. In this way, the residents contributed to the process of knowledge construction and brought distinct points of view on the table. Building confidence among the members of the IG is very important. The IG incorporated various local groups without taking sides among them.

Objective: Determine the zone of study
Techniques: Tour of the area, Participatory creation of a territorial map)

In Montevideo, the zone of study was defined in an intentional manner, as between 1993 and 1995 a gardening project for women developed, by a local NGO (Study Group on the Condition of Women-Grecmu) already existed in that area. With the participation of the community, a map was created, specifying the actual urban area and environment to be studied. Along with this map, digital cartographic information provided by the local government was used.

Objective: Define the typology of UA systems
Technique: Participatory workshop

The baseline studies start from a definition and typology which incorporate the mix of urban agriculture systems expected to be found in the field. In this process existing information and information collected during previous studies and during interviews and informal discussions with key informants is used. The typologies defined should be subject to revision throughout the process of elaborating the base study.

INFORMATION COLLECTION

Objective: Obtain reference information
Techniques: Revision of questionnaires, census, etc., Brainstorm/Cards, "Corn Kernels", Cognitive map.

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Reference information was obtained from the Municipal Administration of Montevideo (maps, statistical data, and information on land use) and the National Office of Statistics (census information). Specific information was drawn out using participatory and constructive techniques such as "Kernels of Corn" and "Cognitive Maps" that allowed environmental and gender dimensions to be incorporated into the baseline study.

CONCEPTUALISATION OF THE CONTEXT
Objective: Obtain contextual data
Techniques: Venn Diagram, Cognitive map, Participatory workshop

For the identification of *contextual data*, various techniques were applied. For example, Venn Diagrams, Cognitive Maps, Brainstorming, and SWOT (Strenghts, Weaknesses, Opportunities and Threats) analysis. This information was complemented with statistical data and historical information obtained through bibliographic review, etc. The process of conceptualising the context allowed for the development of a matrix with social, cultural, and environmental data (on a local scale and with a historical view). During this stage, the organisational context, the strengths and weaknesses of the local group and the community, natural components (climate, soil-types, landscape, animals and plant species, etc.), type of constructions and distribution, and the urban infrastructure (bridges, streets, highways, etc) were identified.

VISUAL DIAGNOSIS
Objective: Obtain specific information
Techniques: Diagnostic Scheme, Plot Diagram.

The first stage of the Visual Diagnosis (VD) was the elaboration of a basic working scheme. A preliminary tour of the area produced a map of the most significant plots of land, taking into account the environmental and constructed components and the presence of urban agriculture activities. The species observed were listed and each was classified according to the typology that had been defined. The information collected had to be organised in a clearly identified manner on the map of each plot.

Plot Diagrams were made by using a representative model based on the information obtained in the basic working scheme. The community was trained in the development of Plot Diagrams to facilitate participation. The plot diagrams permitted the collection of valuable information in a short period of time. The information allowed for the validation of the model to which the questionnaire would subsequently be applied.

The Plot Diagrams should be clear and easy to understand by other parties (especially when completed by members of the community), and it may be helpful to put together a small form containing the basic questions that the investigator should have in mind when making the diagram.

If there is not enough time and/or resources, the RVD may be finalised here, after completing the VD. All the basic information about urban agriculture is then identified.

REALISATION OF INTERVIEWS
Objective: Obtain specific information
Techniques: Semi-structured individual interview, Snowball.

Key informants were interviewed, providing information on their farming methods, the varieties and origins of the seeds used, the main species cultivated, and the incorporation of these species into their diets. The RVD requires a limited number of interviews with qualified informants. The interviews advance the identification and comprehension of themes that have not been brought to light yet. The results cannot be generalised however, without conducting a representative number of interviews.

PARTICIPATORY QUESTIONNAIRE
Objective: Obtain specific information
Techniques: Participatory creation of the questionnaire form, Brainstorm/Cards, Participatory application of the form.

In the Los Bulevares neighbourhood, both the process of elaborating the questionnaire form, as well as the application of the questionnaire itself, were carried out by members of the community incorporated into the IG. In a training workshop a form was created which addressed the principal themes of interest of the local actors, presented in simple, understandable language. The use of the questionnaire allowed the collection of quantifiable information. In the participatory process of creating the form, techniques such as "Brainstorming", and "Speaking with Cards" were utilised. Witness Groups were formed to identify the principal themes and questions to be incorporated into the form.

PARTICIPATORY PLAN OF ACTION
Objective: Processing and presentation of results / Preparation of the PPA
Techniques: Brainstorm/Cards, Participatory workshop, SWOT Analysis, Flow Diagram

Based on the information collected, and as the final stage of the RVD, a Plan of Action was constructed for urban agriculture with the participation of various local actors, who had or had not worked on the baseline study. In the city of Montevideo, a SWOT analysis was conducted, which was used to identify the strengths, opportunities, weaknesses, and threats that confronted the local group or community in its work.

CONCLUSIONS
RVD is a methodology that allows urban agriculture baseline studies to be conducted in urban and semi-urban zones of Latin American and Caribbean cities with low or mid-level population densities and development. RVD is conducted on a small scale and determines the components that an observer should identify. The fundamental idea of the methodology is based on the Visual Diagnosis (VD), that allows for a rapid and participatory means of creating plot diagrams and collecting contextual information and basic data on the natural and constructed environment and the presence of urban agriculture activities. The information obtained through the application of the VD is complemented with that obtained through questionnaires, interviews, and the processing of secondary and historical information.

The incorporation of local groups or communities into the formulation, implementation, evaluation, and management processes makes use of popular knowledge and generates new knowledge. In addition, with the development of such participatory practices, it is possible to advance the construction of inclusive governance that incorporates gender, generation, and environmental perspectives into processes of urban management.

For market-oriented farmers, the agriculture production plan should be derived from a proper marketing plan, not vice versa. The issue for farmers is not which crops can be grown, since this may be many, but what can be profitably sold. However, sound market development and advice, is a more difficult task than transferring production skills. This is the reason why market extension is often lacking or not a priority.

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African Food Basket garden, Toronto, Canada

Commercial Horticulture

appraising the potential

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The marketing choices of market-oriented gardeners are the product of a dynamic interaction between producers, a varied body of consumers, and an array of formal and informal agencies that regulate market access. These interactions between farmers, consumers, and regulating agencies take place in a cultural and historical environment unique to each location.

This paper describes an Urban and Peri-urban Agriculture Rapid Appraisal (UPARA) for the assessment of social, economic, and technical factors affecting market gardeners. The UPARA, which is still under development, identifies market interactions between consumers and producers, and the opportunities to effect change through policy adjustments and targeted interventions. The current version of the UPARA consists of about 35 questions along five lines of inquiry. The individual questions currently focus on horticulture, but in some locations, market access issues may be similar for fruit, vegetable and meat producers.

The UPARA is not a structured survey but rather a guide for data collection. The information shaping the final rating should be derived from as many sources as possible. The resulting information will not be consistent and, as in many rapid appraisals, particular attention should be given to the abnormal and inconsistent: why have some farmers been unsuccessful in their market gardening activities, or who are the marginal consumers and what do they want? The analysis with the UPARA is intended to illuminate development activities that will be necessary if growers are to take advantage of local and, to a certain extent, export market opportunities.

The final report of the UPARA rates the different components in peri-urban production and marketing, as described in table 1 and 2, in which illustrative ratings from Washington, DC and Yerevan, Armenia are presented. Comparing the ratings across locations results in 15 possible configurations (3 level rating system of 5 factors). Fifteen configurations are probably too unwieldy for everyday use. However, further field-testing might reveal that some of the combinations are unlikely to occur in the real world. The UPARA is presented as a planning tool, which may also be used for thecomparison of locations, and as such, the taxonomy of urban agriculture should not be seen to be a goal in itself.

As yet, the descriptive terms WEAK, MEDIUM and STRONG could be specified in greater detail, since they do not offer the problem and subsequent formation of a plan of action clearly enough. A better system would be to have beneficial and detrimental forces at opposite extremes of a scale. Comments are welcome.

FAO

Farmer at the local market selling cauliflower and spinach in China

Table 1. Rating for periurban areas of Washington, DC, 1999

Factor	-	+/-	+	Rating	Comments
National vegetable distribution system			●	+	Marketing system well developed. Low-income areas less well served.
Competition				+	Strong competition for staples but many niches yet unfilled.
❖ Current production			●		Many market gardeners, well differentiated.
❖ Marketing situation			●		Excellent access to most channels. Well-developed farmers.
❖ Consumer demand			●		Very strong. New farmers' markets under development.
❖ Business climate			●		Excellent
Regulatory support (business)			●	+	Farmers' markets exempted from many business regulations.
Public opinion			●	+	Wildly supportive
Means of production and Transport				+	Excellent
❖ Land availability		●			Very high land prices but many areas are only just being developed
❖ Land quality			●		Very fertile, level soils
❖ Water availability		●			Summer irrigation recommended. Water prices moderate.
❖ Water quality			●		No reported problems.
❖ Transport availability			●		Excellent road system for private vehicles. No public transport for goods
❖ Transport quality			●		Vehicles widely available for purchase. Specialty vehicles available.
❖ Input situation					

- = Weak **+/-** = Medium **+** = Strong

Table 2. Rating for periurban areas of the city of Yerevan, Armenia, 1997

Factor	-	+/-	+	Rating	Comments
National vegetable distribution system	●			-	Current system does not meet basic needs. Many opportunities
Competition				-	Both staple and niche products sell at high and low prices.
❖ Current production	●				Spotty. Standards are low.
❖ Marketing situation		●			*Ad hoc* markets and vending routes are popular but may be restricted
❖ Consumer demand		●			Market for fresh produce is large but mostly price driven
❖ Business climate	●				Former socialist state. Restricts and taxes business. Cronyism and mafia.
Regulatory support	●			-	Farmers are restricted from direct marketing by public law.
Public opinion	●			-	Public fears unrestricted marketing, but wants fresh, wholesome food.
Means of production and Transport				-	Technology is scarce. Transport poor. Industrial pollution in many areas. Water supply often contaminated.
❖ Land availability	●				Each Armenian was given land under post-communist reforms.
❖ Land quality	●				Land is often very rocky. Industrial contamination in some areas.
❖ Water availability	●				Limited in summer. Water metering is inadequate.
❖ Water quality	●				Possibility of industrial and biological contamination.
❖ Transport availability	●				Public and private transport limited and dangerous.
❖ Transport quality	●				Roads are dangerous. Vehicles too small. No refrigeration. No packaging.
❖ Inputs	●				Self-saved seeds, inputs expensive and not readily available

- = Weak **+/-** = Medium **+** = Strong

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.

Rachel Slater

Thobeka growing cabbages in Langa, South Africa

Women's Involvement in Cape Town

a social development perspective

In Cape Town, the economic benefits of urban agriculture are limited. In 1989, an investigation found that, where practised, urban agriculture contributed less than one percent of household income (Eberhard 1989). Nevertheless, people in low-income townships in Cape Town continue to cultivate in backyard plots and communal gardens (1).

So 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?

A NEW APPROACH

To try and answer this question, an alternative analytical and methodological approach was developed and applied during 10 months, in 1996, of interviewing in three townships in Cape Town (see for more detail Slater, 2001). 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. An understanding of post-apartheid urban agricultural activity was impossible without first understanding the conditions under which people lived in Cape Town and the various ways urban authorities used to remove them from the city during apartheid.

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Rather than being preoccupied with the economic benefits that accrue to urban farmers, the alternative approach sought to understand the dynamics behind urban agriculture, by focusing on social relations and divisions of labour within households and communities. The various different ways in which people might become empowered through urban agriculture were also analysed within this new framework.

Finally, the analytical framework was used by employing a methodological approach that involved qualitative methods and life histories. Whilst gender and women's experiences can be very difficult to make explicit and understood through the application of surveys and questionnaires, life histories made it possible to chart women's involvement in agriculture throughout their lives and to understand changing gender relations in households where urban agriculture was practised.

In Langa, Khayelitsha and Lower Crossroads settlements, 169 people were interviewed and the life histories of fourteen women recorded. Through the use of an alternative framework, urban agriculture was found to be important in the following ways:

SYMBOL OF WOMEN'S PERCEIVED STABILITY IN THE CITY

Under apartheid, the South African government prevented the movement of black people to cities designated as the workplace and residence of whites alone. This was achieved through legislative measures including laws that permitted black people in cities only if they had the correct papers certifying their rights to work and reside (temporarily at least) in the city. The laws of urban apartheid also entrenched the authorities' rights to remove illegal squatters, destroy unplanned settlements and imprison or fine people found in the city without pass documents.

Almost all the women whose life histories were recorded had spent years being forced from one squatter camp to the next under apartheid. They fled from either the bulldozers that destroyed their shacks or from the violence that resulted from overcrowded living conditions, poverty and intense competition over land and the right to stay in the city.

The life history enables a great level of trust to be built

After apartheid, people began to cultivate small gardens, many of them for the first time. Women *put down roots* in the city – both literally as they began to till the soil and symbolically as their investment in gardening symbolised their sense of security in the city. They were willing to invest in a backyard garden only at a time and place where they felt they at last had some security of tenure in the city.

Thokozile, a resident of Section D, Khayelitsha, spoke of 'playing hide and seek with the pass inspectors' as she tried to avoid arrest. Another woman, Vuyelwa, held the correct papers certifying her right to live and work in Cape Town. However, because she could find no place to stay in the overcrowded formal settlements, she was forced to build a shack in a squatter camp. She rarely slept in her shack. In the 1970s she spent years sleeping in the bush because squatter camps were raided at night or in the early morning to try and catch people without documents when they were sleeping.

FAMILY LIFE

For some of the women whose life histories were recorded, particularly those who were more recent rural-urban migrants, life in Cape Town under apartheid was bewildering. The livelihood strategies that they had pursued in rural areas, including their role in agriculture and the cultivation of a backyard garden producing food for daily household consumption, gave way to new livelihoods either in formal employment (which was very scarce) or the saturated informal retail and food processing economy. Women spent many years under apartheid living without their husbands and children, since they were usually not allowed to live with their husbands (who resided in single sex hostel accommodations) and frequently had to leave their children in the rural areas with relatives. After the repeal of many laws supporting urban apartheid in 1986 and the beginning of the transition to democracy in 1990, women were able to resume family life and some of them reverted back to their traditional roles. For those women, cultivating a small backyard garden to provide regular food for the household was an important part of their roles as wives and mothers.

POWER RELATIONS

Other women, rather than reverting back to traditional roles, used their gardens as a site through which they began to question and renegotiate household gender relations. Whilst their husbands might have been the main income earners in the household, women gained a sense of self-worth through the cultivation of vegetables that could supplement the diets of their families. Women without work felt less dependent on their working husbands when they could contribute in a tangible way to the sustenance of the household. Gaining a sense of their self-worth was the first step in a long process of women's empowerment. Proud of their achievements in their food gardens, some women even began to use the production of food to renegotiate patriarchal authority relations in households. They produced and prepared crops that were traditionally eaten only by women (according to Xhosa custom) and began to take more control over the allocation of household food to men, women and children. Some women questioned the cultural rules that restricted them from eating certain types of food. Thus, urban agriculture was one activity through which women might begin to overcome gender oppression in their households.

SOCIAL NETWORKS

Women in Cape Town's low-income settlements cultivate both on individual and communal plots. In both cases there is strong evidence that their agricultural activity contributes to the development or reinforcement of strong social networks that enable women to become more empowered, in their households and also in the wider community. In Khayelitsha, for example, women who work together in their home food gardens support and counsel one another when they face problems, and have worked together when people in the community have been victims of rape, violence and child abuse.

The long periods of interviewing that are required to record the life history of a respondent enables a great level of trust to be built between researcher and respondent. Furthermore, the ways in which women develop a sense of their own self-worth, the ways in which they renegotiate household gender relations and the ways in which they form social networks through urban agriculture are intangible and difficult to identify and measure. The narratives about rape, violence and child abuse, and the ways in which women in Cape Town respond to them could not have been recorded in a questionnaire or survey. Thus, it is only by using an alternative methodological approach to try and understand urban agriculture that these less tangible and difficult-to-measure aspects of urban agriculture are brought into the foreground.

COMMUNITY DEVELOPMENT

The research in Cape Town raised questions about how urban agriculture is interpreted and represented throughout Southern Africa in terms of its contribution to social development. First, research into the economic aspects of urban agriculture continues to achieve a great deal, not least through effective advocacy of urban agriculture to urban planners based on its quantifiable contribution to livelihoods. Urban authorities in Cape Town could be encouraged to include space for urban agriculture in their planning schemes, not solely because of its contribution to household economics and urban food supply but also because of its positive social benefits. Could the non-quantifiable benefits of urban agriculture be used as a way to justify acceptance and support for urban agriculture?

A second question concerns the relevance of the research in Cape Town for the rest of Africa. Perhaps life histories are useful in understanding the social benefits of urban agriculture. Especially when the economic benefits are undisputed, but little is known about the ways in which urban agriculture might contribute to establish stronger social relations and community networks. Research in Maputo and Lusaka (2) suggests that there are, in fact, important social development implications.

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NOTES

(1) This article is concerned with cultivation rather than the rearing of livestock or other forms of urban agriculture. Whilst there are many livestock owners in Cape Town, in the case of this research, it was the focus on small-scale backyard and communal gardening that allowed a shift away from preoccupations with the economic benefits of towards an understanding of activities which would not be considered 'economic'.

2) Fieldwork, funded by the Nuffield Foundation, is taking place between June and October 2001 in Maputo, Mozambique and Lusaka, Zambia in an attempt to understand the sorts of social benefits that accrue to urban farmers in different urban contexts.

Topic 2
POLICY FORMULATION AND ACTION PLANNING

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

Mauricio Velasco

The Mayor of Quito signing an Inter-Actor Agreement to support the development of Urban Agriculture in El Panecillo, Ecuador

A Framework for Facilitating Planning and Policy

While prohibitive policies are bound to be ineffective, several constraints and risks are clearly associated with non-regulated agriculture in the city, like environmental pollution. Furthermore, corruption and conflicts, in the competition for scarce resources, often exclude those who would benefit most from urban agriculture: the urban poor. A policy and planning facilitation framework could promote and support the development of urban agriculture in the context of sustainable development (de Zeeuw, Gundel and Waibel 2000, UMP-LAC et al. 2001).

Three municipal case studies describing different experiences in developing such a facilitation framework, each with a unique thematic entry point and a very different political and institutional context, are elaborated below. General conclusions and remaining questions based on an analysis of these cases will then be drawn. The case studies are: Cuenca, Ecuador, in South America; Santiago de los Caballeros, the Dominican Republic, in the Caribbean; and Dar es Salaam, Tanzania, in East Africa.

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ECONOMIC DEVELOPMENT AND INVESTMENT IN CUENCA (ECUADOR)

This section is based on the contribution by Andrea Carrion (UMP-LAC, Ecuador), entitled "El Plan Estratégico de Inversiones: una estrategia para la planificación y la formulación de políticas" (Strategic Investment Plan; a strategy for planning and policy formulation).

Background

In 1998, an urban agriculture programme was implemented at the municipal level, strongly based on traditional practices - mainly horticulture, orchards and forestry. Between September 2000 and August 2001, the city of Cuenca, Ecuador, (350,000 inhabitants), developed the "Strategic Investment Plan (SIP) for Local Development in Cuenca". This SIP was developed as part of the City Alliance Programme, under the coordination of the Urban Management Programme (UMP-LAC). The SIP sought to "generate a participatory process that would identify, formulate and implement strategic programme(s) and projects for local economic development." It was recognised that this

The Latin America City Working Group on Urban Agriculture and Food Security, bringing together 40 municipalities from Latin America and the Caribbean, have expressed the need to perceive urban agriculture as an urban activity and to recognise, incorporate and regulate it under specific municipal policies and programmes. They urge "local governments to become strongly committed to the development of agriculture in their cities, mobilising existing local resources, institutionalising it, procuring its extension at the national level; and to allocate municipal budget items to the execution of urban agriculture 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 programmes" (Quito Declaration, April 2000).

process would require the re-orientation, investment and combination of available local (public, private and community) and external funding mechanisms.

Phases
The SIP was implemented in five phases:

Initial Agreement (September 2000)
A formal agreement for implementation of the SIP was signed. The agreement specified the objectives of the SIP and defined four specific areas for economic development: promotion of the formal economy; strengthening of the informal sector; environmental management; and using the municipality as a motor for economic development. Gender equity and citizens' participation were seen as cross-themes).

Methodological design (October 2000)
Various meetings were held among the working team members to design the methodology to be used for implementation and systematisation of the SIP. Through discussions with the local partner institute 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.

The role of private enterprises is very important

"Fieldwork" (October 2000)
The actual fieldwork undertaken included the collection of basic information on the development areas identified, through field-visits, literature reviews, interviews with local actors and stakeholder meetings. These activities allowed for an understanding of present development in Cuenca. It further facilitated the identification of existing initiatives and experiences, of available capacities and expertise for project implementation and for a first identification of specific projects to support.

Project elaboration
(November 2000 - June 2001)
The fourth phase comprised the elaboration of 15 specific project proposals for each of the defined thematic areas for economic development, comprising 7 investment projects, and 8 municipal policy proposals and instruments.

Feedback (July - August 2001)
At this stage, the projects were formally presented to the Cuenca authorities, 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.

Actors involved
The municipality, urban farmers, Public-Private Platform for Local Development, NGOs, women's groups, universities, international agencies and UMP-LAC were involved in this process.

Results
The results were that:
- the multi-sectoral UA Working Group was established;
- the Municipal Action Plan on UA got approved; and
- the programme became institutionalised, with allocated financial commitments.

Fifteen projects for local economic development were elaborated as part of the municipal strategies and intervention instruments. Two of these were related to urban agriculture: 1) the promotion of commercial urban agriculture (technical assistance, a commercialisation programme for 40 enterprises and the establishment of a credit fund); and 2) employment generation through environmental services (establishment of micro-enterprises for waste collection and recycling). The projects will be financed by setting aside part of the municipalities' own funds (for 2001, US$ 70,000 has been set aside to support the UA project), by the actors involved and through external financing.

