

URBAN AND PERI-URBAN AGRICULTURE

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I. FOREWORD

1. The relevance, promises, and problems associated with urban and peri-urban agriculture can be briefly illustrated by the following excerpts of statements from **The Second International Colloquium of Mayors on Governance for Sustainable Growth and Equity, UNDP, United Nations, New York City, 1997**

“The growth of urban agriculture has been buttressed by two important factors: the availability of non-built public land, even in central parts of the city, and the requests from people who want to use it to produce food,” Ms. Rey, advisor to the Mayor of La Habana

“Good urban agriculture depends crucially on producers being granted proper agricultural extension and advice, including assistance for selecting crops,” Mayor Iga of Kampala

“The products are sold in public markets, and compete with supermarkets that sell only imported goods. Thus, we support globalization without social exclusion through urban agriculture. Local government loans of a few thousand dollars are being repaid in two, three or four months; the government trains, monitors, promotes. This needs to be recognized by international agencies and supported for replication, as a way to strengthen local food self-reliance with a range of other socio-economic benefits attached to it,” Governor Buarque of the Federal District of Brasilia

“Authorities are hesitant to be more proactive on urban agriculture because it is largely seen as resulting from a failure to address rural development adequately. It is creating havoc in urban land use planning and management. It is holding up city development and redevelopment,” Mayor Mwale of Lusaka

“Agriculture, whether in rural or urban areas, is under the jurisdiction of the central government and local governments can do little on their own in this sector currently,” Mayor Rahael of Port of Spain

2. This paper explores the major issues arising from urban and peri-urban agriculture which are central to FAO’s mandate in member countries. They are how to:

- provide adequate access to nutritious food for the growing urban populations of the developing world;
- efficiently integrate urban and peri-urban agriculture with rural agriculture (in general they are not substitutes for each other);
- develop land and water policies that account for agricultural production in urban and peri-urban areas; and
- guide dynamic agricultural practices within and outside cities towards sustainability goals (economic, social, and environmental).

3. COAG’s advice is sought on how FAO should organize its effort to answer these questions, what kinds of guidance and technical assistance should be provided to members regarding urban and peri-urban agriculture, and through what channels.

While there is not yet a universally agreed-upon definition, Urban and Peri-urban Agriculture – referred to jointly in this paper as UPA, except in the cases where a clear distinction must be made – is perceived as agriculture practices within and around cities which compete for resources (land, water, energy, labour) that could also serve other purposes to satisfy the requirements of the urban population. Important sectors of UPA include horticulture,¹ livestock, fodder and milk production, aquaculture, and forestry. Therefore, for expository purposes, the term UPA should be understood to be inclusive unless otherwise specified.

4. Experience shows agriculture can and does respond opportunistically to demographic, economic, and land-use changes by inventing new modes and rediscovering traditional modes of providing for the urban population. Agricultural, fishery and forestry activities are finding niches in the urban and peri-urban areas. Clearly, not all products and activities are suited for all areas, but some are likely to persist and develop further in the city area. Over time the image of urban and peri-urban agriculture may evolve into that of accepted and needed activities which will supercede the temporary and crisis-oriented image of the past. This depends upon the ability of policy-makers and urban residents to respond to concerns outlined in this paper.

II. BACKGROUND

(i) Demographic Trends

5. The world's current population of 5.9 billion is split about equally between cities and rural areas, with urban areas expected to surpass rural areas in population around the year 2005. Regionally, there are significant differences in the degree of urbanization. Just over three-quarters of the populations of North America, Latin America, and Europe live in urban areas, while only slightly more than one-third of the populations of Asia and Africa are urban.

6. Until recently poverty was synonymous with rural conditions, but the rapid urbanization of many developing countries has given birth to a large class of urban poor. The worldwide urban population is expected to double in 30 years, but the numbers of urban poor are expected to increase at a greater rate. The World Bank has estimated that the 1990s would see an increase from 400 million to one billion urban people living in absolute poverty; UNDP estimated a 76 percent increase in urban poor during the 1990s and a decrease in rural poor during the same period. Estimates based on health and environmental conditions suggest about 600 million people in cities live in unhealthy conditions. Hence, as Africa and parts of Asia will become increasingly urban over the next 25 years, urban poverty and food insecurity could worsen if preventive measures are not taken.

7. Expansion of cities is driven by economic growth and/or by migration from rural to urban and peri-urban areas as agricultural and rural employment opportunities decline or lag behind population growth. Other factors which, in some cases, have contributed to the rapid urban expansion are: social unrest, natural disasters (drought), and lack of educational opportunities and medical facilities in rural areas. Peri-urban areas are those areas surrounding cities which are in most ways integrated with the city. These areas also have high growth rates and receive up to 70 percent of the migrants from rural areas as well as migrants from the city itself.