Lessons learned
The interaction of various local actors in a collective effort to define and plan strategic investment for local development requires the careful management of conflicts of interest. 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 not on defending their (economic) interests.

TERRITORIAL PLANNING PROCESSES IN SANTIAGO DE LOS CABALLEROS, DOMINICAN REPUBLIC

The full version of this case can be found on www.ruaf.org and is also summarised in Urban Agriculture Magazine No 4.

Under the Municipal Urban Agriculture Programme in Santiago de Los Caballeros, an action plan was defined and formally approved, several pilot projects were set up, and urban agriculture was recognised as an urban land use.

A first lesson from this case is that in implementing a UA programme, a municipality has to consider and optimise the use of locally available human and material resources (by means of incentives, organisation and institutional collaboration). A proper financial basis must also be assured from the start, as this makes it possible to involve institutions and communities in collective activities without a direct economic return like training and promotion. Despite the acknowledgement that urban agriculture has received, and the development of specific regulations by the municipality, these have not yet been integrated widely into several city instruments like the territorial development plan, the housing plan and the economic development plan.

ENVIRONMENTAL PLANNING AND MANAGEMENT IN DAR ES SALAAM,TANZANIA

*A third case comes from the contribution of Asteria Mlambo of the Sustainable Dar es Salaam Project. The full version of this case can be found on **www.ruaf.org** and is also summarised in the Urban Agriculture Magazine No 4.*

The EPM process has contributed to the sustainable development of the city of Dar es Salaam region by strengthening the local capacity of partners and by preparing a long-term development plan. The approach piloted in the city of Dar es Salaam has been widely accepted by the Ministry for Land Development.

Major lessons learned from the EPM process are that communities are capable

entities in developing their own priorities, working out solutions and arranging for implementation. Also, strategies that relate project support to priorities developed by the communities themselves stand a better chance of succeeding. New institutional relationships and compatible political and social norms are needed. The EPM process in Dar es Salaam has further demonstrated that urban agriculture can effectively be integrated into urban land-use planning. Monitoring and evaluation are essential elements to minimise negative impacts and inform decision-making.

A CROSS-ANALYSIS: GENERAL CONCEPTUAL AND METHODOLOGICAL GUIDELINES

Planning and policy on urban agriculture require multi-thematic, multi-level and multi-actor approaches. The initial entry point will vary between cities, but in general there is a commonality in each of the described cases with strategies on poverty reduction. In Cuenca, the thematic entry point concerned local economic development with a pro-poor emphasis as part of a City Development Strategy. In Santiago, it was the issue of food security for poverty reduction which guided the programme, while in Dar es Salaam, the development of a UA programme fit into the city's planning process for environmental sustainability and poverty reduction. The existence of traditional practices and of "spontaneous" urban agriculture is important to all three case studies. The municipal programmes have served to provide visibility and to generate awareness on the need to incorporate them into city planning.

The case studies also show that urban agriculture interacts with multiple facets of sustainable municipal development and has the potential to diversify and strengthen the necessary strategies. In all cases, a wide spectrum of local actors has been involved, and municipalities play an important role as facilitators.

To ensure the participation and involvement of the various actors (who do not necessarily share common goals and visions), municipal policy and planning interventions should be linked to the specific development objectives of these different urban groups.

In developing a common methodological set-up for a policy and planning facilitation framework, there are a number of lessons to take from these case studies. All three, although evolving separately, ended up following a similar logical and methodological process. In general, five distinct phases can be defined in each process:

- *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"

Awareness-raising and lobbying

In all cases, wide representation has been a key factor in the generation of awareness amongst the institutions and communities. Local ownership and commitment is a critical condition for improved urban governance. This requires consensus-building and consultations with all actors. The initial focus may be on key stakeholders, but ultimately all relevant players should be involved in the process for strategy formulation and implementation. These are:

- those who are affected by, or affect, a priority issue;
- those who possess information, resources and expertise; and
- those who control the implementation instruments.

A major challenge during this phase is to identify and involve vulnerable and marginal groups, especially the poor and women. In the process, the target group should be specified and the specific interventions to reach them should be clear. None of the experiences above describes how the different stakeholders were identified, why they were selected to participate and apparently neither identifies nor addresses specific needs, problems and operative solutions for the different stakeholder groups. Specific target groups are not detailed and, perhaps because of that, no specific emphasis is given to either social inclusion or gender analysis. Furthermore, the role of specific actors such as the private sector, for example, is not sufficiently clarified.

Motivation and dissemination strategies, for instance by using demonstration projects, have an important function in raising citizen - and institutional awareness. In Cuenca, the UA Working Group, consisting of 28 institutions (NGOs, community organisations and municipal management), has been the engine of the initiative. In Santiago, the lobbying was supported by international experts. A communication strategy, including workshops, seminars, journal articles, and radio and television appearances, has stimulated agricultural use of available land. Furthermore, demonstration projects in selected areas of the city were implemented with the support of local actors. In Dar es Salaam, the EPM process used dialogues and participatory city planning. The Inter-Sectoral Working Group was formed in this city to work out strategies to get urban agriculture onto the city agenda. Here demonstration projects were also set up in selected areas.

Diagnosis and stakeholder commitment

The second phase in the facilitation framework, is for diagnosis and creating stakeholder commitment. This phase has three main stages: participatory diagnosis; building collaboration and forging consensus; and formalising commitments for the future.

Elaborating on the issues coming from phase 1 has happened through the process of developing baseline studies and proposals (Santiago, Dar es Salaam), and field visits and interviews (Cuenca, Dar es Salaam). This should yield information on the present state of the thematic area, the local, socio-economic, cultural and political-institutional context, the current impact on urban management, the actors

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

involved and their roles, needs and visions. These papers or interviews should be structured and highly focused, in order to highlight issues and set the stage for reflection and debate.

With the participation of various actors involved in discussion meetings (Santiago, Cuenca) or through consultations and stakeholder workshops (Dar es Salaam), key issues are debated, a consensus on the issues to be addressed sought, and the institutional arrangements for the implementation of activities is to be agreed upon. A spin-off is that relationships among the various actors is established or strengthened. Additional actors might be mobilised and involved, while commitments for further action programming and co-ordination can be defined and formalised through inter-actor agreements.

Strategy formulation and action planning

In this phase, the actors further identify, review and expand upon the priority issues, evaluate options and develop approaches and activities by means of multi-actor platforms (Cuenca) or working groups (Dar es Salaam, Santiago). This process can be aided by spatial, economic and social analysis. Conflicting interests need resolving through negotiation, which subsequently lead to agreement to pool resources for the coordinated implementation of strategies and activities, and to define responsibilities. This is often the most difficult stage in the process.

Action plans do not only identify solutions to local needs and problems, but also seek to strengthen capacities of local actors. Concerted definition and adoption of action strategies and the formal adoption of an action plan by the local authorities (in the form of signing agreements) is found in all three cases.

Implementation

The action plan represents the turning point between the process of diagnosis and strategy development, and the process of implementation of activities. The implementation can take different forms and can include: specific pilot projects (Santiago and Dar es Salaam); a normative and legal framework/municipal policy (Santiago and Dar es Salaam); new models of financial management and subsequent allocation of funds (Cuenca); and new institutional devices that facilitate participation (Santiago, Dar es Salaam).

Follow-up and consolidation, institutionalisation and anchoring

Monitoring and evaluation are essential elements to provide a flow of systematic feedback allowing for (continuous) adjustments during implementation and to inform decision-making. This includes experiences of for instance demonstration projects, which give a firmer basis for replication at a larger and wider scale. Monitoring should address institutional, management and technical issues, and is preferably participatory. The cited cases use participatory monitoring through: multi-actor or working groups (Santiago, Dar es Salaam) and 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 the topic paper on Monitoring and Evaluation on page 40).

Institutionalisation and anchoring are long-term processes to change the way things are done, to build new issues and participatory processes into procedures, norms and ideas of local stakeholders and institutions. In all cases, urban agriculture was officially acknowledged and this recognition was expressed in the 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 terms of legislation and regulation.

Considering the risks and limitations of "project cycle and exit strategies", long-term support is necessary. Inclusion of processes and its results into normative, legal and operational instruments of the cities (such as Strategic Plans, Zoning Plans, District Development Plans, etc.) gives a much more permanent and firmer basis. It facilitates the integration of urban agriculture into the city's environmental, economic, social and health programmes. However, it requires the development of methodological tools to facilitate integration and inclusion. Facilitation frameworks should thus integrate policy (proposals) and action plans of different sectors, and provide local governments and other actors with practical tools for implementation.

Scaling-up and replication capitalises and builds on experiences to extend it to a broader and larger scale. With the exception of Dar es Salaam, where national expansion began, the scaling-up is more horizontal. In Cuenca and Santiago de los Caballeros, scaling-up occurs by increasing the number of farmers and micro-enterprises in the city and its surroundings. In Dar es Salaam , scaling-up is also vertical. The process to prepare Strategic Urban Development Plans in nine other municipalities with the EPM approach provides evidence of its integration at the national policy level. This process requires favourable political conditions in the national bodies (ministries etc.) In all three cases, inter-institutional coordination problems and the availability of resources emerge as the most important conditions for scaling-up.

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The scope and popular recognition of the social revolution that began in Cuba in 1959 has created a Cuban model of participation in which the people identify with, and make theirs, the claims of the government. As a result the population is very involved in carrying out projects, but is much less involved in planning processes. Community participation in planning for urban agriculture development in Cuba is directly related to this particular model of participation.

Patrick Henn

A gardening duo of East Havana, Cuba, cultivating a wide range of vegetables for household consumption and the local market

Participatory Planning

in the City of Havana, Cuba

At the end of 1989, when Cuba was facing emergency food shortages due to the profound economic crisis, the government of the city of Havana created a provincial commission to work on the development of urban agriculture. This commission was made up of representatives from the Ministry of Agriculture and the departments of Physical Planning, Hydraulic Resources, and Public Health (subordinates of the city government). Also, social organisations with a wide popular base of representation, such as the Defence Committee of the Revolution (DCR) and the Federation of Cuban Women (FCW), were invited to participate. Their principal functions were:

Urban agriculture became fully institutionalised

- to establish the main activities for UA development;
- to define the conditions for rational agricultural use of urban spaces; and
- to create practical mechanisms for the transmission of UA development and projects to other forms of popular government in the city (municipalities and popular councils).

By agreement of the Provincial Assembly of Popular Power (1), municipal commissions were created, which were similar in composition to the provincial commission, and which were in charge of promoting and developing urban agriculture at the municipal level. The Departments of Architecture and Urban Planning, as representatives of the physical planning system in the municipality, were incorporated into these commissions. The result was a level of social and institutional participation that set the foundation for and planned the development of urban agriculture in the city of Havana.

The provincial Department of Physical Planning developed a map of the province (including urban and peri-urban areas) that included all of the existing free areas that could be used for future urban agriculture production. Each area was quantified in terms of its suitability for agricultural activity, according to the actual Land Use Plan.

This map and the general requirements for the distribution of land, which were defined by the provincial commission, were presented to all of the Municipal Presidents of Popular Power (mayors). The requirements included the provisional character of the use of the areas, the obligation to productively utilise the space, the prohibition of building permanent constructions and of cutting down trees.

The provincial commission was put directly in charge of handing over the larger lands and facilitated the approval of the location of types of UA production that required state investment. They promoted the production and sale of irrigation systems and seeds to the farmers. The rest of the areas, mainly the smaller and medium sized ones, remained in the hands of the municipalities (municipal commissions) and

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popular councils, which were advised by the provincial commission.

Other activities were also promoted in the city during the early 1990s. Depending upon the objectives, representatives from institutions involved in the activity were incorporated into the provincial commission, as the following two examples show:

- the programme for the development of "people's aquaculture" with the Ministry of Fisheries in 1994. Basins, dams, and mini-dams for raising freshwater fish were located, as well as areas for the construction of tanks; and
- the location of community peri-urban areas for the collective raising of pigs was completed in 1994, for which the Department of Veterinary Medicine was incorporated into the provincial commission.

The level of development of urban agriculture achieved during the early 1990s, together with other factors, led to the creation in 1994 of a structure in the city to represent the Ministry of Agriculture: the Group for the Coordination and Promotion of Urban Agriculture. A similar configuration was created in the Municipalities.

In addition, in 1995, the Provincial Agricultural Extension Commission of the City of Havana was established by the Ministry of Agriculture. The coordination of this commission fell to the Institute of Investigations on Tropical Agriculture (INIFAT) and included the various investigative institutions of the Ministry of Agriculture throughout the province. This commission, whose principal objective was to offer technical support in urban agriculture, is the predecessor of the National Urban Agriculture Group, which directs the follow-up and control of urban agriculture at this level.

With the creation of this structure, urban agriculture became fully institutionalised. As a result, two years later (in 1996), the provincial commission was dissolved. From this point on, interactions took place directly between the organisations involved.

Ten years later, urban agriculture, expressed in many forms, is practiced in the city of Havana by more than 18,000 urban producers, occupying more than 1,000 hectares within the city. It continues to be supported by the government (national, provincial, municipal, and popular councils), and is managed, oriented, and controlled by a delegation of the Ministry of Agriculture. It has been incorporated into the Land Use Plan approved in December 2000, but on a general scale, with permanent projection in the peri-urban zone and temporary projection in the urban zone and newly developed territories.

The above planning process demonstrates gains and weaknesses in terms of community and institutional participation. Even with the advances made up to this point, community forms of participation in this development are still far from optimal. Authentic participation is considered to include: evaluation and understanding of the problem, the creation of economically sustainable and culturally adapted solutions, decision- making to contribute to a more consensual definition of legal, collective, administrative, and local investment priorities, and actions in terms of the evaluation, control, and fiscalisation of activities.

Urban agriculture planning is mainly carried out by the government and its various departments and branches. The community and its organisations participate principally in carrying out the planned activities. Other entities that deal with urban environmental management have not been totally integrated. In the proposals and plans of the city, urban agriculture is still quite limited, in terms of land use, local economic development, development of the productive sector, housing, or other. The legal framework that supports urban agricultural production and animal husbandry is still insufficient. Community participation is not incorporated into its definition, nor does it receive enough recognition.

Nevertheless, as the old saying goes, "the years haven't passed in vain." As a result of ten years of urban agriculture and more than four decades of a completely free education system, which guarantees school attendance, the insertion of this activity into land-use planning is in process. This process attempts to consider all of the actors that are directly and indirectly involved in the development of urban agriculture and it is without doubt, though in a modest way, contributing to participatory planning.

Nicoliene Oudwater

Site and services housing development, Mamelodi, South Africa

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NOTES

(1) The Provincial Assembly of Popular Power is the principal form of government in the province. The Cuban government is divided into the following levels: national, provincial, municipal, and popular council zones.

Pollution Effects

social and economic implications on Urban and Periurban Agriculture in India

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I acknowledge the contribution to this research of many colleagues including: Nigel Bell, Simon Croxton, John Stonehouse, Madhoolika Agrawal, Neela Mukherjee (the participatory research team and farming communities in 28 villages around Delhi and Varanasi) D S Bhupal, Rana P B Singh, C Chandra Sen and Ravi Agrawa.

Any threat to agricultural production in India is a matter of great concern. Agriculture accounts for a little over one quarter of India's GDP, and nearly 80% of the population relies on agriculture as part of their livelihood. However, food security is still considered a luxury by many and 80% of the urban population spends 70% of their income on food (Mougeot 1994). Whilst attention tends to focus on rural areas, urban and peri-urban agriculture makes an important contribution to the growing urban food demand, particularly for supplies of perishable produce, and it is a major source of food security, income and employment for the poor.

This paper introduces a methodology for assessing the social and economic policy implications of pollution impacts on the yield, quality and safety of urban and peri-urban crops. It is based on ongoing interdisciplinary research by Imperial College since 1995, in partnership with a wide range of Indian organisations. The approach emphasises non-market valuation of agricultural produce and the inclusion of the poor, whilst developing strategies to link the micro- and macro-level policy perspectives to influence ongoing policy debates (Marshall, et al. 2000).

POLLUTION IMPACT

Field studies from Pakistan and elsewhere have shown that significant reductions in crop yields may be occurring as a result of air pollution (Ashmore & Marshall 1999, Marshall, et al. 1997). There is also limited evidence to suggest that the incidence of pest and disease damage may increase in polluted areas (Bell, et al. 1993) and that there may be a reduction in crop nutritional quality.

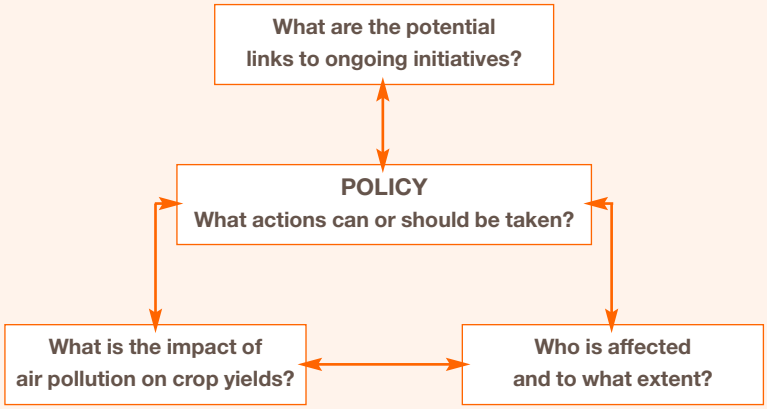

Figure 1: Three lines in the research programme

This interdisciplinary study was carried out by British researchers in partnership with local and national governmental bodies, non-governmental organisations, research institutions and local farming communities in India. There were three major strands to the research programme as indicated in figure 1. Scientific data concerning the impacts of air pollution on crops of importance to the poor were linked with information on the significance of these impacts to livelihoods of farming communities, to other vulnerable stakeholders and to the city's economy. The policy and scientific research aspects of the work were carried out in parallel, with fora created to allow affected communities, researchers and policy-makers to exchange views whilst consumer groups, polluting industries and other interested parties were also consulted. In addition, a policy group was developed to assess how the emerging research findings could be most effectively utilised within the existing policy agenda.

There are two key processes involved, which take place in parallel to the scientific investigation:

- A holistic evaluation (using participatory methods) of the significance of urban and periurban agriculture, and air pollution as a constraint to it.
- Linking with the existing policy agenda.

THE HOLISTIC EVALUATION

The general nature and extent of urban and peri-urban agriculture were assessed using *secondary data* and were supported by field transect surveys. The results showed that UPA is an important, if little, recognised activity largely practiced by landless and small-scale farmers. Wheat and rice, grown for subsistence use, predominate the land area, whilst vegetables are often also grown for sale.

Marketing surveys were also undertaken to determine the proportion of the city's food supply that was sourced from urban and peri-urban areas, and the economic value thereof. In fact, the majority of highly perishable products, including many vegetables that are consumed in Indian cities, are produced in peri-urban areas

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Data from the *experimental studies* were used to make preliminary assessments of the economic costs of air pollution damage. These were limited to an illustration based on current market value, because little is known about responses to yield and quality constraints (such as price fluctuation and crop substitution) in urban and peri-urban agricultural produce. This issue is being pursued in further studies, but it is important to note that many of the possible scenarios suggest that it is the poor who will suffer the most.

The analysis described above provides an indication of the monetary value of crop losses as a result of air pollution, but does not include any costs that are not represented in the traditional economy. In order to address this, a more detailed assessment of the nature of agriculture and its role in the livelihood strategies of both individuals and communities in selected case study villages was developed through an intensive programme of participatory research activities. The study provided evidence of the many ways in which reductions in crop yield can threaten livelihoods in these areas. Amongst small-scale farmers in the survey areas around Delhi and Varanasi, the majority of crops are for home consumption, and the crop residues maintain livestock and fuel supplies. Agriculture is also an important source of (seasonal) employment.

Whilst much of the participatory work focused on poor producers, complementary activities examined the potential impact of air pollution on other stakeholders in the production-consumption chain. Once again, the poor were seen to be the most vulnerable to constraints on production in polluted areas.

POLICY LINKS

The second key process is based on the recognition that benefits of the participatory level methodologies are only fully realised by utilising the information gained from the analysis within the context of wider policies and programmes. Digesting micro- and macro-level analysis within an iterative framework enables researchers to focus on effective means to inform the relevant policy debates, influence the policy-making process and improve policy implementation.

The first stage was to *identify target policy fields and actors*. These included legislators for emission standards, pollution control measures, and land-use planning. There is a requirement for environmental impact assessments before new industrial installations are approved, but they do not currently include potential damage to agricultural crops. These are examples of where awareness of impacts on agriculture may help to support the case for more stringent emission controls.

Formal and informal channels for influencing environmental policy were then examined. The stakeholders involved included: central and state government departments for environment, agriculture, power/energy, industry, transport; pollution control boards; NGOs concerned with environment and public health; polluters and consumer groups. Policy influence may take place through direct actions such as lobbying senior government officials (the Ministry of Environment and Forests is a high priority) or indirectly through, intermediate institutions or systems such as the democratic, judicial and market systems. Some high profile institutions, through which direct interaction takes place, provide an excellent opportunity for policy influence. Other major players in India include an extremely active environmental movement led by non-governmental organisations and the judiciary who have been pivotal to many recent changes in environmental policy in India during the past decade.

Recognising that different stakeholder groups have unequal access to policy-makers and implementers, communication channels between those most affected by air pollution and the authorities charged with controlling it were explored. The objective was to consider how the concerns expressed by farming communities affected by pollution issues (as expressed through the participatory research) are currently and could potentially be addressed by the policy and regulatory frameworks.

Following this, the translation of environmental policy statements to specific strategies, instruments and initiatives were reviewed and successes and failures recorded with respect to their success in improving air quality particularly in urban and peri-urban areas. This included a review of problems that need to be overcome to support a higher level of achievement of policy objectives. For example, despite recommendations and justification for extensive use of economic, voluntary and social tools, command and control is still widely used for environmental pollution issues, but the financial penalties are often considered too low to act as a real deterrent, and whilst there is a strong rhetoric for greater involvement of NGOs and more widespread use of voluntary and social tools for pollution control, this is hindered by poor public access to information, which limits the accountability of responsible agencies towards the public and electorate at large.

Finally, specific links with ongoing initiatives to raise environmental awareness and improve the implementation of environmental policies were identified and facilitated. These included involvement in school-based environmental monitoring programmes and organisation of field-based farmer/scientist/government extension agent workshops.

CONCLUSION

The case study described above demonstrates that there can be considerable advantages in developing a scientific field research programme in parallel with community-based research and in maintaining a policy dialogue at all levels. In addition, the focus on specific stakeholder groups (in addition to the local or national economy) provides data to target further scientific research into the effects of air pollution on crops and forests to focus on commodities and field studies that are appropriate to a particular priority group.

The aim is to carry forward elements of this research methodology into future programmes concerning urban and peri-urban agriculture. One of the priorities will be to analyse and document the institutional lessons that have been learnt.

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Topic 3
URBAN LAND USE PLANNING

Technical Tools

Despite increasing attention, little is known about the actual extent and spatial distribution of urban agriculture in inner city areas. Questions need to be answered about the concentration of urban agricultural activities and the reasons for this concentration. The application of any tool requires community participation. The strength of any community lies in its existing network. In the context of planning methodologies this means the need for development of human capital capacity, which is mainly achieved through formal and informal training and education (Nell & Wessels 2001).

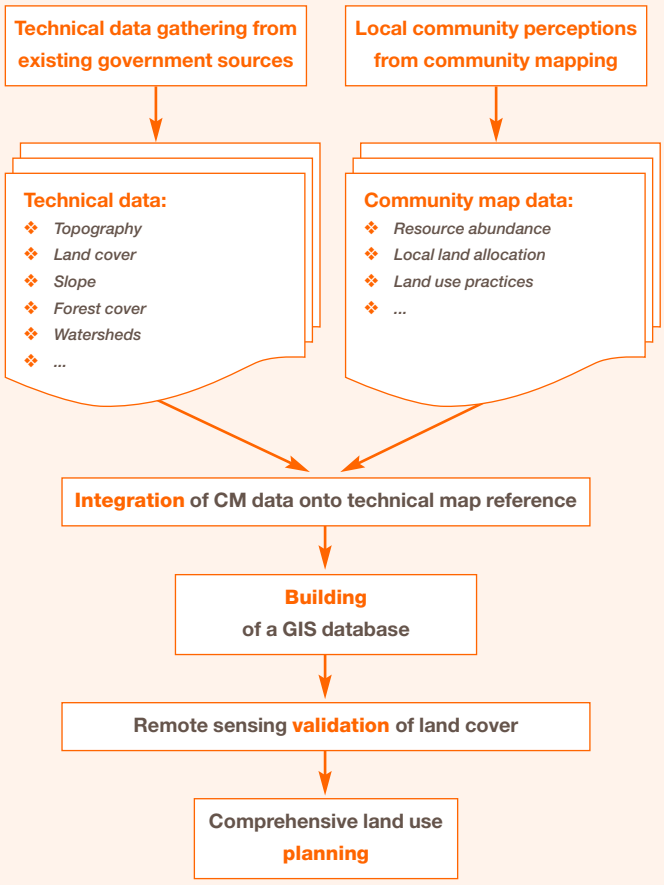

Figure 1 (from page 32): Methodology chart of community resources management

The most commonly used planning tools include *master plans, strategic plans and structure plans* (Dowall & Giles 1997), while 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 and as such cannot accommodate dynamic settings. They also tend to ignore changes in demand for land and price fluctuations (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 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 the purposes for which the land can be used 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. Mixed zoning must be applied to the clustered type of development, especially, where working sites and residential areas are planned together; for instance, the spontaneous squatter settlements at city peripheries in many developing countries, where housing, small-scale industries *and* agriculture are located in proximity to each other.

LAND MARKETS AND POVERTY ALLEVIATION

Land tenure and land security, rather than the availability of land, are the central to poverty alleviation, as pointed out above. Nevertheless there are big regional differences regarding the available space in cities, the prices of land and land tenure regulations. The key question is how to have the poor participate in the formal land markets (Fernandes & Varley 1998). Past approaches of poverty alleviation took into account the flexibility of the poor, which led to dependence on the government and non-governmental organisations (Dowall & Giles 1997). Urban planners tackle this question in the context of housing schemes rather than agricultural land use. Sometimes we need to take valuable existing thinking and strategies as a starting point. Site-and-services schemes and squatter settlement upgrading are common measures taken by councils to provide or improve housing for the poor.

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 of increasing land tenure security and land value and can be considered a specific form of leasehold (Dowall & Giles 1997).
To avoid land speculation, the status of agricultural land in cities should remain public land, with

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long-term leases. Efficient protection of inner city open spaces is required.

GIS AS A TOOL FOR LAND-USE PLANNING

Geographical Information Systems (GIS) have been widely used for urban planning purposes, but open-space management has hardly ever been included. The use of Remote Sensing (RS) for mapping and monitoring urban and peri-urban green spaces facilitates the mapping process but needs to be combined with true ground data evaluations. Some limited experience with the application of GIS to urban food production activities has occurred. GIS are used for urban planning and open space mapping but also for monitoring the loss of agricultural land within city boundaries, or measuring urban greening indicators (Fazal 2000). GIS can 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-connected departments. Furthermore, the technical equipment (data, computers, plotters, computer networks) and know-how in the use of RS is often missing. The use of RS and GIS to increase participation in the planning process remains a challenge (Nedovic 1999).

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, especially 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. Land tenure and land use arrangements are critical with respect to sustainability. Cooperation 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.

Needs and Vision Analysis

Needs analysis, using GIS, requires the participation of the local communities and is part of community based mapping. A vision is developed together with the communities on how they expect the future to be – where they want to produce crops and animals, what minimum areas they need, how they would like to have their situation improved, which conflicts need attention and what role spatial planning could play in the future to avoid further conflicts. Needs analysis may also include stocktaking of community demands for space for agricultural production, including demographic factors influencing development (birth rates, population growth, influence of AIDS and HIV, etc.).

How to integrate community mapping into the formal planning processes

Community mapping allows for an analysis of demands and constraints of local communities to be considered in the (municipal) planning process, and which can be combined with the (financial and/or administrative) capabilities and intentions of local governments. All of these often different positions, opinions and intentions can be put in a GIS database, which, linked to spatial information, can be used as an analytical tool to find win-win solutions to satisfy demands from different origins.
Community maps are not "scientific" maps at all, but contain valuable information on the local situation, which is often overlooked 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 (see also the contribution by Esquillo-Ignacio and Orban-Ferauge on page 31).
Participatory urban planning is a new, complex and difficult process. Many stakeholders have to be involved. Experiences from many cities in Europe show 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 problem is tackled, the community organisation falls apart (Dowall & Giles 1997). Nevertheless community organisation, capacity-building, and access to finance remain key issues in participation. Participation requires a lot of information and communication, as well as consultations and moderation. There is a need to develop platforms, which should, at least initially, be of an informal nature. GIS can contribute to more participatory approaches in urban planning when used appropriately.

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. 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 question that still remains open 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.

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Actor's Interplay in Mexico City

the Compatibility Matrix applied

Andrés Bucio

Maize along a main street in Mexico City

Urban agriculture cannot be perceived, assessed, or developed as if it exists or has existed in a historical or political vacuum. Power relations and non-material processes have shaped urban environments for centuries, and, it is argued here that in urban planning one should pay (implicit or explicit) attention to these issues, when considering the need and desirability for more urban agriculture development in cities.

This article first discusses the relevance of a political ecology of urban agriculture; it highlights the importance of an *actor-oriented approach* in understanding the link between urban planning and urban agriculture.

The forces that affect agricultural development are not all evident

Secondly, it will refer to Mexico City's actors' interplay in the context of a local and global politicised environment.

URBAN AGRICULTURAL DEVELOPMENT: A POLITICISED ENVIRONMENT

The forces that affect urban agricultural development are not all evident, and often appear contradictory. Ignoring or banning UA is based on the wrong assessment of the paradoxes and bottlenecks taking place between farmer practices and current trends in urban policy and planning. Proper planning demands that we understand those paradoxes in a politicised arena. In this context different actors operate at different levels to exert control over the same urban environment. This struggle is not always negative; new opportunities and actors may arise, and piecemeal win-win co-operation and complementarity of interests is a possibility.

USING THE COMPATIBILITY MATRIX

In evaluating opportunities and constraints, the compatibility matrix can be used as a tool to visualise relationships that would otherwise be invisible or non-existent (adapted from Barton and Bruder 1995, see fig.1). It allows for an assessment of various degrees of compatibility between four general categories: *urban agricultural development targets* (UAD), *policies, events, and actors' desires and behaviour.*

The criteria used in choosing these categories are:
1) the cross-cutting quality (expected to be part of the dynamic interface amongst actors rather than just isolated "things");
2) the information available.

Some of the relations or interfaces are described below.

INTERACTIONS

Increased Cost of Living versus Urban Agriculture (AB)
Although higher costs for living might expel farmers from the urban area, it could also be an incentive to stay, as there might be an increase of vacant spaces and informal access to urban goods and services.

(Other) Industry Promotion versus Urban Agriculture (AC)
Tourism is not a homogeneous category. Cultural tourism, for instance, demands local products in traditional market places, while elite tourism demands luxury food products coming from abroad. Tourism has a great potential to reinforce urban agriculture if more specific policies are directed towards the first type.

Participation and Urban Agriculture (AD)
Decentralisation affects suburban and peri-urban farmers in a positive and negative way. Although in Mexico City it has been negative, since new powers came into being, opportunities are still there.

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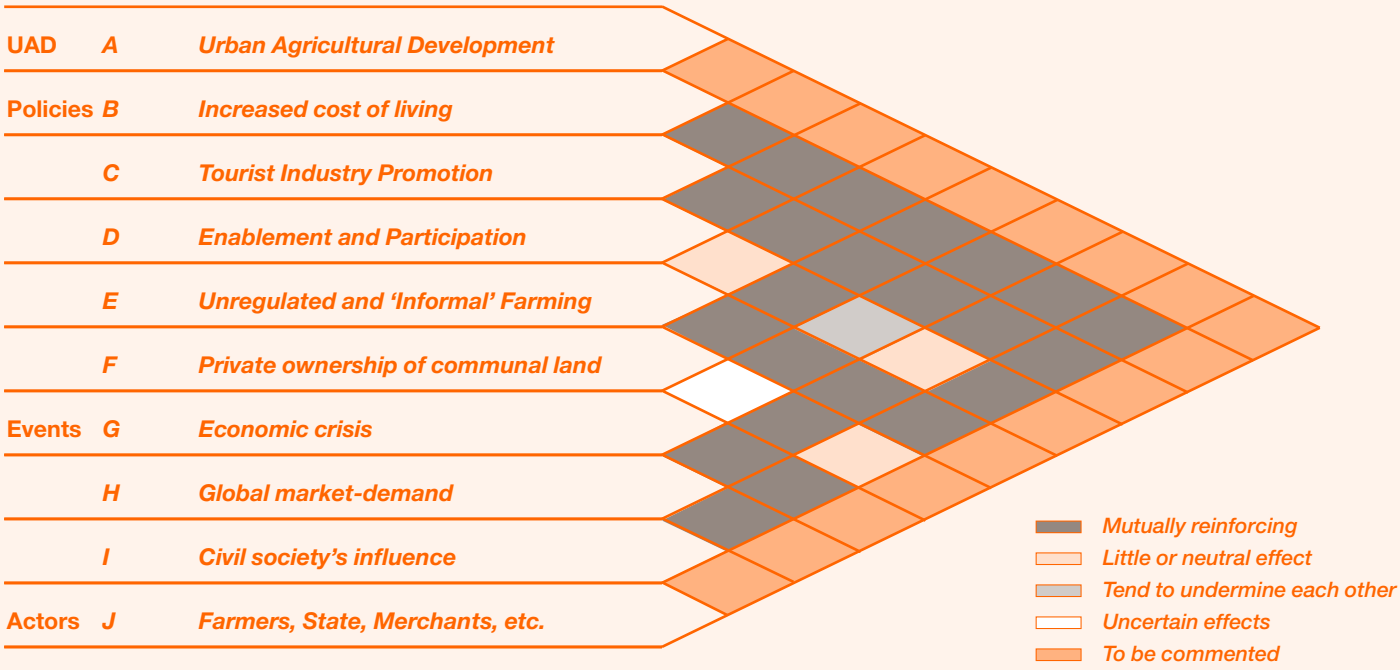
Figure 1 Urban Agricultural Development Compatibility Matrix



Tolerant policies of Urban Agriculture (AE)
The policy of non-policy benefits to urban farmers has also curtailed possibilities to build up other types of capital assets that are more legitimate to society. In the long run there is a challenge for the law to cope with changing patterns of economic activity and social organisation.

Ownership of Communal Land versus Urban Agriculture (AF)
Some farmers have benefited from the amendment of article 27 in Mexico, but not all farmers have the capital assets to benefit from the privatisation of communal land. The amendment has polarised the beneficiaries. Those who do not benefit from the law, join the side of those who operate outside the law.

Economic Crisis versus Urban Agriculture (AG)
Under economic crises, urban agriculture definitely is a survival strategy for the poor. Another impact is the reduced need for construction spaces. Economic crises benefit those who have the information and knowledge to operate under a new logic of capital accumulation and potentially offer opportunities (of a radically different nature(to those who do not have that knowledge yet.

Global Markets and Urban Agriculture (AH)
The urban environment should be the kind of setting likely to *limit*, due to its physical configuration and unevenness, the unsustainable use of land for cash crops, the exploitation of disadvantaged labour groups, and the overexploitation of already scarce urban resources. How this theoretical assumption should work out with economic (though not necessarily social(benefits coming from a global demand for agro-products seems to depend on actors' level of awareness of other actors' environmental and economic behaviour.

Urban Agriculture and Civil Society (AI) and Actors (AJ)
Non-governmental organisations and their networks are important channels of communication but have less authority, and as such have led to a new internationalisation of politics (Chalmers and Pielster 1996). Whilst not in everybody's agenda, urban agriculture indirectly affects and is affected by almost every urban actor.

State tolerance towards illegal metropolitan farming means at least three things: Inability of the legal system to cope with economic and productive trends; the need for more comprehensive urban governance mechanisms; and a more flexible social contract. *Enterprises* benefit from the opportunities that arise in the context of change (and often induce that change). *Local authorities'* interests are good resource management and good governance. *Non-governmental organisations* have a recurring weakness which paradoxically is also their strength: they are often unaware of who *really* benefits from their work. *Farmers'* interests are obvious from their own point of view, but not necessarily from a UA development view.

CONCLUSIONS

Cultural *illegitimacy* of urban agriculture weakens farmers' opportunities. Urban farmers can place themselves in a more powerful position if they:

- see their contribution as a political opportunity within their community;
- are capable to contribute to society with a different perception of the opportunities and with a powerful knowledge system of their own (for instance, combined with cultural tourism, and an alternative vision the environment); and
- become part of platforms in which city authorities, researchers, civil society, and business come together to jointly discuss and determine development.

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Members of Mahayag, Philippines, participate in the mapping activity. Source: Environmental Science for Social Change Institute (ESSC), Malaybalay, 1998

Community Resources Management

in Central Mindanao (Philippines)

The City of Malaybalay in Bukidnon Province in the Southern Philippines has areas lying within the Pantaron – a very critical mountain range for securing water resources for Mindanao Island. Belgian and Philippine research institutes have joined continuing efforts to facilitate the official recognition, by local government units and national line agencies, of the inherent capability of indigenous communities to ensure a sustainable environment using a GIS methodology. A pilot area has been set up in the city for promoting participatory environmental management with a solid scientific basis.

The forest uplands of tropical Southeast Asia are progressively degrading into unproductive grasslands due to various destructive forces.

Much of the destruction can be traced to unsustainable land-use practices in and around the forest such as mining and logging that turn to extensive farming after the extraction activities. Efforts must be concentrated on redirecting these destructive activities to protect the remaining forest as a primary step in environmental rehabilitation. Due to deforestation, less land and fewer forest resources are now available for subsistence livelihoods. Another problem is the influx of migrants who do not follow the traditional, sustainable practices. Deforestation has further caused the fragmentation of the forest blocks and the traditional cultures, both of which are inextricably linked. As this cycle of fragmentation continues, the resulting degradation affects communities both in the uplands and the lowlands. Efforts at quelling this tide of destabilisation need to focus not only on the biophysical, but also, and more importantly, on responding to the growing demand from communities for land tenure and management of their resources.

Through an on-going dialogue with the local people, problems have been identified in terms of land tenure, resource management, watershed stability, disaster management, natural regeneration, livelihood and ecology. The communities are now aware of the present environmental degradation and its close link to their subsistence and eventual survival, and they have asked for assistance.

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COMMUNITY PARTICIPATION IN LAND-USE PLANNING: AN INTEGRATED GIS FOR A CITY

A local, integrated project has been developed with the aim of presenting to the indigenous communities a solid scientific basis for their environmental knowledge, and to give them a stronger voice in the management of the land and its resources, particularly in the eyes of government. Although Philippine law theoretically does not discriminate against indigenous peoples, they are in fact marginalised compared to migrants. This project supports past efforts that have laid the ground for a further stage in the process of empowerment.

Community and governmental mapping

A cartographic database has been achieved using the mental maps, called "community maps", drawn by the local communities themselves. These plain sketch maps are then digitised for documentation and for greater ease in reproduction. During the process of validation and finalisation, the verification of the exact position of key reference features by Global Positioning System (GPS) technology is conducted. At a further stage, the features found on these maps are adjusted in the best possible way to fit into the official large-scale topographic maps of the Philippines and integrated into a cultural and environmental GIS database. These overlays are then integrated with technical information in a GIS, thereby producing maps that reflect not only current land-use patterns but also the complex interaction of people with their environment.

The value of having the community information integrated into the standard government technical database is that there is a common reference point for the community and the government; i.e. the people

can see their information in a technical map, which is the language of government. The final integrated maps can then serve as a starting point by which the community can present to the government their current situation and concerns. This also provides a sound basis for more realistic planning and management wherein the community is the main provider of an important layer of information in the GIS and thus also the key player in the management planning. By replicating this process in other areas, it is hoped that this form of land and resource management might eventually be applied on a national scale.

Community mapping has become such an effective tool that the Department of Environment and Natural Resources (DENR) has identified it as a key component of their community-based forest management programme's rules and regulations. Other non-governmental groups have adopted the methodology in their community-based resource management projects as well. Local government units, from the municipal, city, and provincial levels, have also begun to adopt the approach in their land-use and development planning efforts. The process is more time-consuming compared to traditional "desktop" technical planning, but the final output land-use maps contain much more detail and possess information contributed by the different communities.

Community mapping was started in the community of Bendum in the eastern portion of Malaybalay City in the early 1990s. In the years that followed, these same maps have been the main reference used by the community to communicate their situation with others, particularly the government. Under a national law that recognises indigenous people's rights to lay claim to their ancestral domain, the Bendum community has used their community maps to support and establish their legitimate claim to their ancestral domain, for which they applied in the mid 1990s. Overlaying the community information onto technical map information in a GIS was key to the delineation of their ancestral domain. The community's claim has been granted and its rights to the land affirmed. The community is now in the process of formulating the management plan for their ancestral domain.

As recognition for the effectiveness of the community mapping process, Malaybalay City chose it as one of its primary methods for gathering field data for the formulation of its comprehensive land-use plan in 2000. The adoption of the community mapping process served two major purposes. First, it was not only an activity to gather land-use information from the people, but it also served as a venue for consultation and dialogue with communities regarding issues, concerns, and their preferred management options. Second, the process yielded crucial social information on the socio-economic and political dynamics that affect the use and allocation of the land. Community mapping was particularly helpful in providing detailed information for the remote upland forest areas of the city – the critical areas in watershed stability. Information about these areas are often unreliable, if not totally absent from existing government maps.

Remote Sensing information

In order to achieve a much greater impact, remote sensing is yet another method that can facilitate following up the evolution of land use since this information may be obtained from the classification of images provided by SPOT and LANDSAT technologies. This land use classification can be integrated with the two existing GIS information sets (the community and the topographic maps) so as to obtain permanent and relevant information about the changing conditions of the land cover that influence the local resources and their management. Such a classification is also used to validate the land-use maps designed by the communities (see figure 1, the methodology chart on page 27).

Together with current ground data collected during the community mapping process, satellite imagery can provide up-to-date and verifiable data leading to large area investigation and monitoring. The results can be used to develop detailed site-specific land cover maps that will provide more accurate depictions of watershed conditions, forest conversion patterns and the cultural use of resources. These maps will be fed into the management plans being developed with community participation and will also provide a greater stimulus over a wider area.

Integration

The integration of community mapping and the technical approach based on topographic maps, as well as the classified satellite image in a GIS aims to verify the accuracy of the community information as well as to establish a dialogue with the government. The approach seeks to validate the communities' information in a scientific manner in order to make it credible and acceptable for government. It constitutes a major step in establishing the required dialogue between the communities and the government so that the role of the communities as key resource managers may be recognised and that the government may become involved in setting up, together with the communities, an appropriate plan for sustainable development.

CONCLUSION

GIS can facilitate the integration of the people's view and highlight the leading role of meaningful community participation. One of the key components in providing such integration is community mapping. The use of maps developed through the intensive participation of the communities constitutes an occasion for clarifying, validating, and affirming various concerns and issues. A partnership, with the use of community mapping and other participatory methods, is able to formulate an integrated and holistic comprehensive land-use plan that is based on realistic and more accurate information from the field and that reflects the interests of the various sectors of the population. The challenge is for the government unit to translate the plan into concrete actions, and hopefully to allow the people of the forest to be empowered through the acquisition of their ancestral rights.

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The urban agriculture production system is characterised by a variety of agricultural micro-enterprises, the performance of which is not only limited by bio-climatic, land and socio-economic constraints but also by important technical restrictions. 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, FAO 1999, Fall and Fall 2001).

From Video "Urban Agriculture", RUAF 2001

Watering Crops on a Roof in Dakar, Senegal

Appropriate Methods for Technology Development

Low level of technology development in urban farming systems, the adaptation of agricultural production technologies to the specific conditions of the urban context, and the low level of acceptance by urban farmers, is 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, and also technologies for the safe use of urban wastes and wastewater);
- lack of attention for the innovations made by urban farmers themselves; and
- lack of participation of 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 agriculture research and extension. This article will seek to answer these questions by exploring the methods and procedures that may be applied with success to urban agriculture.

URBAN AGRICULTURE AS COMPARED TO RURAL AGRICULTURE

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

The urban farming population is more heterogeneous in its social, economic and cultural background. In rural communities, farmers conform to a large part of the community, they know each other, and the 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 they may come from another socio-cultural background which hinders communication and cooperation.

In the rural setting, farmers have developed a whole body of traditional technical knowledge over time. A part of the urban farmers comes from farming origins, but others are farmers by need or choice and may lack such traditional technical knowledge. Even so, the knowledge of someone from a farming background 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 into 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 just concentrate on one component (e.g. production of fodder) and leave the other components to other households (e.g. raising of 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;

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❖ 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 household 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 proximity 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. Urban areas have a high demand for large amounts of quality, fresh and processed products. Direct access of producers to consumers is possible. There is high demand for low-cost food-processing technologies; and
❖ labour costs are higher as compared to in rural areas.

IDENTIFICATION OF TECHNOLOGY NEEDS

The identification of the need for specific technologies is the first step in the research-development chain. This involves the characterisation of the production systems and farming households present in the selected area in order to arrive at a reliable diagnosis 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-economic characterisation of the target area. Special attention should be given to the analysis of the direct stakeholders: their number, ethnic group and social behaviour. This analysis needs to be participatory and ending with a consensual characterisation of the various social groups involved, especially concerning their skills, preferences and technology needs (Quansah 2001 and page 38 of this magazine). A variety of participatory and other rapid appraisal methods and instruments can be applied in the situation analysis, such as focus group interviews, community resource mapping, seasonal calendars, problem trees, Venn diagrams and ranking. 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 stratification is recommended.


ILEIA
Farmer describing his livelihood

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.

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, 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 to 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.

Farmer involvement enables to make use of farmer's knowledge in 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 cooperate 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" (Fall et al. 1993), identified producers that are characterised by their flexibility and openness to innovation, patience and discipline

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important for the successful implementation of the experiments (Fall et al. 1994). 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 (De Zeeuw 2001). Other criteria used were:

- their knowledge of and interest in the crop, animal or cultural practices to which the new technology relates;
- their capacity and willingness to share their knowledge with others;
- their representation for the various social strata and farming systems in the area; and
- 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 organisation of follow-up teams that include representatives of partners, researchers, extensionists and producers seems effective to exchange and harmonise 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 organisations appears to be a useful tool to secure appropriate follow up of the experimentation in an extension programme (Cardinale et al. 2001, Fall et al. 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, NGOs 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 approaches, the Farmer Field School approach (Van der Fliert and Braun 2001 and Prain on page 37), etc. Some of the experiences with such approaches and methods are included in other articles in this magazine.

CONCLUSIONS

A large number of conventional and participatory methods and instruments exists that are developed for use in rural areas. However, their adaptation to the urban context is in the early stages, and the challenges indicated in the initial sections of this article still largely remain. It was observed during the recent workshop in Nairobi, 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, etc.).

Adaptation of the methods to the urban context is in the early stages

One of the reasons, it was claimed, is to gain recognition and to reduce their feelings of insecurity in this new field. Such a 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 NGOs, 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.

The Network Approach

the Production – Consumption Chain in Senegal

This article presents a social analysis of the co-ordination of the production-consumption chain in agriculture. The inter-relations in two production-consumption chains are compared: cereals and dairy in Senegal.

Social network analysis is a valuable means of exploring the dynamics of urban agriculture and how economic reasoning is embedded in these social networks.

To begin with, the principle actors are identified from the production to the consumption ends of the chain. The many different connections between individual and collective actors, both vertical and horizontal and whether negative or positive, strong or weak have to be analysed and understood, as well as the underlying links that provide structure and in some cases reproducibility to this system.

Empirical and detailed knowledge is sought of the actors, their roles, their social and economic or other relations, the pinpointing of their interests, and forms and means of mediation. These relationships are often a result of strategic behaviour according to different rationales. The determination of the dominant rationale requires the identification of the others such as: avoidance, confrontation, contractual cooperation, formal or informal exchanges, reciprocity and privatisation.

The network involved in the long *production-consumption chain of cereals* has developed from a specific context.
1) A *multiplicity of actors* (producers, collectors, merchants, processors, distributors, and consumers) is involved. There is a large distance between producers and processors, due to the great number of intermediaries that make use of their economic positions or role in the distribution of raw materials.
2) *Institutional support*, through the activation of linkages with technical support and financing institutions. The importance of these relationships depends on what support is expected. They offer an opportunity to gain access to market information, price fluctuations and insight into threats and opportunities of other intervening structures in the production-consumption chain and into production supply routes.
3) The *exchange of services* and arrangements that facilitate (the means of) transactions. This concerns for instance, the supply of cereals on credit, deferred payment, forms of reciprocity between employers and their employees (gifts, donations, bonuses), supply orders, subcontracting of markets by ceding quota shares, etc. These exchanges may develop up to sub-regional level where experiences, techniques and technology provide the links, intersection points, and the context in which further relations (pending proximity and distance) are developed.
4) The *distance* between the (rural) supply and urban processing and consumption zones.
5) In contrast to many industrial producers, urban micro-enterprises may survive by closer contact to consumers through their *personalised labels*. Their presentation as Innovators-processors lends them a nationalistic stamp, a factor in mobilising customers, promoting products and adherence to other, possibly semi-processed products.

The shorter *production-consumption chain involved in the processing of milk* is distinguished by these factors.
1) *Trade linkages and interchanges* between processor and producers (cattle-owners), possible due to the homogeneity of the social groups involved (both belonging to the same ethnic group of agro-pastoralists).
2) The processing units receive an *aid* from support and financial institutions. These financial and technical partners also help the producers of milk by facilitating access to inputs, veterinary care, training, hygiene and natural resources. This two-way assistance further enhances the link between processors and producers who now depend on these external partners (the factual innovators in this food chain).
3) Forms of *reciprocity between producers and processors* through the exchange of goods and services. The producers regularly provide the daily supply of raw materials to the processing unit, reinforcing the links of loyalty to the processor who, in return, offer credit often used to purchase products and foodstuffs.
4) The influence of the processing unit depends on the *promoters' investment* in the close link with rural producers at the beginning and with the consumers the end of the production-consumption chain.

The comparison of these chains reveals that institutional support is a necessity. On the one hand in the creation of wealth in the context of an emerging economy and in making the provision of services possible. Importantly, the conditions for maintaining transversal links between different actors, even as competitors, are (still) influenced from outside. Economic trade relations may suffer from the skilful management of non trade relations, chance relations also interact and the development and amount of contacts make risk management easier.

The permanence of the network(s) in the system essentially depends on balanced power-sharing negotiations, in which mediation plays a fundamental role. A particular important aspect in this is the notion of trust. Trust is built through a process of successive agreements and linkages, whether they are definite, accepted or tolerated.

Trust works through avoidance of confrontation, conflict regulation or amicable agreements, through signed contracts or informal exchanges based on reciprocity. Within this context, the privatisation of linkages plays as much of a role as social network skills do. Risks or manipulation are eliminated through a high level of predictability between actors in the control of the resources.
The forms of these relationships and underlying strategies come from different social connections and are shaped and maintained through the horizontal and vertical relations that develop and fit together, according to their interdependencies or complementarities. The process of building, extending, and diffusing ideas, of learning, building know-how, techniques and technology operates through their common or complementary functions.

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Farmer Field Schools

an ideal method for urban agriculture?

Farmers in urban settings sometimes have limited pools of local technical knowledge on which to draw compared to their rural counterparts, sometimes because they are new to farming, sometimes because the environment in which they farm is new and unfamiliar. The Farmer Field Schools (FFS) provides the means for farmers and facilitators to explore available local knowledge and very importantly in this context, to identify the knowledge gaps that need to be addressed. Some pros and cons are discussed below.

The history of adult education has shown that adults learn best through hands-on experience and exposure to subject matter that relates closely and relevantly to everyday experience. This is the fundamental principal underlying FFS: it provide the setting and the materials for farmers to explore and discover for themselves on the basis that knowledge actively obtained in this way will be more easily internalised, retained and applied after the training has finished. Field schools typically consist of once-weekly or once-fortnightly meetings of half a day that run throughout the agricultural season. The field school environment can offer an extended training ground for new skills and new potential sources of income.

The limitation of this kind of adult education approach is the degree of dedication it requires from participants. For poor urban dwellers this kind of commitment to one strategy can be difficult.

A SEASON-LONG EXPERIENCE

The FFS spans the full season of a particular crop precisely so that farmers and facilitators can explore problems and opportunities that arise at different moments, from issues of seed health, soil fertility to disease management and harvesting to knowledge of markets. A season-long school can help urban farmers really confront the shifting and perhaps unfamiliar difficulties in the urban environment.

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Judgments are needed about particular crop combinations, access and quality, planting conditions, different kinds of stresses, market opportunities that exist, whether to grow for the family or for sale to local fresh or processed markets.

However, the frequency of meetings (once a week preferably) and the duration of the school over the season may conflict with other time demands on families, especially new, unforeseen employment opportunities or seasonal work, for example in the construction industry.

AN ARENA FOR PARTICIPATORY EXPERIMENTATION

As fields of participatory learning, FFS are excellent arenas for experimenting with new technologies. FFS started on the subject of Integrated Pest Management, but experiments on other subjects are ongoing. The specific conditions of urban farming, such as limited space, insecurity of tenure, poor soils, competing labour demands and so on require assessment of the best-bet crop management options. A stable means of conducting experiments through which farmers will themselves select the technologies best adapted to the circumstances is extremely important. Possible limitations on this involve the willingness and capacity of urban dwellers to overcome competing demands.

FARMER-TO-FARMER LEARNING

The scaling up of FFS is based on a system of "training of trainers", or more accurately, training of facilitators, since the emphasis is always on facilitating learning in a hands-on context, rather than on extension-type training. Depending on personal aptitude, some of the persons who undergo the first FFS then go on to facilitate other FFS. Learning seems to occur far more readily through farmer-to-farmer interactions than when a technician or scientist facilitates, though the latter continues to be involved as resource persons for particular elements of the curriculum. Farmer-to-farmer learning and the group formation brought about by FFS also has the potential for other benefits, notably the formation of social capital via the linkages forged among members and the technical leadership fostered amongst the facilitators. Though a whole range of informal mechanisms already exist which contribute to this goal (informal credit groups, soup kitchens, child-minding groups etc) FFS offer an important opportunity for the additional formation of social and economic capital through sharing of productive knowledge and resources.

HEALTH

The agro-ecological and physiological character of soil-crop health relationships is a fundamental part of the field school curriculum: from understanding plant-pathogen and plant-insect interactions to understanding the effects of different kinds of fertilizer and pesticide applications. The circumstances of urban crop production, makes health of primary importance for farmers.

There may be limited familiarity with pests, diseases, or physiological symptoms present in the urban environment. The soils in urban areas are often highly impoverished, making soil fertility a major issue. However, poverty and insecurity of tenure can lead to short-term strategies to ensure quick income generation, despite the associated risks.

As far as is known, experience with the application of the FFS approach to urban settings is still very limited. Some work is currently underway in Ecuador and Zimbabwe, but it is as yet too early to report results in terms of the potential benefits and limitations discussed above. We look forward to hearing of more experiences and to identifying ways to better adapt Farmer Field Schools to the circumstances of urban agriculture.

Periurban agriculture is confronted with several interrelated issues, which are linked to increasing population and rapid urban growth. A major concern is the increasing conversion of agricultural land for housing development vis à vis the need to produce sufficient food on a sustainable basis to satisfy the increasing urban demand.

From Video "Urban Agriculture", RUAF 2001

Identifying Priorities

for Technology Development

In the face of dwindling agricultural land, sustainable food production on intensive basis can only be achieved through the development and adoption of improved land management technologies. However, although technologies for appropriate land management are available, technology uptake has not significantly increased in smallholder farming communities. The reasons include:

- Failure of the technology in addressing the requirements of the complex and diverse socio-economic conditions under which smallholder farmers operate (Preuss and Steinaker 1995, Mokwunye et al. 1996);
- Failure in recognising local knowledge and promising soil management practices as a basis for developing or selecting improved technologies;
- Lack of participation of farmers in the technology development, monitoring and evaluation processes; and
- Inadequate extension services.

In such complex situations, a holistic approach is needed, which is flexible and in which opportunities and constraints of several actors are central. On the other hand, accommodating socio-economic conditions and local knowledge in the research process requires farmers to actively participate in the research priority setting and planning, design of experiments and trials, review and interpretation of results and monitoring and evaluation. In this regard, participatory technology development (PTD) is relevant both in the development and selection of appropriate technologies and in the achievement of greater adoption (Mokwunye et al. 1996, Bechstedt 1996a).

The full paper (available at www.ruaf.org) presents a case study in which various participatory methods were used in research priority setting and planning, accommodating local knowledge in the development and choice of appropriate technologies and monitoring and evaluation. The methods used were Participatory Rural Appraisal (PRA), SWAP (Successes, Weaknesses, Aims and Problems) and Participatory Monitoring and Evaluation (PME). This article will focus on SWAP, which elsewhere is referred to as SWOT (Strengths, Weaknesses, Opportunities and Threats).

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THE CONTEXT

The study was carried out in the context of the IBSRAM (International Board for Soil Research and Management) AFRICALAND Management of Upland Soils Project in collaboration with the Faculty of Agriculture, Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, Ghana.

RESEARCH ACTIVITIES AND TARGET GROUPS

The research activities consisted of socio-economic surveys, participatory rural appraisals (PRA), site selection and characterisation, farmer selection, on-station and on-farm experiments as well as participatory project/trial monitoring and evaluation (PME). The target group, comprising smallholder farmers within the periurban villages of Kumasi, fully participated in all the research activities starting from research priority setting to monitoring and evaluation. The research team that conducted the studies were multidisciplinary (agronomists, soil scientists, socio-economist, rural sociologist, agro meteorologist and extensionists from the Ministry of Food and Agriculture).

RESEARCH PRIORITY SETTING AND CHOICE OF TECHNOLOGY OPTIONS

During the inception of the project, there was a need to assess the general situation and needs of the farmers in the target districts. This was to initiate the first stage of participatory planning of project activities. Consequently, PRA studies, particularly SWAP (Waibel et al. 1995 – see the box), were carried out in two peri-urban villages near Kumasi in the Ashanti Region of Ghana. Semi-structured interviews with open-ended questions were used to elicit information from the participants. About 65 respondents within the environs of Akrofuom village were interviewed including key informants such as chiefs and assemblymen, representing the community at the District Assembly. In the second village

(Kotei) about 50 participants attended the SWAP workshop.

Soil fertility was recognised in the farming community as a major problem. During the SWAP analyses, farmer-collaborators were identified, and field trials of mutual interest discussed. Farmers reported their experience with applying poultry manure on vegetables and the yield increasing effect. It was further mentioned that weed residue left on the soil may enhance crop performance. According to farmers' suggestions, trials with poultry manure and (for comparison) mineral fertiliser, were recommended under additional consideration of weed residues as initial organic input.

RESULTS PRODUCED BY USING THE SWAP METHOD

The SWAP was found to be an effective tool for:

- assessing the general situation of the locality and prioritising farmer felt needs in the shortest possible time;
- identifying the complex constraints to farming and other activities of the communities to serve as the basic input to problem-solving oriented research;
- using past mistakes or weaknesses constructively as learning processes;
- promoting participation by the community in the discussion of their common problems with the aim of finding solutions to them; and
- promoting the self-help spirit and initiative of the community and affording them the opportunity to participate in the planning, execution, and monitoring of research activities. This is a prerequisite to the adoption and sustainability of improved technologies.

CONCLUSIONS

Participatory Rural Appraisal methods, particularly SWAP, can be used in research priority setting, design of experiments/trials and accommodating local knowledge and the complex socio-economic conditions of smallholder farmers in the development and choice of appropriate land management technologies in periurban areas. Involvement of both the farmers and the Extension Directorate of the Ministry of Food and Agriculture in all aspects of technology development, design of experiments, monitoring and evaluation, facilitates the institutionalisation and mass dissemination and adoption of the innovation.

The SWAP Method

SWAP is a participatory rapid appraisal method suitable for assessment and self-evaluation. The following elaborates the steps in its application.

Preparation

❶ The interviewers single or in pairs, hold discussions with some villagers in their places of work. They give a first impression of the situation in the village and then concentrate on perhaps three major activities of the farmers. ❷ A workshop is arranged with a relevant section of the target group. A moderator, assisted by one or two persons (perhaps extension workers), writes farmers' answers possibly in the local language on cards and later translates them into English. In the discussions only farmers are permitted to talk, others are given their chance later.

Determining the main successes and weaknesses

❸ Farmers are asked to describe and discuss their successful activities within the subjects of discussion, which are listed on green cards. When the relevant successes have been named, the moderator again reads them to the farmers for their confirmation or alteration. ❹ The weaknesses contained in successful and other relevant activities are similarly listed, but on red cards. At the end, these are also read aloud by the moderator for confirmation or alterations. ❺ The weaknesses are then divided into those which are largely due to external factors (and cannot be influenced by the participants), and those which can be influenced. Three or four clusters are thus formed (in some workshops there may be more parties involved). The method will continue by concentrating on the clusters, which are within the action frame of the parties of the workshop.

Promoting initiatives and eliminating weaknesses

❻ Each of the clusters of weaknesses, which are within the influence of the participants, are then grouped into not more than the five most important ones. Asking each of five people from the group to identify the most important weakness can do this. ❼ Actors who may be able to eliminate the weaknesses are also identified. The discussed solutions are written on the back of the weakness cards and read aloud. It may be considered as the first planning step to alleviate the recognised weaknesses. This or the next point will be the end of the meeting. ❽ The weaknesses identified for elimination will be further discussed in another meeting so that they can be eliminated by new initiatives. Together with some of the participants the actors considered able to alleviate the weaknesses draw up a plan for how to overcome them in the near future, including a timetable. ❾ Alleviation of the weaknesses proceeds and is finally assessed by the participants of the workshop.

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Topic 5
MONITORING AND EVALUATION OF IMPACT

The terms Monitoring and Evaluation (M&E) are often used in a broader sense than what is known from project work. Half of the resource papers for the workshop presented 'M&E experiences' that consisted of surveys and analyses of biophysical, socio-economic or institutional issues without specific reference to any project or policy intervention.

Data is necessary to value the contribution of this farmer to development in Hanoi, Vietnam

Monitoring and Evaluation

In these cases M&E helped to describe situations and trends of urban agriculture; e.g. its growing significance for urban food security or the level of water pollution over the year. In the strict sense, this kind of "M&E" would be better classified as Situation Analysis and Diagnosis (see page 10-12 this volume). Nonetheless, this topic paper considers that repeated situation analyses also contribute to project M&E.
For the purposes of this topic 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.

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Collectively M&E involves gathering information, data analysis, judging and making decisions. To analyse these changes, M&E should build upon an initial situation analysis and is likely to use related key parameters/indicators.

While there is already a well-established body of 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 urban context is expected. However, how far have projects on urban agriculture taken up the challenge of adapting M&E to the urban and peri-urban context? And does M&E require a different framework, approach, methods and tools, and/or indicators when applied to urban agriculture?

PLANNING MONITORING AND EVALUATION

Despite the variation in definitions and procedures among the analysed papers, there is consensus on the need for careful and advanced planning of M&E. In several papers, the procedures for M&E planning are presented, for instance one based on experiences with participatory impact monitoring in Sudan (Plastow and Pantuliano 2001) and participatory monitoring and evaluation in the Philippines (Campilan 2001). 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 of exactly how 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 in all instances is not specific to urban agriculture, and is thus open to modification and expansion.

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 for Bangladesh (Talukder et al. 2001). Information is often collected to serve the needs of donor agen-

To facilitate identification of indicators and to allow for the harmonisation 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 UMP-LAC is seeking to integrate urban agriculture in the "Urban Indicators Programme". A generic set of UPA indicators is being pilot-tested n Lima, Peru. (Dasso 2001).

cies, administrative and management entities and/or policy-making bodies. More recently, participatory monitoring and evaluation (PM&E) or participatory impact monitoring (PIM) has emerged as an approach, seeking to involve local people, collaborating organisations and programme field staff.

As an internally driven process, PM&E is initiated and led by these project insiders. It is also called *self-assessment,* or a *joint* or *stakeholder M&E,* when done by insiders together with external groups. 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

PM&E emphasises methods and tools that are more interactive, exploratory and flexible, e.g. participatory appraisals and ethnographic methods. It has been observed, however, 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.

Meanwhile, it is important to emphasise 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 capitalising on the core strengths of the conventional approach (technical monitoring, external project review, etc.) while addressing in a more participatory way the interests of the different stakeholders (needs assessments, participatory monitoring, self-assessment workshops, community validation, etc.).

Table 1: Comparison of key features distinguishing rural from urban/peri-urban agriculture.

"Rural" situation	"Urban/periurban" situation
Conventional, 'textbook'-type of farming	Unconventional, mobile and transient; partly above ground or without soil
'Farming' is a primarylivelihood, engaged full-time	Farming often a secondary livelihood, engaged on a part-time basis
Usually 'born' farmers	'Beginners', part-time farmers, in part migrants from rural areas, hobbyists
Majority of community members engaged in farming	Percent of community members engaged in farming is highly variable
Generally supportive views of importance of agriculture	Contrasting views
More homogeneous, political, economic and social context	More heterogeneous
Land use generally stable for agriculture	Competing land uses (agricultural and non-agricultural)
Seasonal periods	Year-round growing of crops
Relatively high security of land tenure	Relatively low
Relatively low labour costs	Relatively high
Often far from market location	Closer to market location, favourable for perishable cash crops/products
Likely availability of research and extension services	Less likely
High priority on policy agenda	Mixed; policies often vague or non-existent

ADAPTING M&E TO THE URBAN AGRICULTURE CONTEXT

Feedback from project participants is widely considered to be a key role played by M&E, particularly important in dynamic (peri-)urban settings. The multiple aspects of change intrinsic to urban agriculture will affect the relevance of the objectives, as they initially were set, and the indicators and methods for monitoring and evaluation chosen.

Based on the cases presented in the workshop in Nairobi, it was generally observed that M&E methods and tools widely used in rural agriculture tend to be sufficiently generic for application to the urban agriculture context. Instead of calling for major methodological adaptations, the resource papers stressed practical guidelines to enhance M&E's sensitivity and relevance to the specific urban socio-political and agro-ecological milieu (Table 2).

For example, a joint 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 organised 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).

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

INDICATORS

Indicators are key parameters to show and measure change. Standardised indi-

cators from rural agriculture cannot be applied in an urban setting, without first examining their appropriateness.

The selection of M&E indicators for UPA 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 UPA. For example, measuring UPA coverage in terms of hectares will exclude a significant part of UPA done in containers, rooftops and hydroponics systems. Formulation of M&E indicators suffers from definitional and boundary-setting problems that plague urban agriculture in general. As long as approaches are not homogenised, it becomes difficult to compare M&E data between different project cities.

Nonetheless, those seeking appropriate M&E indicators can make use of existing technical indices/levels for various aspects of urban agriculture.

Table 2: Emerging M&E challenges in UPA projects.

Urban Agriculture Features	Suggested Guidelines for M&E
Unconventional farming systems	❖ Identify indicators and units of measure for unconventional farming systems in UPA, since those used in rural agriculture may be inappropriate or inadequate ❖ Since UPA 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 UPA sites cut travel time and costs
High number of stakeholders	❖ The larger number of stakeholders in UPA requires exerting more effort to seek them out for their inputs to M&E ❖ Examine how stakeholders' competing land-use objectives affect achievement of UPA 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-UPA livelihoods
"Weak" identity of urban farmers	❖ Exploratory phase required to identify UPA 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 marginalised and unorganised	❖ Capitalise on M&E as processes for empowering and mobilising urban farmers
UPA intertwined with broader urban development issues	❖ Anticipate that UPA 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 organisations/ agencies (NGOs, universities, lobby groups) that may have indirect interest in UPA
Policy support	❖ Orient M&E towards collecting adequate "hard" data often required by policy-makers/administrators

CONCLUSIONS

Most studies on urban agriculture are descriptive and based on surveys. This is especially common in papers using a more conventional M&E approach. In fact, the case studies discussed in the workshop in Nairobi show that there appears to be limited need for *new* M&E frameworks or procedures for the urban 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 indicators can best be adapted to the specific urban agriculture context, and to deliver the data and information needed for the various stakeholders interested in the assessment. A significantly high level of sensitivity appears to be necessary. There is a continuous need for more case study material on conventional and participatory approaches to M&E, and on indicators used.

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Different Ways to **Monitor**

Urban and Periurban Agriculture in Dar Es Salaam, Tanzania

Urban Vegetable Promotion Project

Group evaluation after discussion on implementation of planned activities

In Tanzania, urban and peri-urban agriculture is a well-known activity and has reached the level of official acceptance (Jacobi et al. 2000). Systematic monitoring and evaluation as well as channelling generated information and feedback from the field to the relevant levels has supported this acceptance.

A balance is sought between "conventional" and "participatory" monitoring. Both "hard data" are necessary, as is a system that allows primary stakeholders to monitor and evaluate their activities using different methods and their own indicators. Truly appropriate monitoring and evaluation should enhance internal learning and provide evidence to support qualitative statements about the impact of an action. This information can be relevant to members of the community and to decision-makers.

GETTING STARTED - URBAN AGRICULTURE AS URBAN LAND-USE

To get urban and peri-urban agriculture accepted, verifiable data about its impact in a city is needed. This is an obvious demand from planners, but in many cases the information is lacking.

For Dar es Salaam, a reasonable database is available, which consists of aerial photographs, maps and GIS data. In 1999 an inventory on vegetated open spaces in Dar es Salaam was initiated. (Dongus 2000). Based on the analysis of aerial photographs (taken in 1992) all open spaces in the then built-up areas were identified and physically visited. Through tapping the network of agricultural officers and local leaders, it was then possible to identify newly emerging open spaces and to update the information base. The results were transformed into a digital map for further use. Urban planners and decision-makers are the main users of this information. At the same time, discussions with the producers clarified the need for particular services and possible entry points for cooperation.

Aerial photographs and GIS data have been a good source of information for larger plots, but could not provide accurate figures about the micro-scale home gardens in the city. A physical survey carried out once a year in a well-defined area was undertaken over five years, to get an idea about the land used for home-gardening in Dar es Salaam. This survey was part of an implementation programme in the community to support home gardening and carried out by extension workers. The participation of the owners gave a clear picture why gardens disappeared, why new ones emerged, and the main problems faced in the process.

THE WARD PROFILE

A more "participatory" method in assessing agricultural activities is the "ward profile". This tool was

The ward profile involves ward officials, an extension worker and a mix of resource persons from the ward (e.g. farmers, the community worker, NGO staff, residents). A more experienced extension colleague facilitates the process.
Starting with a map with the ward boundaries and its main features, all agricultural areas/activities, which are known by the resource persons are indicated. Areas with specific features like backyard gardening, commercial production and livestock keeping are shown. The exercise does not give accurate figures, but assesses the importance of a certain farming activity as well as possible "links" or sources of support (e.g. farmer groups in the wards, active NGOs/ CBOs, input shops, market places).
Through group discussion, it always becomes obvious that a range of possibilities for linkages exist, which have not been considered before. A "transect" walk of one or two hours is used to discuss and validate initial findings of the profile. It is of course not possible to cover the whole ward on that day. The extension worker is then in charge of completing the map and constantly updating it with the information obtained through the extension activities.

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Appropriate **monitoring** and **evaluation** should enhance **internal learning**

not introduced to "obtain information", but to indicate entry points for extension officers to offer services to urban farmers and assess the agricultural potential of their ward. In the process all urban agriculture related activities practised in the area, services and potential links (e.g. credit-providing NGOs and input shops) relevant to improve the service delivery in the site to urban farmers are indicated. The ward profile has been used to monitor changes in agricultural land use through periodic updates.

The extension workers and the ward leaders are the people making use of the profile, but other stakeholders (e.g. NGOs/ CBOs) who are also interested in supporting agricultural activities can benefit from it.

MONITORING AND EVALUATION BY URBAN FARMERS

A variety of participatory approaches and of tools for participatory M&E are known to support community interaction and encourage learning. In Dar es Salaam, urban farmers and an extension agent are the main actors in this process. The latter acts as resource person for technical questions and facilitates, but also acts as a "broker", giving advice on how to tap available support necessary for urban agricultural activities.

Practical experience shows that some of the constraints expressed by the farmers need external solutions in the form of technical or institutional support, or financial resources that cannot be provided by the group itself. In a joint action plan, activities and the roles of all actors are clarified and agreed upon. Already in this process, criteria (indicators) on how to measure the success of the collaboration are set. During implementation, group members often realise that technical training alone will not be enough to improve their situation. Aspects related to internal group organisation, communication and leadership are some of the topics, which are frequently discussed (Rimoy & Amend 2001).

To monitor the process of the interactions and to make commitment and accountability obvious, farmers and the extension worker jointly document their meetings on a "monitoring sheet". The sheet contains brief information on what has been done and the status of the activity. After both parties have signed them, the sheets are kept as a document of the group work. They are also used for writing monthly reports, as an indicator for performance of extension staff, and can serve as an objective way to document agricultural activities in the urban area.

LEARNING FROM EXPERIENCE

A group evaluation is an essential part of the cycle. The group is encouraged to reflect on its achievements and if relevant, to adjust its planning. The base for the assessment is the initial vision of the group. The success criteria put forward by the farmers are usually centred on better income, cheaper and better quality food. Intermediary improvements indicated are better yields, less crop losses, and enhanced marketing. Also, improved group cohesiveness and a better social security system are ways to express an impact begun by the agricultural activity. However, the indicators vary from group to group.

For many, the evaluation is a real learning experience. Positive experiences of individual group members usually motivate others to try out things. If a group has agreed to do certain activities jointly (e.g. applying for a piece of land, following up the connection of a water pipe), it will show whether the members have been committed and how they are organised. Often, internal group and leadership issues come up, which otherwise would not have been discussed. This first evaluation usually encourages farmers to review, adjust their plans and focus their activities.

CHANNELLING THE INFORMATION TO THE MUNICIPAL AND CITY AUTHORITIES

Urban agriculture in Dar es Salaam is "visible" as an urban land-use, but also in the interaction between the urban farmers and the extension worker. To make these activities known and the information available to others, they finally have to be channelled to the city authorities. Only if the feedback reaches politicians and decision-makers the experiences made in the urban communities combined with "hard data" can pave the ground for support to urban and periurban agriculture.

When a group has gone through the agreed upon activities, a date for an evaluation is fixed. Farmers and extension workers review the initial action plan and the criteria set by the group. Questions are formulated to assess the criteria.
When the group is expected to have better yields the question could read: "Did the yield in my field increase? Yes or no?" A question allowing for more variation could be: "How do I see the co-operation in our group among our members? Possible answers: I am very happy, happy, it is O.K, I am not satisfied".
Depending on the group the information can be detailed or rather general. Each question and possible answers are written or drawn on a piece of paper placed on the ground inside a wide circle. In the next step, every member puts a stone on the answer she or he favours. This step takes a very short time, and allows even a bit of privacy, as everybody is free to move around answering the questions. The actual learning takes place when the visualised results are discussed. "Why did the majority of our members have higher yields, while few have the same yield? What did we do differently?" Or: "why are so few people happy with our cooperation in the group?" A question, which always should be answered is: "Did we achieve what we had in mind? Why or why not?"

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Home gardening activities are centred on women

Improving Food and Nutrition Security

homestead gardening in Bangladesh

Malnutrition is a serious public health problem in Bangladesh. It can have serious impacts on the population as it 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, such as vitamin A and/or iron, in which case a pharmaceutical approach can be used to immediately reach one or two particular target groups. However, when the goal is to address deficiencies of more nutrients simultaneously and to target the population throughout the life cycle (Bloem et al. 1998), interventions such as dietary diversification are more appropriate. In practice, a combination of the above-mentioned strategies is usually used because they address different goals and/or target groups.

Helen Keller International (HKI) national vitamin A survey in rural Bangladesh in 1997-98 found that among children who had not received a vitamin A capsule, those in households without a home garden were 2.2 times more likely to be night blind (the first clinical sign of vitamin A deficiency) than children of households with a home garden (Kiess et al. 1998). Findings among women, who are only eligible to receive a vitamin A capsule within 8 weeks of giving birth, were similar. Therefore, home food production is also an important approach for preventing vitamin A deficiency among women.

Home gardening activities are centred on women because they are usually the ones who take care of the home garden. Empowerment and increased income can result in the better use of household resources and improved caring practices.

This article describes the important characteristics of HKI's Homestead Gardening Programme in Bangladesh (1990-2001) focusing on how it is being monitored and evaluated.

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HOME GARDENING

Home gardening is commonly practiced throughout the world (Landauer and Brazil 1990), and can be grouped into two basic categories: *traditional gardens* – those cultivated independent of any intervention, and *promoted gardens* – those receiving support from an outside organisation (Marsh 1996). Home gardens benefit family nutrition, increase household income, and provide a buffer to food insecurity during agriculture off-season.

In Bangladesh, both rooftop-gardening as well as the cultivation of "scattered" vegetable plants is commonly practised. The type and mix of species grown depends on household food preferences, soil and climatic conditions, and the availability of local materials and seeds. Despite the common practice of home gardening in Bangladesh, average vegetable consumption is estimated at 32 grams/capita/day (Ramphal and Gill 1990), which is well below the minimum intake recommended by the FAO of 200 grams/capita/day. In Bangladesh, the consumption of fruit is very low and highly seasonal. Oil consumption, a requirement for adequate absorption of provitamin A carotenoids, is also much lower than recommended.

PROJECT DESCRIPTION

In order to make a substantial contribution towards reducing (micronutrient) malnutrition, food-based programmes need to be conducted on a large scale. However, there is limited experience with successful scaling-up of pilot programmes and there are only a few opportunities to share experiences across countries and across development sectors. The Bangladesh Homestead Gardening Programme started as a small programme in the early 1990s and has since then successfully been expanded to a national level that, in collaboration with 51 non-governmental organisations (NGOs), presently reaches

more than 800,000 households in rural, peri-urban and urban areas. The expansion is an iterative process of implementation, evaluation, and planning (see Talukder et al. 2000 and the publication by HKI/Asia Pacific for more details).

KEY ELEMENTS FOR DEVELOPING SUCCESSFUL HOME GARDENING

One of the lessons learned from HKI's very first experience in gardening in 1988 was that the involvement and participation of the community in project design, implementation and evaluation are essential for achieving sustainable, improved gardening practices.

Access to the necessary inputs for gardening, like seeds, seedlings and saplings, a regular water supply, environment-friendly soil improvement techniques and pest control, live fencing, and credit or capital, and from a local, sustainable source is an important element for successful gardening.

Technical assistance, demonstration and training are especially important when new gardening techniques are being promoted. HKI has provided the NGOs with assistance for technical aspects of the programme, for programme management and for planning of the programme inputs such as seeds, water sources and staffing.

Nutrition education and social marketing within the gardening activity: While the aim of most home food production programmes is to increase the production and thus consumption of food, nutrition education is required to ensure that consumption practices change in such a way that maximum nutritional benefit is obtained. Similar to understanding the indigenous approach to gardening, an understanding of the cultural context and feeding practices and constraints is necessary to develop appropriate nutrition education. The garden and/or nursery appears to be a good focal point for nutrition education and social marketing to promote increased consumption of micronutrient-rich foods. Through these focal points, other issues related to food, nutrition and health could also be discussed.

MONITORING PROGRESS AND IMPACT

Monitoring serves as a tool for ensuring that activities are being carried out as planned and improving performance as required. When indicators can be monitored locally and the partner organisations' staff is involved in the monitoring, the identification of problems and development of solutions can be done immediately in the field and at the appropriate levels. The questionnaires currently used collect information on indicators such as seed production, vegetable and fruit production, income generated by nursery owner and household gardeners, and vegetable and fruit consumption. Below are some examples of results obtained from the monitoring activities and assessment of impact.

Changes in gardening practices

Regular monitoring data collected between 1997-1998 among new programme participants show that their involvement increased the production and consumption of fruits and vegetables. Household gardens were classified as 'traditional', 'improved' or 'developed' (1). At the start of the programme, approximately 75% of households were practicing home gardening but nearly 60% had a traditional garden. After one year of participation in the HKI Homestead Gardening Program, the proportion of households that practised year-round gardening ('developed gardening') had increased from 3% to 33%, those that had an improved garden from 13% to 33%, and the proportion without a garden had decreased from 25% to 2%.

Changes in production and consumption

Figure 1 shows, for each garden type, the frequency of vegetable consumption of children aged 2-5 years, the number of vegetable varieties being produced, and the amount of vegetables produced in the last two months. The amount and number of varieties produced was highest amongst households with a developed garden. Children in households with a developed garden consumed vitamin A-rich foods, such as green leafy vegetables and yellow fruits, the most frequently.

Income from garden and utilisation

Routine monitoring data showed that 30%-40% of the households sold some of the produce from their garden, earning an average of 100 Taka bi-monthly (approximately equivalent to US$ 2). For most households, the main use of this income was for food (56.3%), while some mainly used it to invest in seeds, seedlings, saplings, poultry or other income-generating activities (15.3%). Nearly 10% of households saved the income generated from the garden (n=10,107). The majority of the gardens (73%) were managed by women, and women were found to be the main decision-makers regarding gardening practices and use of the income earned by selling garden produce.

CONCLUSIONS

The development of home gardening projects that build on traditional practices, local conditions and cultural context, and that are conducted by organisations that are well-established in the community, can be a sustainable means of improving micronutrient intake among high-risk groups and improving household food security. In addition, home gardening programmes can be implemented successfully and cost-effectively on a national scale using a collaborative model that fits local conditions. As women are usually the main caretakers of the home garden, such programmes empower them, thus ensuring better utilisation of the income from the garden for food and increasing family welfare. These benefits are important contributions towards poverty alleviation.

Notes

(1) Traditional gardens are scattered, seasonal and only have gourd types of vegetables, common in rural Bangladeshi households. Improved gardens are those that have more types of vegetables but are not productive throughout the year. Developed gardens produce vegetables throughout the year.

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Assessing the Socio-Economic Impact

A spaza shop in Stanza Bopape, Mamelodi, Pretoria, South Africa

Nicoliene Oudwater

This paper provides practical indicators and field methods for assessing the impact of urban and peri-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, and while public resources are shrinking, it is necessary that researchers provide rigorous assessments of the contribution of agriculture to the city's policy objectives (Ellis and Sumberg 1998).

The geographical coverage of urban and peri-urban agriculture must first be defined. The practical way is to consider the administrative boundary of the city (*commune*) to be the urban area, while the adjacent provinces or *départements* which have been identified as the food suppliers for the city, with their numerous flows of people, products, and resources, are termed the peri-urban area (Mougeot 2000). It is also convenient to determine an approximate distance beyond which agriculture does not present the typical features of urban and peri-urban agriculture anymore (i.e. perishable commodities, use of organic and/or chemical inputs, consumption in the city, pressure on land), which from our observations, is beyond 50 kilometres from city centre.

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This paper is based on the author's fieldwork in West and Central Africa, with a focus on vegetable production and marketing (Moustier 2000), as well as on a literature review. The proposed indicators on the impact of urban and peri-urban agriculture take account of the numerous fieldwork constraints related to the unstable character of its production in terms of space allocation and seasonality, and to the common absence of units of scale. These simple indicators and collection methods have proven to be efficient in demonstrating the importance of urban agriculture as a means of income for poor families and for its role in supplementing fresh products supplied by rural areas.

INDICATORS

❖ *Indicators of employment* distribution relate to the share of women, young people and migrants within the total population involved in urban agriculture. The size of the population involved should be estimated and presented in absolute terms, and as a percentage of the total population of the considered urban and peri-urban area.

❖ *Direct indicators of income* refer to income generated by the different urban agriculture activities, income from farmers, traders and others such as transport and processing enterprises. Indicators of the productivity of economic factors must be calculated and compared to alternative uses of capital, labour and land, as income per unit of *land* (income/ha); income per unit of *labour* (income/workday), and income per unit of *invested capital*. Revenues generated by urban agriculture can be compared with alternative activities requiring the same amount of qualifications; for example, retailers' incomes are comparable to relatively unskilled handicraft workers. Incomes can also be compared with a minimum subsistence household budget, calculated by taking the average household size in the city under consideration. Indicators of income distribution include: the ratio between producers' and traders' incomes; the ratio between male and female producers' incomes; and the ratio of incomes between different age groups.

Continuity is another important feature of ***incomes,*** to be assessed in addition to their global amount, for households to regularly be able to provide for their daily livelihood expenses. This regularity or ***Cash readiness*** depends on the following two variables: the length of the cycle between beginning of production and first sale; and the degree of risk undergone for the activity. The degree of risk is assessed by calculating the standard deviation of monthly incomes for one or several years of business.

The contribution of urban and peri-urban agriculture to the national economy must be measured through the ***added value*** of the different activities of production, marketing, transport and input supply.

❖ The **contribution to the urban food supply** through the ***consumption*** of urban produce is measured *directly* in quantitative and monetary values; and *indirectly* by the number of months per year that a family consumes its own produce and does not rely on the market.

A direct indicator for the **contribution to the urban food supply** through the ***market*** is the *share of market* flows originating from urban and peri-urban areas in the total consumer purchases (quantities, nature of products, time of the year). An indirect indicator is the *percentage of market retailers selling* products from urban and peri-urban areas.

METHODS

❖ *Methods to collect employment indicators*

In all countries of the South, population censuses are regularly organised and include data on employment in the different economic sectors. Data from population censuses do not provide

information on people indirectly employed in urban and periurban agriculture, including traders.
A direct enumeration of people involved in agriculture involves the following information: production areas; information on existing producer groups or associations (including the number of members); or for unorganised production, information on producers. As agriculture is often seasonal, a correct time of the year must be chosen to estimate the number of people involved – directly, by counting people working in the field, and indirectly, by asking informants in the area about the people not present on the day of the survey.
The people involved in the marketing of urban agricultural commodities can be identified by following the produce from the farm-gate to consumers, and identifying the different markets and the nature of intermediaries. Another way is by tracing back the origin of the produce by interviewing retailers and wholesalers in the marketplace. The number of traders selling the different food products from an urban origin needs to be assessed at different periods of the year to take account of seasonal patterns of production.

❖ *Methods for identifying income indicators*

To arrive at an estimation of incomes generated by urban and peri-urban agriculture implies the use of traditional accounting with a debit and a credit column. The credits encompass the products of the sales, and may also include the value of "own-produced" consumption (in terms of savings related to the cost of the product if bought in the market). The debits include all the expenses related to agricultural inputs, transport, labour, taxes, investments, etc. For traders, debits might include the costs of purchasing goods, and transport, storage and packaging expenses.
A typology of farmers should be first established, to account for the variability of incomes relative to size of land, nature of commodities, age, sources of incomes, etc. Likewise, a typology of traders should be established to account for the variability of incomes relative to the position in the marketing chain (wholesaler or retailer), the nature of commodity, and the nature of customers (poor versus wealthy), which varies according to the location of the market. Added value is calculated by adding salaries, financial costs and taxes to incomes.

❖ *Methods to calculate contribution to urban food supply*

The information on the quantitative and monetary value of ***consumption of people's own products*** can be obtained from household surveys, which are usually regularly conducted in cities to get data on the economic situation of a country, often with donor support (e.g. the World Bank). The results of these surveys are available in the statistical units generally held by the Ministry of Planning. Some other ad hoc surveys may be available on the amount of own-production consumption in one district but it may not be possible to extrapolate them to the whole urban population as they are often conducted in districts where urban agriculture is common.
The contribution of agriculture produced in the city, to the urban food supply, can be estimated by collecting information from **urban markets** and by estimations using **production data**.
In calculating urban markets, the following steps are suggested to overcome the problems of diversity of food products and production areas: 1) *make a selection of the products* to be taken into account, and 2) make a market *investigation on the origin* of products.
The most common market *products* are: vegetables, fruits, eggs, milk, poultry meat, fish. As a substantial share of commodities flow directly from producers to retailers without a wholesale stage, it is recommended that the investigation first take place in retail markets, then in wholesale locations as identified by retailers' interviews. A representative sample of retailers should be interviewed on the origin of produce in terms of location of production, if known (which is generally the case), or in terms of the location of purchase if the product has not been directly purchased from producers. The production locations as declared by traders should be mapped and classified as urban, peri-urban or rural production areas. This investigation provides an approximation of the percentage of products originating from urban agriculture, considering that the differences in quantities traded by individual traders compensate each other when added. When possible, coming to an estimate of the quantities traded by the interviewed traders allows for getting more reliable indicators of the share in the market.
There may also be specific points of sale of urban agricultural products in a city, where producers sell to retailers, generally at night or early in the morning; this is the case along some specific streets of Hanoi, or near the Total market in Brazzaville. It may be possible to estimate quantities sold in such markets if the units of sale are quite homogeneous, for instance, if it is easy to translate bags of leafy-vegetables into kilograms, then counting the number of bags available in the market.
Given the variability in vegetable availability, all estimations of quantities should be done at different times of the year and of the day (or night).
Crop *production* is usually obtained from the following calculations: "average area x average yield", or "number of farmers x quantity produced/farmer".
When production-data are available, it is useful to analyse from which type of data collection they originate. Very often, official statistics do not take into account some crops which are not cultivated in pure stands, like leafy vegetables, and are limited to officially registered production areas like recorded producer groups.
Measuring yields directly should take account of harvests taking place all year round, sometimes every day as in the case of leafy vegetables. Measurements should also take into account the frequent association of crops.
As regards areas, they are difficult to estimate due to the heterogeneity of plots. Aerial photographs enable the estimation of the cultivated areas and the nature of crops.

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The Value of **Urban Agriculture**

the Contingent Valuation Method applied in Havana, Cuba

Despite widely known benefits, urban agriculture is often marginalised in urban planning, considered a temporary activity and inconsistent with the idea of a modern city. It occupies space where, it is argued, more economically valuable development could take place. This last argument is probably valid if the market value of the output of UA is compared to, say, a commercial development. But, it is less clear cut if we include the non-market benefits of UA.

Patrick Henn

Large backyard garden of East Havana with banana, yucca and papaya crops

"…It seems that urban agriculture makes sense on ecological, social, and economic grounds virtually everywhere on Earth. Governments should see it as an idea whose time has come" (Rees 1997).

This inclusion of non-market benefits is the basis of a form of cost-benefit analysis that has emerged in the past decade, commonly known as environmental cost-benefit analysis (Hanley and Spash 1993). This extended framework allows for the calculation of all social, economic and environmental benefits (and costs) of development projects. Yet, this approach is not without its own issues.

While measuring the monetary value of market goods is relatively straightforward, valuing non-market benefits is more of a challenge, simply because no market price exists for them. In addition, some would suggest that putting prices on the environment or our health is unethical and should not be done. On the other hand, it is important to recognise that if there is no attempt to monetise these benefits, then they will likely be ignored in the process of decision-making. Urban agriculture has elements of a non-market good as it is not currently priced in markets in a way that captures its non-market aspects. Pricing these could provide decision-makers with more information to make better decisions – a practical reason for attempting to measure them.

Various methods are available for the purpose of non-market valuation (for a description of non-market valuation techniques, see Hanley and Spash 1993). One of these is the contingent valuation method (CVM). It is a popular technique that has been widely used to elicit individual's willingness to pay (WTP) for environmental amenities, and could be a useful technique to measure the value of UA.

THE CONTINGENT VALUATION METHOD

The Contingent Valuation Method (CVM) is a widely recognised approach to non-market valuation. It is a method that "uses survey questions and hypothetical situations to elicit people's preferences for public goods by finding out what they would be willing to pay for specified improvements in them" (Mitchell and Carson 1989: 2). Thus, CVM involves the assessment of individuals' willingness to pay (WTP) for a non-market good, or for changes in the quantity of a good (1). This method circumvents the absence of markets for certain goods by creating hypothetical markets for them, and asking respondents what they would do in specific hypothetical situations.

The CVM has been used for more than 35 years, in more than 50 countries, and has received considerable acceptance in the United States and in other countries as a tool for measuring values to be used in benefit-cost analysis (Bishop et al. 1995).

Typically, a CVM survey includes the following elements:

- A hypothetical scenario which includes: a precise definition of the good to be valued; a specific way of questioning the respondent (elicitation method) that helps the individual to determine their WTP for the good or specific changes in the good; and a description of how the payment would be made (e.g. a one- time tax).
- General demographic questions on the individual, and their attitudes regarding the good to be valued.

MEASURING THE VALUE OF POPULAR GARDENS IN HAVANA

The gardens of Havana produce a vast array of fruits, vegetables and tuber crops, using methods similar to organic farming. Approximately 18,000 individuals are involved and produced 25,000 tonnes of food in 1999 (Gonzalez 1999).

After roughly ten years in the making, the gardens of Havana have generated many benefits: local food security, diet diversification, health and recreation, as well as providing environmental benefits, such as waste recycling and green spaces. However, UA in

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Havana is still considered a temporary activity, which has to compete with other types of urban development. Thus, UA has become a policy issue, where authorities need to make decisions about land allocation, and the issue will only grow stronger in the future.

In order to arrive at a socially efficient choice that yields the most benefits to society, decisions should be guided by an accounting of all benefits and costs, including non-market benefits. This is where an environmental cost-benefit analysis framework can provide important information on the value of UA. Thus, in order to contribute to the assessment of the total benefits of UA, a CVM survey was conducted in Havana, Cuba.

A survey, including a Willingness To Pay (WTP) section, was administered in the year 2000 to a sample of users of popular gardens. Respondents were actively engaged in agriculture on lots provided free of charge by the state. They were questioned on how much they would be willing to pay to keep access to their lots, through a monthly fee. Respondents were asked to value a standard sized garden of 1000m^2. Another objective of the survey was to assess the importance of water shortages and the loss of production to theft (these two problems were mentioned the most in the survey pre-test). Thus, in a second WTP question, respondents were asked to restate how much the gardeners would be willing to pay for guaranteed access to water, and better security from theft. They were also given a series of qualitative and quantitative questions about their gardens and households, with the objective of relating these characteristics to their level of willingness to pay.

The "bidding game technique" (Mitchell and Carson 1989) was used to elicit respondents' WTP. For this method, an initial bid is suggested to the respondent and the bid is increased or decreased depending on the respondent's initial response. In this study, a monthly fee (pesos/month/1,000m^2) for the land was suggested. If the respondent stated that they would abandon the unit of land at that level of fee, the bid was progressively reduced until an acceptable fee was found. If the initial response was positive, the fee was increased until the respondent stated they would abandon the land. The exercise was repeated with hypothetical improvements in water services and security.

WILLINGNESS TO PAY FOR URBAN AGRICULTURE LAND

The sample consisted of 127 respondents, divided between two areas of Havana (Camilo Cienfuegos and Pogoloti-Finlay). Their mean WTP was 23.5 MN/month/1,000m^2 (2) for the "without improvements" scenario (WTP1), while this increased to 34.4 MN/month/1,000m^2 with improvements in access to water and security from theft (WTP2). To put this into context, these values represent 11% and 14% of total household monthly income. Other results from the survey are reported in Henn (2000).

These WTP results provide an indication of the value that users put on their gardening activity, and there was evidence that this was related to various types of benefits. Indeed, while most respondents stated that the most important benefit of the garden was the increase in household food security, other benefits such as providing a recreational activity, improving personal health and contributing to the environment were also identified as important by respondents. These benefits would have been at least partly reflected in the WTP measure.

Aggregate WTP for popular gardens in Havana

According to recent estimates by the Urban Agriculture Department of Havana, 2,438.7 hectares of land were in cultivation (Gonzalez 1999). It is possible to extrapolate from this information, and the data provided in this study to estimate the value for all UA land in the city. On this basis, the total user value of land in UA in Havana would be 6.88 million pesos a year (US$ 344,000). The user value of the proposed improvements in water and anti-theft services adds another 3.19 million pesos a year, to bring the aggregate WTP to 10.07 million pesos (US$ 503,500). These aggregate user values could be interpreted as the potential rent that the state could extract for the use of the land. Yet these are most likely an under-estimate of the total value of UA, since non-user values are not considered.

CONCLUSIONS

Urban planning and land allocation strategies need to take into account all the benefits of urban agriculture in order to arrive at optimal decisions that generate the most benefits for society as a whole. CVM is one methodology that can provide information on the non-market value of urban agriculture, through carefully designed surveys and hypothetical scenarios. The Havana case study showed that users were willing to pay significant amounts of money to keep access to the land.

It is important to mention however, that non-market valuation comes with a certain degree of uncertainty. It is difficult for individuals to fully assess the importance of non-market goods such as urban agriculture in terms of monetary measures. Nevertheless, given the importance of non-market benefits, a non-market valuation technique such as the CVM has a useful role in the evaluation of urban agriculture's contribution to the development of sustainable urban systems.

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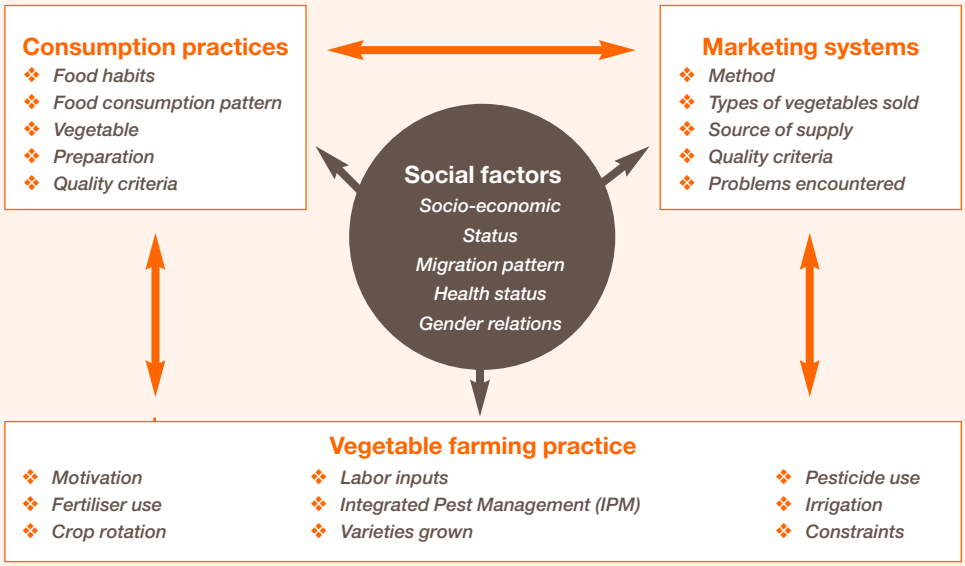
NOTES

(1) The contingent valuation method can also ask for individuals' willingness to accept compensation (WTA) for a loss or a decrease in the provision of the good. However, those scenarios are not as well recognised and were ultimately not considered for this research.
(2) MN is the abbreviation of *Moneda Nacional*, which is used for the Cuban peso. The exchange rate for the Cuban peso was 20MN for US$1.

Topic 6
MARKETING ASSESSMENTS AND MICRO-ENTERPRISE 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).

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



Appropriate Methods for **Micro-enterprise Development** in Urban Agriculture

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As per the ADB's definition, 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.

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BUSINESS OPPORTUNITIES IN URBAN AGRICULTURE

Business opportunities in urban agriculture abound (i.e. Boncondin et al. 2000, FAO 1999, Holmer 1999, Lee-Smith & Lambda 1991, Marulanda 2000, Mbiba 1994, and Tegegne et al. 2000). The emerging enterprises 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 fertilisers, compost, soil media, seeds, pesticides, water, tools, feeds); and
- 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 here is on micro-enterprises. The larger enterprises are already well established, but 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).

METHODS FOR MICRO-ENTERPRISE DEVELOPMENT

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.

The USAID Office of Micro-enterprise Development suggests the following criteria for evaluating micro-enterprise service programmes (Edgcomb 1996). Ideally, these should lead to increases or improvements in:

(1) at the individual level:
- control of resources (especially on the part of women clients);
- paid employment ; and
- self-esteem;

(2) at the household level:
- income;
- assets; and
- welfare

(3) at the business level:
- net worth;
- net cash flow; and
- differentiation between the micro-enterprise and the household;

(4) at the community level:
- paid employment by the client.

Examples for analytical methods

1 Identification of present practices of urban food production

Surveys to determine the economic, sociological, and anthropological situation of urban and peri-urban food production in three Southeast Asian cities were conducted by the European Union funded Peri-urban Vegetable Project (PUVeP see www.puvep.com) 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).

Specifically, the surveys 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 fertiliser 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. 1999abc).

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

Analytical methods	Intervention methods (based on the needs identified by analytical methods)
Explanatory study/Situation analysis ❖ Inventory of main types of UPA entrepreneurial activities	Human resources development ❖ Enterprise management training ❖ Group and cooperative management
Feasibility Study ❖ 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) and Strengthening assistance (for further enterprise improvement) ❖ Removal of constraints as identified in feasibility study ❖ Attraction of capital ❖ Starting up of business ❖ Development of linkages
Market/Network/Cluster analysis ❖ Who are the actors involved? ❖ What relations do already exist? ❖ How do these networks work? ❖ What are the gaps	Influencing conditions/platform advocacy ❖ Favourable policies ❖ Institutions involved (access to credit, land tenure, etc.) ❖ Market infrastructure ❖ Training programmes ❖ Trading support

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 (Wheatley 2001).

Ferewde (2001) uses a similar approach in identifying the present horticultural production and marketing systems in the 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 (this issue). Wheatley (2001) analyses root crop starch clusters in Vietnam in order to understand how this type of urban agriculture and agro-processing are linked to the urban poor and what opportunities exist for enhancing its contribution to sustainable development.

Examples of intervention methods

2 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 programme and project management.

The lessons learned in a case study linking small potato growers in the Philippines with the formal market (the agro-industrial processing industry) are summarised 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 largest number of people, particularly small farmers in urban and rural areas who remain marginalised notwithstanding globalisation and liberalised trade.

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, this issue). PROVE is a programme designed to promote and sustain small agricultural production, processing and trade involving several urban and peri-urban agricultural systems such as vegetable gardening, fruit production and livestock systems with low-income groups as the principal beneficiaries.

CONCLUSION

Urban agriculture micro-enterprises play an important role in providing food, income, employment and ecological services in cities of developing countries.

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 (Paje 2001).

Despite the tremendous opportunities that they offer for the well-being of current and future generations and the environment, their potential is 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. Regarding the analytical methods, major constraints of feasibility studies are the costs involved and the qualification needed to carry them out. It is also difficult to find the right balance of either being overly broad or 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. Technical people are needed to come up with appropriate and applicable solutions, and more research efforts are necessary on appropriate technology development. The lack of audience with policy-makers and institutions where urban agriculture is not recognised as a legal activity is a further major limitation in those countries.

The methods described here (and discussed at the workshop) show some insufficiencies in forecasting supply and demand (modelling) as well as in combining and integrating technical, social and ecological concerns (micro-macro linkage). Further gaps are appropriate tools 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 programmes.

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 greater sensitivity to gender issues in micro-enterprise development;
❖ incorporation of models (forecasting prices, etc.) and dissemination of the outputs;
❖ more research on identifying existing urban agriculture systems to increase market transparency for micro entrepreneurs, investors and other actors in urban agriculture; and
❖ awareness creation and better linkage of urban agriculture to existing micro-enterprise development programmes.

Moreover, this must be encompassed under an "enterprise paradigm" acceptable to the government, business and civil society sectors, which shows that urban agriculture is a force on its own to benefit cities and its residents.

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The **PROVE** – "Small Agricultural Production Verticalisation Programme", is a programme designed to promote small agricultural production, processing and trade. It involves many urban and peri-urban agricultural systems, including vegetable-gardening, fruit-growing and livestock systems. Intervention is at the individual and/or collective level, especially aimed at the lower income groups. The PROVE started in 1995. In the 1995-1998 period, about 500 agro-industrial facilities were built in Brazil. In this period, the monthly per capita family income of those involved in the programme rose from 25 to 100 dollars. On average, each project generates jobs for six people, who are usually members of the same family. The funds disbursed by the public sector (US$ 200) for each job the PROVE generates are strictly related to expenses for the existing capacity, i.e. wages, cars, fuel, etc., since all the remaining costs are borne by the producers themselves.

João Luiz Homem de Carvalho

Inauguration of a new PROVE facility in Ecuador

PROVE

-Small Agricultural Production Verticalisation Programme-

In the five years prior to 1995, over 400,000 small farms were closed down in Brazil, forcing about 2 million people to leave the rural areas. This rural exodus played a major role in increasing the unemployment rate, since jobs are not available in cities for so many people. However, at the same time, increasing urbanisation has led to an increase in the demand for processed products. The PROVE was designed to tackle both problems. It was developed to provide small farmers and their families with appropriate conditions for producing, processing, and trading their products and for jobs, income and proper living conditions.

OVERALL OBJECTIVE AND STRATEGIES

The overall objective of the PROVE was to show that agro-industrialisation of small production schemes is a positive social option to improve small farmers' income with sustainable development based on solidarity.
Specific strategies have been developed such as:

- supporting farmers in the process of producing, networking, and trading their agricultural products, enhancing their competitiveness on the formal market;
- ensuring bank credits and access to sophisticated points of sale;
- implementing actions to encourage and support them in the establishment of associations, cooperatives, etc., so as to ensure the sustainability of the programme; and
- setting the established capacity of the state at the service of these small farmers as a priority.

THE METHOD

The PROVE was designed to enable poor small farmers (target group) to overcome certain fundamental stages or hurdles in the production, processing, and trade of their products which in our opinion set them apart.

For illustrative purposes, we compared these stages to (eleven) rungs in a ladder (Carvalho 2001).

1) Motivating institutions The first step consists of an inventarisation and assessment of the stakeholders; how and for what purpose could the existing public institutions be engaged in a programme such as the PROVE? We ensured that the technicians involved were provided with all the required information about the programme. Courses, presentations, and seminars on the need to work with socially marginalised rural producers were used for that purpose. The political determination of the government as a whole to carry out the programme was also clearly demonstrated to them. Priority was placed on dissemination of the programme.

2) Providing incentives In order to motivate a socially marginalised audience, the advantages of the programme were described. This meant explaining the added value to small rural production schemes and collective practices, without closing the doors to others who wish to take part in the programme individually. The producers were encouraged to create the Association of PROVE Producers. Furthermore the NGO APROVE (Association in Support of Small Agricultural Production Verticalisation) was established for the purpose of supporting and encouraging small farmers' initiatives.

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3) Ensuring credit lines Credit lines were provided, by both public and private finance agents, at market interest. A Guarantee Fund created by the public sector is used to guarantee loans of up to US$ 7,000 for individual projects, and US$ 25,000 for collective projects. For loans above these limits, the borrowers have to provide collateral. The grace period for repayment to each project varies according to the financial capacity of each borrower, but it typically ranges from 1 to 2 years for individual and 4 to 6 years for collective projects. The mobile agro-industrial scheme itself is the guarantee for the bank. The idea for this scheme arose from the need to consider people who, despite having their credit applications turned down, were competent enough to generate income and jobs. After all, like anyone else they need to work, raise children, and lead a meaningful life.

4) Specific sanitary legislation and laws It was necessary to review and reformulate the Law of the Federal District for the Inspection of Animal and Vegetal Products, as it was a hurdle for many people to engage in such activities. The state government drafted a set of rules for the construction of small agro-industrial facilities (30-40 m^2) and enacted them into law. This law has served as an example for other Brazilian states and cities.

5) Building small agro-industrial facilities Once the law was passed, projects for small agro-industrial facilities began to be developed, such as slaughterhouses for small and medium-sized animals and facilities for producing sweets, pre-processed vegetables, preserves, dairy products, etc.

6) Training Training was provided to small producers for starting the production of raw materials. Visits were paid to supermarkets to provide theoretical and practical guidance to them on how to trade processed or semi-processed products. Courses were provided specifically designed for the target audience of the PROVE, on the Establishment of Associations and Cooperatives; and Rural Management, Food Hygiene and Handling.

7) Inputs Various inputs are necessary for manufacturing different products, while in addition, the packaging of the processed products determines the success of the trade. Small producers do not have enough funds to buy all these inputs. For this reason, the Small Agro-Industry Counter was created as a means to enable small producers to buy small-sized machines and equipment.

8) Publicity and marketing The PROVE would like the State to stimulate and fund professionals in publicity and marketing on a full-time basis for designing and implementing a plan for the marketing of their products. One of the most important tasks was to create a trademark identifying the programme (PROVE means "taste it" in Portuguese) which covers all products. It also serves as a quality seal.

9) Trading the products The small agro-industrial facilities produce many products of excellent quality. Trade of the products constitutes the endpoint of the production process, which is the most difficult stage. The PROVE has shown that it is much easier to sell a good product with attractive packaging and a professional label, regardless of whether it was manufactured at a small scale and by low-income people. PROVE products began to be sold in supermarkets as a result of an agreement between states, supermarkets and producers (Pesquisa PROVE - Market Research 1998).

10) Inspection and control For end-consumers to be assured of the hygienic and sanitary conditions of PROVE products, they must know that they are inspected at the production site and are subject to strict quality control measures. For this purpose, chemical and microbiological analyses are carried out on the products which are periodically inspected.

11) Follow-up The information collected during the evaluation of the PROVE (Duarte et al. 1998), showed that the programme provides the necessary elements to ensure its success and main objective, namely, including small farmers from the federal district in the production system and restoring their citizenship rights. It is worthwhile mentioning that in addition to changing production practices, which is an unquestionable result of the programme, the PROVE also paved the way for a gradual change in the mentality and social awareness of the producers and beyond. In our understanding this is an irreversible change, once integrated into the daily lives of the producers. The fact that the small producers in the PROVE have developed the ability to manage their own businesses, understand the cost-benefit ratio of their activities, keep accounting records, and plan for the future, clearly indicates the changes that took place in the lives of these people. They have absorbed both concrete and symbolic elements that were not part of their reality before the programme.

PROVE

Products sold in a local supermarket

The excellent transferability of the programme can mainly be attributed to its massive dissemination through the national media and to the thousands of site visits paid by people coming from different parts of Brazil and abroad to the capital, Brasilia. These people confirmed that the programme is feasible, particularly because it can be implemented easily and at a low cost for public agencies, while also boosting the local economy.

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From Video "Urban Agriculture", RUAF 2001

A variety of vegetables is sold at this market in Hanoi, Vietnam

Quality and Quantity
a survey in a Philippine urban setting
Demand for **Vegetables**

Two studies were conducted to characterise the demand of private households, vendors and institutional users for fresh vegetables in Cagayan de Oro City, the 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 peri-urban districts of Cagayan de Oro. The total number of respondents was 300, comprising 100 vegetable growers, 100 vendors and 100 consumers from private households, who were systematically sampled at random. The survey questionnaire contained questions pertaining to socio-economic status, vegetable consumption patterns and vegetable marketing systems.

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.

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RESULTS

Private households

Rice is consumed every day by 97 % of all respondents, followed by vegetables (73 %), fish (48 %) and meat (31 %). Consumption of vegetables is highest among farmers (85 %) and lowest among consumers from the higher-class subdivision (64 %). The latter, however, have by far the highest consumption of meat (78 %), which is lowest (7 %) among farmer respondents. The most frequently consumed vegetables were horseradish tree leaves (*Moringa oleifera)* with 86 %, eggplant (*Solanum melongena*) with 78 %, squash (*Cucurbita maxima*) with 69 %, string beans (*Vigna sesquipedalis*) with 68 % and tomato (*Lycopersicon esculentum*) with 67 %.

The major motivations for consuming vegetables are the high nutritional value (88%), followed by its being a flavour additive to the diet (34%) and in order to stay in good shape (32%). The most important factor considered in buying vegetables is freshness and being free of spots and damage (87%). This is followed by texture (7%) and price (5%). For only 1% of the respondents, it is important that vegetables are not sprayed with hazardous agro-chemicals. When vegetables are bought, these are usually fresh as stated by 98% of the respondents. However, just 78% state that the vegetables bought are free from spots and damage indicating lack of proper production and post-harvest technologies. In terms of quality criteria for selected vegetables, medium sizes are preferred as compared to larger or smaller sizes. Additionally, consumers prefer to choose the produce freely rather than to have it pre-packed. Based on the responses, the estimated daily per capita consumption of vegetables in Cagayan de Oro is less than 100 grams, which is consistent with findings of similar surveys (Philippine Association of Nutrition 1997). This is far below the recommended daily intake of 200 grams of vegetables necessary to assure a sufficient vitamin and micronutrient supply for the human body (FAO/WHO 1992).

The average amount spent per week on vegetables in Cagayan de Oro is PhP 118 per household (US$1 (40 PhP at time of interview). Based on the number of households in the city (94,672 as of 1997), the annual expenditures for vegetables by private households alone amounted to about 581 million PhP ((US$14.5 million).

Retail and wholesale vendors

There are three major public retail markets as well as one wholesale market in Cagayan de Oro. The majority (87%) of retailers get their supply from the wholesale market, while a few (13%) buy the vegetables directly from the farmers. Farmers usually market their vegetables by selling them to wholesalers (59%), followed by intermediaries (21%), by retailers (15%), while 7% are selling them on a consignment basis. The prices are often dictated by the contractors (50%), more so than by the farmers themselves (37%). Sometimes (10%), a compromise is reached between the two parties.

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Eggplant (38 %), tomatoes (35 %), squash (30 %), pak choi (*Brassica napus* var. *chinensis*; 25 %) and head cabbage (*Brassica oleracea* var. *capitata;* 23 %) are the most popular vegetables sold in the different public markets of Cagayan de Oro. Most (68%) of the vendors purchase their vegetable supply everyday, although some (20%) do it twice or three times a week. Frequency of purchase is related to vegetables' highly perishable state. To have fresh vegetables, vendors cannot store large quantities of vegetables due to the lack of appropriate refrigeration facilities. Most (82%) of the vendors believe that the consumers' first consideration when buying is freshness while a few (13%) think it is the texture, which confirms with the expectations of the consumers as regards vegetable quality. To prolong the freshness of vegetables, most (48%) of the respondents sprinkle them with water, which, however can result in secondary fungal or bacterial diseases. About twenty percent have to sell them immediately, having found no other means of prolonging the freshness.

Wholesalers get an average of 13,078 kg of vegetables from the farmers per purchase and have a daily sale of 2,403 kg. The retailers on the other hand, get 103 kilos per purchase and sell an average of 50 kg every day. Most (72%) of them purchase vegetables daily.

Institutional users of fresh vegetables

The five vegetables bought in the largest quantities on a weekly basis by institutional users are potato (*Solanum tuberosum*; 31.4 kg), squash (6.3 kg), cabbage (6.1 kg), carrots (*Daucus carota*; 4.4 kg), and papaya (*Carica papaya*; 3.8 kg). The average consumption of potatoes was pushed up by the requirements of one fast-food restaurant. This restaurant buys as much as 2,500 kg of potatoes per week. Other regular users of the vegetable require only 5.8 kg of potatoes per week. All of the hotels and restaurants buy bell pepper, cabbage, potatoes and cauliflower weekly. Along with tomatoes and carrots, these are the more popular temperate vegetables bought. The least popular temperate vegetables are mushrooms, asparagus (*Asparagus officinales*), broccoli (*Brassica oleracea* L. var. *italica*) and lettuce (*Lactuca sativa*)..

All three public hospitals surveyed buy almost the same kinds of vegetables as the private ones except that they have a wider vegetable purchase range including mostly tropical and cheaper vegetables such as papaya, bottle gourd (*Lagenaria siceraria*), kangkong (*Ipomoea aquatica*), sweet potato leaves (*Ipomoea aquatica*) and Malabar spinach (*Basella alba*). Private hospitals on the other hand expand their choice of vegetables to include temperate ones such as broccoli, asparagus and cauliflower (*Brassica oleracea* var. *botrytis*) though the latter are not frequently bought. The more popular tropical vegetables are bitter gourd (*Momordica charantia*), chayote (*Sechium edule*), eggplant and string beans. The least bought tropical vegetables are cowpea (*Vigna unguiculata*), okra (*Abelmoschus esculentus*), Malabar spinach and kangkong. On average, institutions allocate 9.5% of their marketing budget to vegetables, corresponding to a purchase PhP 1,300 ((US$32.50) worth of vegetables per week.

On average, respondents find prices, which are $2^{1}/_{3}$ times higher than the cheap price to be too prohibitive. For the more expensive types of vegetables such as asparagus, broccoli and garlic(*Allium sativum*), prices higher by $1^{3}/_{4}$ times are deemed prohibitive. For the cheaper vegetables such as kangkong, Malabar spinach, sweet potato leaves and okra, prices are considered to be prohibitive when they are $3^{1}/_{4}$ times higher. There were several institutions, however, particularly restaurants, which would did not stop them from buying particular vegetables (e.g. cauliflower) even when they are expensive.

Twenty-three percent of the institutions surveyed expressed openness to buying pre-peeled and pre-sliced vegetables. These are mostly the shelter institutions, both government and private. However, the majority of the hospitals, hotels and restaurants were unwilling to buy pre-peeled and pre-sliced vegetables. Their reasons are sanitary considerations, minimised, keeping quality and loss of nutrients. Eleven percent of hotel-based respondents said that these vegetables get discoloured, and will not meet the various size and shape requirements of many dishes.

The most commonly preferred pre-peeled vegetables were potatoes, carrots, chayote and squash. Bitter gourd, jackfruit (*Artocarpus heterophyllus*), sponge gourd (*Luffa cylindrica*) and potatoes were the preferred pre-sliced vegetables. Most of the institutions preferred medium-sized (most often carrots, broccoli, bell pepper (*Capsicum annuum*) and cabbage) to large vegetables (usually bitter gourd, eggplants, bulb onions (*Allium cepa*) and squash).

DISCUSSION

Among the most striking findings of the study is the very low per capita consumption of vegetables in Cagayan de Oro, which is - as in the rest of the Philippines - less than half of the minimum daily requirement to satisfy an adequate nutrient and vitamin supply for the human body. This can be attributed to dietary habits and tastes of consumers. More efforts are needed from the government and non-governmental organisations to educate consumers on a better vegetable diet. Additionally, strong seasonal price fluctuations as compared to other staples prevent many housewives from integrating vegetables on a regular basis into their daily diet. The present marketing set-up in Cagayan de Oro suffers from lack of good storage and grading facilities, limited display areas and lack of low-interest credit sources. There are some efforts of the city government of Cagayan de Oro in cooperation with other agencies to establish a new wholesale market, which - if implemented - would substantially improve the situation for all concerned.

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Books

INFORMAL PERI-URBAN IRRIGATED AGRICULTURE, OPPORTUNITIES AND CONSTRAINTS

Proceedings of a Workshop held at KNUST, Kumasi, Ghana (7-9 March 2001). The workshop was organised as part of a research project funded by DFID. The Knowledge and Research Project, "Improving Irrigation in Peri-Urban Areas: was carried out by HR Wallingford in collaboration with the Kwame Nkrumah University of Science and Technology in Ghana. The workshops was organised to provide a forum to share observations, field experiences and findings from research in different African cities. The focus in this report is on the production of vegetables as significant contribution to sustainable livelihoods and on the health risks associated with irrigation using poor quality water. Country papers presented are on Kenya and Zimbabwe. Technical sessions were on Water Management and Water Quality Issues; Economic and Social Aspects and The Role of Technology.

ANNOTATED BIBLIOGRAPHY ON URBAN AGRICULTURE

For Sida, ETC's Resource Centre for Urban Agriculture and Forestry (RUAF) in collaboration with TUAN has produced an annotated Bibliography.
Over 800 titles are taken up in this publication. Each topic is introduced by an overview article written by invited authors. This bibliography is available soon on the www.ruaf.org website, and is the basis for the Resource Centre's bibliographic database. You will be invited to comment and add titles to the database and are free to use these references.

AGRICULTURA Y CIUDAD: UNA CLAVE PARA LA SUSTENTABILIDAD (AGRICULTURE AND THE CITY, KEY IN SUSTAINABILITY, IN SPANISH)

María Caridad Cruz and Roberto Sánchez Medina.
Published by La Fundación Antonio Núñez Jiménez de la Naturaleza y el Hombre.
This book is the first publication in Cuba with the aim to integrate different perspectives and to transcend the descriptive level of food production. The past ten years of identification and stimulation of agriculture in Havana is evaluated in this book (see also the article of María Caridad Cruz in this issue).

DIAGNOSTICOS PARTICIPATIVOS DE AGRICULTURA URBANA- LINEAMIENTOS, METODOLOGICOS Y CONCEPTUALES (PARTICIPATORY DIAGNOSIS OF URBAN AGRICULTURE, METHODOLOGICAL AND CONCEPTUAL ISSUES)

Marielle Dubbeling and Alain Santandreu. 2001. Working paper 86, UMP-LAC/IDRC/IPES/ CLAES (Only available in Spanish)
This Working paper offers social organisations, municipalities, NGOs and universities, a series of methodological and conceptual guidelines for the elaboration of participatory base-line studies on urban agriculture. It contains an open conceptual framework, explaining the definitions and categories used and discussing the role of a base-line study within the process of local planning and intervention. Furthermore, a series of methodologies, which are validated in various cities of Latin America and the results obtained by applying these and other methodologies; a tool-box with 24 techniques to be selected and adapted to each local reality. The Working Paper is illustrated with the experiences from Curaca (Brazil), Montevideo (Uruguay), Puerto Cortes (Honduras) and Quito (Ecuador).

VIDEO ON URBAN AGRICULTURE

ETC's Resource Centre for Urban Agriculture and Forestry (RUAF) has produced a video with the title: "Urban Agriculture". The video is in two parts, both approximately 23 minutes long. Part one is an introduction to urban agriculture covering locations, degree of market orientation, and economic, social, health and environmental impacts. This is illustrated with examples from Tanzania, Vietnam, Senegal and Ecuador. In the second part two cases are presented in which the municipality has taken up urban agriculture as a phenomenon that deserves to be taken seriously in town planning and policies. Bottom-up or top-down, and especially participatory processes help to integrate this urban livelihood strategy into existing, more traditional, urban development planning. The two cases are Dar Es Salaam in Tanzania and Cuenca in Ecuador. The video can be used in extension sessions, workshops and seminars on occasions where urban agriculture, environment, livelihoods and survival strategies are the topic of discussion. The distribution of the video shall at first actively take place by RUAF to their partners and subsequently by the RUAF Regional Focal Points (RFP) in the various continents. The video will be available in English (VHS PAL), French (VHS Secam) and Spanish (VHS NTSC). An Arabic version is expected soon. The price of the video shall be made known by the Regional Focal Points in due time. Further news concerning the distribution and ordering of the video will be supplied in the next issue of this magazine (March 2002).

DEUTSCHER TROPENTAG 2001, ONE WORLD: RESEARCH FOR A BETTER QUALITY OF LIFE

Universitat Bonn and ATSAF, Universitat Hohenheim. (2001) Deutscher Tropentag 2001: One World, Research for a better quality of life. Book of abstracts and and Cd-rom with full Papers.
The theme of the annual Conference on International Agricultural Research for Development, "Deutscher Tropentag" was hosted by the University of Bonn and had the title One World, Research for a better quality of life. Seventeen themes were discussed in separate Symposia. Theme number was on Urban and Peri-urban Production Systems, in which 11 papers were presented. The other themes are certainly also worth reading.

PROCEEDING, NATIONAL WORKSHOP ON URBAN AGRICULTURE – POTENTIAL, SUPPORT AND INFORMATION NEEDS

UVPP and University of Dar Es Salaam, TEC, Dar Es Salaam, 2001.
The Urban Vegetable Promotion Project (UVPP) has been operating for several years in Dar Es Salaam, supporting the agricultural extension structure in town. The UVPP and the University of Dar Es Salaam, in their promotion of urban agriculture, decided to organise a national workshop on urban agriculture. They were supported by the Municipal Development Programme, that in the development of the RUAF programme, joined with the organisation of the assessment of training and information and communication needs for urban agriculture. These proceedings give the presentations and discussion of the three day workshop.

SPECIAL ISSUE ON PARTICIPATORY TOOLS AND METHODS IN URBAN AREAS

International Institute for Environment and Development (IIED) (1994). RRA Notes no. 21, IIED, 3 Endsleigh Street, London WC1H 0DD, UK

This issue of RRA Notes contains 13 articles on what might be called Participatory Urban Appraisal. Indeed, the need for the use of participatory research and development approaches in community development programmes in urban areas is high, as the editors indicate. Sections of this issue include: (1) Problem statement; (2) Description of the characteristics of urban settings and how they differ from the rural context; (3) The papers themselves, covering a wide range of issues; (4) Conclusions. A key publication. (WB)

ENVIRONMENTALISM UNBOUND, EXPLORING NEW PATHWAYS FOR CHANGE

Robert Gottlieb. 2001. M.I.T. U.S.A.

Robert Gottlieb is Professor of Urban and Environmental Policy at Occidental College and Director of the Urban and Environmental Policy Institute. He is the editor of The MIT Press Urban and Industrial Environments series. In *Environmentalism Unbound*, Robert Gottlieb proposes a new strategy for social and environmental change that involves re-framing and linking the movements for environmental justice and pollution prevention. According to Gottlieb, the environmental movement's narrow conception of environment has isolated it from vital issues of everyday life, such as workplace safety, healthy communities, and food security, that are often viewed separately as industrial, community, or agricultural concerns. Gottlieb focuses on three compelling examples of this new approach to social and environmental change. For more information see: http://www.mapcruzin.com/review_environmentalism_unbound.htm

ASSOCIATIONAL LIFE IN AFRICAN CITIES: POPULAR RESPONSES TO THE URBAN CRISIS

A. Tostensen , I. Tvedten and M. Vaa.(eds): ISBN 91-7106- 465-6, 320 pp.

The Nordic Africa Institute, Uppsala, Sweden

The book contains 17 chapters with material from 13 African countries, from Egypt to Swaziland and from Senegal to Kenya. Most of the authors are young African academics. The focus of the volume is the multitude of voluntary associations that has emerged in African cities in recent years. In many cases, they are a response to mounting poverty, failing infrastructure and services, and more generally, weak or abdicating urban governments. Some associations are new, in other cases, existing organisations are taking on new tasks. Associations may be neighbourhood-based, others may be city-wide and based on professional groupings or a shared ideology or religion. Still others have an ethnic base. Some of these organisations are engaged in both day-to-day matters of urban management and more long-term urban development. Urban associations challenge the monopoly of local and central government institutions. After an introductory chapter by the editors: "The African Urban Crisis, Governance and Associational Life", the contributions are grouped into the following sections: Coping through Informal Networks; Religion and identity; Land and Housing; Services; and Emerging initiatives.

Other Papers on Appropriate Methodologies

Apart from the papers published in this Magazine, several other papers were written for the workshop on Appropriate Methodologies for Urban Agriculture Research, Policy development, Planning, Implementation and Evaluation, held in October 2001 in Nairobi, Kenya. They can be found on the RUAF website: ***www.ruaf.org/conference*** where you will also find the longer versions of the papers in this Magazine. The papers were all written or adapted for the workshop.

TOPIC 1
METHODS FOR SITUATION ANALYSIS

- Gabel, Methodological reflections on using participatory and action oriented research with women farmers in Harare.
- Torres-Lima. Sustainable urban agriculture development in Mexico, a methodological approach.
- Mbiba, B. Participatory methodologies for policy development in urban agriculture: visualisation and the Harare experience in the early 1990s.
- Nugent, R. A. Using economic analysis to measure the sustainability of urban and peri-urban agriculture: A comparison of cost-benefit and contingent valuation analyses.

TOPIC 2
METHODS FOR POLICY DEVELOPMENT AND ACTION PLANNING

- Mlambo, A. Institutionalising Urban Agriculture in Dar Es Salaam City through the "EPM" Process.
- Patino, F. Matriz Para Elaboracion De Documento S "Lineamientos Politicas" Lineamientos Metodologicos Para El Impulso De Procesos Consultivos Locales En Agricultura Urbana.
- Carrion, A. Strategic Investment Planning in Cuenca- Ecuador as a strategy for policy formulation on urban agriculture (in Spanish).

TOPIC 3
METHODS FOR INTEGRATION OF UA IN URBAN LAND USE PLANNING

- Davila, J. Guidelines for Strategic Environmental Planning and Management of the Peri-Urban Interface.
- Ishani Z. and D. Lamba. Applications of Methods and Instruments in Urban Agriculture Research: Experiences from Kenya and Tanzania.
- Nell, W. Agricultural Development within the holistic Integrated approach: MUCPP/CHESP as a case study in South Africa

TOPIC 4
METHODS FOR TECHNOLOGY DEVELOPMENT IN UA

- Cardinale E., V. Porphyre, D. Bastianelli. Methods to promote healthier animal production: examples in periurban poultry production around Dakar.
- Drechsel, P., O. Cofie, R. Vázquez and G. Danso. Technology development for municipal organic waste recycling for urban and peri-urban agriculture - A holistic approach.
- 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.
- Ly, El Ousseynou. Outils participatifs d'identification des priorités et d'analyse des discours et des pratiques dans le domaine de l'agriculture urbaine
- Niang, S. Safe re-use of waste water in UPA (Paper in French: Maitrise des risques dans la ré-utilisation des eaux usées en agriculture urbaine).
- Nianogo, J.A. Méthodologie de la recherche sur la production animale en zone urbaine et péri-urbaine.
- Seck, M. Appropriate Methods for Technology Development in Composting and waste re-use in UPA (in French)
- Röling, N. and E. van de Fliert . Introducing Integrated Pest Management in Rice in Indonesia: a Pioneering Attempt to Facilitate Large Scale Change.
- Zeeuw, H. de . Trying out PTD with NGOs in Peru and Bolivia. Paper for the workshop "Appropriate Methodologies for Urban Agriculture", October 2001, Nairobi, Kenya.

TOPIC 5
METHODS FOR MONITORING AND EVALUATION IN UA

- Batac, J. Performance Measurement within the Municipal Solid Waste/Urban Agriculture Continuum: A Practical Local Governance Methodology.
- Cornish. G. A. Assessing water quality and health implications in informal peri-urban irrigation. Case studies from Nairobi and Kumasi.
- Dasso, J.A. Methodology for Analysing Interventions in Urban Agriculture in Latin America.
- Drechsel P., L. Gyiele and S. Asante-Mensah. Assessing human capacity building and the potential of technology adoption via KASA analysis.
- Moukoko-Ndoumbé, F. Accounting for UA Real Economic Performance and Environmental Impact at Farm Level Methods - Analytical approach - Pilot applications.
- Plastow, J. and S. Pantuliano. Experimenting with PIM: the ACORD Sudan Urban-Rural Linkages Programme Experience of Adapting Participatory Impact Monitoring.

TOPIC 6
METHODS FOR MARKET ANALYSIS AND ENTERPRISE DEVELOPMENT IN UA

- Ansaldo, R. W. Identification and Improvement of Market Linkages between Producers and Institutional Users: A Case Study on Potato Contract Growing in the Philippines.
- Paje, B. G. Methodologies to Improve Entrepreneurial Skills of Urban Agriculture Entrepreneurs.
- Wheatley, C. Fostering innovation in urban and peri-urban based clusters of small-scale agrifood enterprises.

http://www.spatialplanning.com
The Project "Healthy Cities", at the Dutch Ministry for Housing, Spatial Planning and the Environment sterted March 2000, when five young professionals started at the National Spatial Planning Agency in the Design Studio on the theme of Healthy Cities. After a year of hard work, they delivered five case studies, amongst them the project Self-Sufficient World, which is available in English on this website.

http://www.treebranch.com/
This site is introduced as the New York City's Internet Portal to "environmental and urban quality-of-life issues". You can subscribe to the electronic newsletter: Urban Outdoors; read about legislation on using urban space for gardening and learn how start a garden for yourself or with a community.

http://www.agroforester.com/overstory/osprev.html
The Overstory is a free non-commercial e-mail journal, for agroforestry practitioners, researchers, professionals, and enthusiasts. Each issue focuses on a concept for tropical agricultural systems, which integrate trees and other perennial plants. Recent topics include Urban Forestry, Ethnoforestry, Traditional Agroforestry Systems and Agroforestry Information Resources. To subscribe you can send an e-mail to *overstory@agroforester.com* with the following information in the body of the message: your name, e-mail address, organisation, and location.

http://www.who.dk/Nutrition/main.htm
You may want to visit the site of the World Health Organisation to download the final Urban and Peri-Urban Food and Nutrition Action Plan; a publication on Urban Food and Nutrition Security and Case Study 2 of the Urban Food Security Series: "Urban Agriculture in London". Furthermore the First Food and Nutrition Action Plan for the WHO European Region 2000-2005 in final form is available.

http://www.nal.usda.gov/afsic/AFSIC_pubs/urbanag.htm#toc2
On this site, the publication by A. Adeyemi can be read: "Urban agriculture : an abbreviated list of references and resource guide 2000". It is published by the Alternative Farming Systems Information Centre of the Agricultural Research Service, U.S. Department of Agriculture. It therefore has a focus on the urban and community agriculture resources that are available in North America. Has good references and abstracts.

http://www.iied.org/eandu/eandu_contents.html
The part of the website of IIED (International Institute for Environment and Development) is devoted to Human Settlements and gives the contents and summaries of the publication Environment and Urbanisation. Several interesting publications can be downloaded at *http://www.iied.org/rural_urban/downloads.html*.

http://www.developmentgateway.org/node/100647/
AIDA Accessible Information on Development Activities is a project database that contains descriptive information on over 300,000 planned, current and completed projects and programs of over 200 development agencies. AIDA facilitates access to information already available on the web sites of development organisations about activities that they fund, execute or implement.

http://www.ems-sema.org
We already informed you several times on this website of INFO-EMS, which informs on environmental activities for three years now. The site has seen some changes in the structure to make the search of information and dissemination of our activities easier. It gives overviews on events, publications and important links.

http://www.earthsummit2002.org/es/issues/Governance/governance.htm
Stakeholder Farmer is a network and forum on sustainable development working on the preparation for the next Earth Summit in 2002. A summary of the life-on-line Earth Summit 2002 debate concerning 'How to make cities part of a sustainable future' is available at *www.earthsummit2002.org/es/life/default.htm*

http://www.id21.org/urban/
Here you will find the introductory issue of 'id21UrbanNews' - bringing you regular updates of highlights of UK-based research on urban poverty issues in developing countries. id21Urban Poverty also offers a searchable database of concise, easy-to-read summaries of development research on urban themes.
You will also find "Insights", an electronic newsletter on Development Research, supported by DFID as part of their ID21 Programme. The newsletter is also available in printed version. No. 38 has the title: "Urban Governance in the New Millenium".

http://chora.virtualave.net/
Ethiopian Centre For Educational Information
Chora is an Internet location designed to facilitate the educational and professional development of Ethiopians, who can share information regarding education, and available resources. Information on alumni and a wide variety of student and research associations is given. On *http://chora.virtualave.net/urban-agriculture.htm* a short article on urban agriculture in Addis Ababa is presented written by Michael Tadesse.

http://www.asia-urbs.com/magazine.htm
Asia-Urbs is a EU funded City Cooperation Programme, and aims to enhance mutual understanding and awareness between Asia and Europe by supporting urban development projects that are implemented jointly by Asian and European local governments. The summer 2000 issue of Asia Urbs has an article specifically on urban agriculture. The site gives information on the ways how Asia-Urbs can assist in funding related projects.

www.lga.gov.uk/lga/allotments/index.htm
The Local Government Association in the UK has published the executive summary of the guide "Growing in the Community" which is the main output from the 1998 Parliamentary Select Committee Inquiry into the "Future for Allotments".

http://www.oxfamamerica.org/cuba/index.html
A new Oxfam America report looks at how Cuba has successfully turned a severe food crisis into a sustained recovery in food production. Through a combination of sweeping reforms and innovations in ecological agriculture, Cuba's countryside has changed dramatically.

CREATING SUSTAINABLE URBAN ENVIRONMENTS -FUTURE FORMS FOR CITY LIVING

23 – 26 September, 2002, Oxford, UK.

The fifth symposium of the International Urban Planning and Environment Association - Creating Sustainable Urban Environments -Future Forms for City Living. Papers related to one of the conference themes; Environment, Society, Transport, Land use and re-use, Economics, Future sustainable city forms. Abstracts of no more than 700 words electronic version compatible with Word 97, Arial font 9, can be submitted to upe5@brookes.ac.uk putting 'Abstract Submission' as subject title or by post to Sarah Taylor, The Oxford Centre for Sustainable Development, School of Architecture, Oxford Brookes University, Gipsy Lane, Headington, Oxford, UK, OX3 OBP.

INTERNATIONAL CONFERENCE ON URBAN HORTICULTURE

2 – 6 September, 2002, Zurich, Switzerland

The aim of the Conference of Urban Horticulture is to present and discuss visions, innovations, research themes and solution concepts for urban green areas. Garden design and plant utilization as well as the interactions between man and designed nature form the central themes of the conference. The five themes are Plants and Society; Public Green; Plant use and Landscaping; Assortment development, evaluation and production; and Ecological Engineering. Visit http://www.urbanhorticulture.ch/ or send an email to: conference@hortikultur.ch

IFOAM 2002 ORGANIC WORLD CONGRESS: CULTIVATING COMMUNITIES

21 – 28 August, 2002, Victoria, British Columbia, Canada

We already reported in the last issue on this Congress, but would like to remind you again. For more information about Canadian Organic Growers, visit: www.cog.ca. For more information about IFOAM, visit: www.ifoam.org.

WORLD FOOD SUMMIT: FIVE YEARS LATER

10 – 13 June 2002

The World Food Summit: "Five Years Later", originally scheduled from 5-9 November 2001 as part of the FAO biennial Conference, has been rescheduled for 10-13 June, 2002, in Rome, Italy, in the wake of the September 11 attacks in the United States. The World Food Summit: five years later was called for by the FAO Council last year when it became clear that the original Summit goal of cutting the number of hungry in half by the year 2015 would not be met without renewed effort. For further information see www.fao.org, or contact: the Media Relations Branch: +39 06 5705 3625
A special issue of the UA-Magazine has been prepared for the summit.

THIRD BI-ANNUAL INTERNATIONAL HUMAN DIMENSIONS WORKSHOP FOR YOUNG DEVELOPING COUNTRY SCIENTISTS

3 – 14 June, 2002, Bonn, Germany

HDP and START have announced a call for applications for this workshop. The theme for the workshop will be "Human Dimensions of Urbanisation and the Transition to Sustainability". The deadline date for applications was November 10, 2001, but for further information you could contact Ms. Maarit Thiem (International Project Co-ordinator) IHDP, International Human Dimensions Programme on Global Environmental Change, Bonn, Germany
Email: thiem.ihdp@uni-bonn.de; http://www.uni-bonn.de/IHDP

INTERNATIONAL WORKSHOP ON RURAL EXTENSION

21 – 22 March, 2002, Bayamo, Cuba

The Innovative Reference Centre on Agricultural Biodiversity, of the Alejandro Humboldt Institute, of the Universidad de Granma (CRIBAAH), is organising this workshop. It will focus on urban agriculture and biodiversity conservation of indigenous races. The co-ordinators of the event can be contacted through paco@udg.co.cu, edy@udg.co.cu, wilson@udg.co.cu, milanes@udg.co.cu or barrerah@udg.co.cu

INTERNATIONAL TRAINING ON PARTICIPATORY RESEARCH AND DEVELOPMENT

4 – 22 March, 2002, Lima, Peru

The CIP-UPWARD program would like to announce its forthcoming course to be held in The Philippines. Information about the course and application forms for those who are interested to attend, can be send upon request. Please don't hesitate to contact: Ms. Cherry Leah P. Bagalanon, Course Secretariat (www. cipotato.org/SIUPA).

INTERNATIONAL CONFERENCE ON SUSTAINABLE AGRICULTURE

12 – 15 February, 2002 Cienfuegos, Cuba

The aim of this conference is to establish an exchange between institutions that work on sustainable agriculture on recent experiences. The conference is organised along four workshops, of which one is on Urban Agriculture. Each workshop will have exposures, discussions and field visits. Although the main language will be Spanish, Posters in English will be accepted.
For more information, please check: www.geocities.com/agronat2002/
Or contact Alejandro R. Socorro Castro, agropec@ucfinfo.ucf.edu.cu

THE ROAD TO JOHANNESBURG 2002 AFTER SEPTEMBER 11, 2001

19 – 24 November, 2001 Online debate

During these six days the Heinrich-Boell Foundation and UNED-Forum held an online forum to discuss the implications of September 11, 2001 on the Johannesburg process. The Earth Summit 2002 will be held ten years after the Rio Conference on Environment and Development. The Heinrich-Boell Foundation and UNED-Forum, both organisations active in the Johannesburg process, joined forces to create a space for a global debate on questions arising after the September 11 for the Johannesburg process.
Follow the link under Earth Summit Updates at www.earthsummit2002.org
Also available under this same page of Earth Summit Updates are the summary reports from the debate series on: Sustainable Cities; Marginalisation; HIV/AIDS; and on Corporate Citizenship.

INTERNATIONAL POLICY RESEARCH SYMPOSIUM ON 'THE CHANGING ROLE OF FORESTRY IN EUROPE; BETWEEN URBANISATION AND RURAL DEVELOPMENT

11 – 14 November, 2001
Wageningen, The Netherlands.

The overall objective of this symposium was to provide innovative perspectives on the role of forestry within the context of changing rural conditions and increasing urbanisation. The symposium offered the participants a good opportunity to become acquainted with the results of some major cross-European research programmes in these fields, such as the FAIR Multifor project and COST Action E12 on Urban forests and trees. Benefiting from

the setting in the Netherlands, it could show the participants, the effects of new types of urbanisation and rural development on forest management. The Symposium focused on three major themes:

- The diverse nature of rural change under different European realities and its effects on the role of forestry in rural development
- Recent developments concerning urban forestry and urban greening
- The implications of these developments in formulating European forest policy as well as national forest policies.

More information is available through http://www.alterra.nl/forestrysymposium.htm

RURAL-URBAN ENCOUNTERS: MANAGING THE ENVIRONMENT OF THE PERI-URBAN INTERFACE

9 – 10 November 2001, London, UK

This one-and-a-half-day conference was organised by the Development Planning Unit, University College London. Key notes and four workshops elaborated on the integration of local environmental management, which has been traditionally separated into "urban" and "rural". For more information about the conference and the research project visit: http://www.ucl.ac.uk/dpu/pui/index.htm

LAC REGIONAL TRAINING COURSE ON URBAN AGRICULTURE

5 – 23 November, 2001, Quito, Ecuador

The first LAC Regional Training Course on Management of and Action-Research on Urban Agriculture has been held. The training course was co-ordinated by the Urban Management Programme - Regional Office for Latin America and the Caribbean (UMP-LAC/HABITAT), IPES and IDRC and counted with the collaboration of course-moderators from Argentina (CEPAR and Pro-Huerta), Peru (CEPIS- WHO), Mexico (CEDICAR), Brazil (University of Brasilia), the Netherlands (ETC-RUAF) and Ecuador (IPES/UMP-LAC). The course counted with the participation of 24 representatives (municipal staff and NGO or University staff) from 11 countries in the Region. A variety of topics were dealt with, through lectures, working groups and field-visits: concept and characteristics, urban agriculture and urban land use planning, food security, participatory research methodologies, waste water and solid waste recycling and processing and commercialisation of urban agriculture. The training material is available in Spanish and a training guide will be produced shortly. The course will be replicated in the coming years on sub-regional level, for cities of the Southern Cone of Latin America (Argentina, Chile, Paraguay and Uruguay) and for Brazilian cities. The course co-ordinators are interested in sharing experiences with other regional or national initiatives and aim, in the context of the RUAF Programme, to elaborate these experiences in the future into a training-package to facilitate distance learning. For further information please contact Marielle Dubbeling, IPES/UMP-LAC (marid@pgu-ecu.org).

INTERNATIONAL FORUM ON URBAN POVERTY

16 – 19 October, 2001, Marrakech, Marocco

The Third International Conference of International Forum on Urban Poverty (IFUP) on Social Integration and Security of the Urban Poor is organised by IFUP as a follow up on the Habitat Conference. The IFUP was created in subsequent meetings in Recife, Istanbul and Florence, and as a follow up to the Recife Declaration in 1996, on the issue of urban poverty and the necessary policies to reduce it. http://www.unchs.org/ifup

INTERNATIONAL CONFERENCE" ONE WORLD: RESEARCH FOR A BETTER QUALITY OF LIFE

9 – 11 October, Bonn, Germany

This event, better known as the yearly organised "Deutsche Tropentag" was a two-day conference on tropical and subtropical agriculture and forestry, organised jointly by the Universities of Bonn, Berlin, Göttingen, Hohenheim and Kassel-Witzenhausen, as well as by the Council for Tropical and Subtropical Agricultural Research (ATSAF e.V.), in cooperation with BEAF/GTZ. One symposium of this conference dealt specifically with urban and peri-urban production systems, but the paper and poster presentations on the other topics are definitely also worthwhile, and are available on CD-rom. More information is available at: http://www.uni-bonn.de/akci/dtt_1.htm

SUSTAINABLE FOOD SECURITY FOR ALL BY 2020: FROM DIALOGUE TO ACTION

4 – 6 September, Bonn, Germany
International Congress Centre of the Federal Parliament, Bonn, Germany

The International Food Policy Research Institute (IFPRI) in close collaboration with the German Federal Ministry for Economic Cooperation and Development (BMZ) organised this event. The conference had as main aim to take stock of the current situation, to review progress in achieving sustainable food security since the first 2020 Vision conference in 1995, and to elaborate state-of-the-art projections for scenarios in 2020. The meeting focused on the emerging issues that most likely will affect the global goal of achieving sustainable food security for all by the year 2020. For more information go to www.ifpri.org/2020conference.

WORKSHOP ON INFORMAL PERI-URBAN IRRIGATION

7 – 9 March, 2001, Kumasi, Ghana

Whilst much of the urban and peri-urban agriculture taking place in the cities of sub-Saharan Africa relies to some extent on irrigation, there is little published information or on-going research which deals specifically with the irrigation practices that support this growing sector. Although water is often acknowledged as an essential input it is usually only considered in detail with regard to water quality and health. To address this knowledge gap the British Government's Department for International Development (DFID) funded a three-year research project to obtain quantitative and qualitative information on the productivity and constraints of *irrigated* peri-urban agriculture. The studies were carried in Kumasi, Ghana, and Nairobi, Kenya, between July 1988 and March 2001. The research included the following four key components and associated activities: Literature reviews, scoping and farmer questionnaire surveys; Detailed farm budget and wealth ranking surveys; Water quality studies; and Workshops. The final project workshop provided a forum to review and disseminate the findings of the research amongst farmers, government agency staff and policy makers. The findings and other quantitative information relating to irrigation practice, irrigated crop budgets, water quality issues and farmers' rankings of production constraints are presented in the workshop proceedings and the series of research reports generated during the project. Further information can be obtained from Gez Cornish at G.cornish@hrwallingford.co.uk

FROM OUR PARTNERS

CITY CONSULTATION ON URBAN AGRICULTURE AND FOOD SECURITY IN QUITO, ECUADOR ON CD-ROM

IPES, the Urban Management Programme - Regional Office for Latin America and the Caribbean (UMP-LAC/HABITAT) and IDRC have produced a multi-media CD-ROM on the participatory process of dialogue, action planning and municipal intervention on urban agriculture in the city of Quito, Ecuador (from September 99 until September 2001). The CD-Rom gives activities, actors, results, and the major lessons. It contains over 50 photo's on urban agriculture taken in various cities in Latin America, three video-clips and an interview with the Mayor of Quito. The CD-Rom is only available in Spanish and can be ordered for 15 US$ (excluding mailing costs). Please contact Marielle Dubbeling at the Urban Management Programme in Quito (email: marid@pgu-ecu.org or Fax at +.593.2.2282361 - ext 110-)

URBAN AGRICULTURE POLICY ADVISORY TOOLS FOR LOCAL GOVERNMENTS IN LATIN AMERICA AND THE CARIBBEAN

As part of its "closing the loop" activities, the Cities Feeding People Programme Initiative of IDRC will collaborate with UMP-LAC/UNCHS-HABITAT/UNDP, and its anchoring institute IPES to produce a set of seven Policy Briefs. These briefs will be known in Spanish as "Directrises o lineamientos de Politica", and are intended for local governments in the LAC Region. The general content will include: arguments for better municipal policies on UA, examples of good municipal practice, practical planning and management guidelines, and resources. The purpose of the Policy Briefs is to raise awareness, mobilise support for, strengthen capacities, and provide ways to municipal governments for implementation of urban agriculture programmes and policies. The Briefs will discuss and scope strategic approaches for disseminating new knowledge and an agenda for change. For more information: Please contact Marielle Dubbeling at the Urban Management Programme in Quito (email: marid@pgu-ecu.org or Fax at +.593.2.2282361 - ext 110-)

UNDP INNOVATIVE PARTNERSHIPS GRANTS

The *"Public-Private Partnerships for the Urban Environment Initiative"* (PPPUE) is part of UNDP's strategy to decentralise policy functions and create advisory and operational capacities closer to clients. It is a global initiative, operated from the PPPUE Management Unit in Pretoria, South Africa, and through UNDP's Subregional Resource Facilities (SURF) around the world. At the core of the newly designed programme is a new grant facility, the Innovative Partnership Grant (IPG). UNDP has invited project proposals for this initiative. The IPG offers an opportunity to National and Local Governments, CBOs, Municipal Associations, Chambers of Commerce, NGOs etc. to propose innovative projects related to public-private partnership development at the local level. The first deadline for proposals was in November 30, 2001, but more will follow. For more information on the PPPUE services i.e. Innovative Partnerships Grant and Global Learning Network please visit the PPPUE website at www.undp.org/pppue or write to pppue@undp.org. Peter Grohmann, Global Task Manager, UNDP/BDP/PPPUE

PERI URBAN DEVELOPMENT IN SOUTH EAST ASIA

The Institute for Agricultural Policy and Market Research at the University of Giessen will be responsible to establish a thematic network for those colleagues doing research on this subject. The DAAD (German Academic exchange service) is funding this project. The aim is to improve the exchange of information between researches and to maintain and to strengthen the personal and professional ties between Universities via direct and periodical information. This thematic network is open to all researchers. An electronic newsletter will inform you regularly. For further information contact: Christina Zurek, Giessen, Tel.: +49-(0)641-99-37033, Fax: +49-(0)641-99-37029, e-mail: Periurban.group@agrar.uni-giessen.de

URBAN AGRICULTURE IN ZIMBABWE GAINING MOMENTUM

Urban Agriculture is gaining significant recognition in Zimbabwe. The RUAF Partner for Eastern and Southern Africa, the Municipal Development Programme (MDP) had a meeting with the Minister of Local Government, Public Works and National Housing and Chairman of the Land Reform Committee, who advised that Harare City will be allocated 60 000 hectares of land for urban agriculture. All farms within a 15km radius around the City of Gweru have also been targeted for urban and peri-urban agriculture. The Minister has invited MDP to put together a programme, which can be discussed with him on strengthening urban and peri-urban agriculture. http://www.mdp

ENVIRONMENTAL CHANGE IN PERI-URBAN AREAS

PUECH (Peri-Urban Environmental Change) is a project initiated by SCOPE. SCOPE is the Scientific Committee on Problems of the Environment is an international, non-governmental, non-profit and interdisciplinary body of natural science expertise. The project PUECH examines the scientific understanding of periurban areas; the transition zone, of the interaction zone, where urban and rural activities and land covers are juxtaposed. In the preparation of PUECH, the Scientific Advisory Committee (SAC) of the project has met in Rosario Argentina to discuss Latin American experiences, in October 2001and in Lusaka,. Zambia in January 2002 for African experiences. The Asian meeting will take place in the wings of the Ecocities conference in Shenzhen, China in August 2002.

PROJECTS APPROVED IN ASIA

Three urban agriculture programmes, in the Philippines, Laos and Cambodia, have been approved for funding by the European Union Commission. The first project is the "GIS-based Urban Environmental Resources Management and Food Security Project" in the Philippines, jointly submitted by the city government of Cagayan de Oro (CENRO-LEPM) and Xavier University College of Agriculture together with four counterparts from Europe. The second is "Improving the Living Conditions of Poor Farmers on the Outskirts of Vientiane, Laos through the Development of a Network to Supply the Town Centre with Quality Agricultural Products". The third project is "Improving the Living Conditions of Poor Farmers on the Outskirts of Kampong Speu by Diversifying Agricultural Production" in Cambodia. More information can be found under http://www.asia-urbs.com/dati/ASI-6.pdf, or issue 6 of the Asia Urbs magazine: http://www.asia-urbs.com/magazine.htm