¹ Horticulture comprises mainly vegetables, but includes fruit, ornamentals, mushrooms, and roots and tubers.

(ii) Implications of Population Growth for Urban and Peri-urban Areas

8. The challenge of supplying nutritionally adequate and safe food to city dwellers is substantial. Accomplishing this task under conditions of growth and congestion demands that policy-makers seize opportunities for integrating resource management and planning efforts, understanding potential linkages between rural and urban areas, and anticipating the changing needs of a country's citizens - both rural and urban. Part of the reason for the observed growth in UPA is due to its adaptability and mobility compared with rural agriculture. As cities expand physically, the frontiers between urban, peri-urban and rural activity blur and merge, presenting opportunities for beneficial linkages.

(iii) Organization of Paper

9. The questions introduced in the Foreword to this document are among the most important faced by local, national, and international authorities today as they influence the cities of the 21st Century. These questions will be addressed, but cannot yet be completely answered. The document proceeds with a brief description of past and current FAO activities in UPA, as well as those of other international organizations. It describes the primary characteristics of UPA, as they are now understood, and then outlines the issues arising from UPA for consumers, producers, and urban societies, including benefits and risks. It identifies steps to address the above issues and specifies ways in which FAO could contribute to a global effort to solve them. The paper concludes with a proposal to COAG about future FAO direction on UPA.

III. INTERNATIONAL EFFORTS ON URBAN AND PERI-URBAN AGRICULTURE

10. FAO has been involved in UPA through targeted initiatives in the regular programmes of technical units, through technical assistance - particularly in peri-urban areas - and through participation in international fora. While so far lacking a comprehensive programmatic approach to deal with UPA, FAO nonetheless has made important technical contributions through specific programmes.

11. FAO has addressed UPA issues through the AGA Sub-Programme on Peri-urban Production Systems on Animal Production and Health and Veterinary Public Health (AGAP/AGAH), the Programme on Food Supply and Distribution to Cities (AGSM), the Programme on Peri-urban Horticulture (AGPC), and the Programme on Urban and Peri-urban Forestry (FORC). Through separate initiatives, the Organization has investigated agricultural activities and near cities through case studies, provided policy support and technical assistance, and begun to build an information base about the characteristics of UPA. In recognition of cross-disciplinary linkages staff from all technical departments have been involved for years in an informal working group.

12. Outside FAO there is growing recognition of UPA among policy-makers and NGOs. The *Support Group on Urban Agriculture* was established in 1992 and the *Global Initiative on Urban Agriculture* in 1996, composed of major donors and international agencies (including UNDP, IDRC, FAO, World Bank, GTZ, NRI, ETC, and others). Other United Nations agencies involved in various ways include UNHCR, UNICEF, UNWHO, and UNCHS².

² UNDP: United Nations Development Programme; IDRC: International Development Research Centre; GTZ: German Agency for Technical Cooperation; NRI: Natural Resources International,

AGUILA is a network of 16 Latin American countries sharing information about UPA, and other networks have been or are being established in West Africa, Southeast Asia, and Europe. A non-profit organization was created in the United States in 1993 called *The Urban Agriculture Network*, which has conducted research studies and promotion of UPA throughout the world. Numerous civil society organizations (e.g. CARE, SAVE, Oxfam, Heifer Institute) have become involved in grassroots projects within cities in both developed and developing countries, to support UPA. A growing number of universities offer graduate degrees in urban and peri-urban agricultural studies.

IV. CHARACTERISTICS OF URBAN AND PERI-URBAN AGRICULTURE

“Urban” agriculture, as used here, refers to small areas (e.g. vacant plots, gardens, verges, balconies, containers) within the city for growing crops and raising small livestock or milk cows for own-consumption or sale in neighbourhood markets. **“Peri-urban” agriculture**, as used here, refers to farm units close to town which operate intensive semi- or fully commercial farms to grow vegetables and other horticulture, raise chickens and other livestock, and produce milk and eggs.

13. Urban and peri-urban agriculture occurs within and surrounding the boundaries of cities throughout the world and includes products from crop and livestock agriculture, fisheries and forestry in the urban and peri-urban area. It also includes non-wood forest products, as well as ecological services provided by agriculture, fisheries and forestry. Often multiple farming and gardening systems exist in and near a single city.

14. The territory included within official city boundaries varies enormously across countries and can be more or less built-up; likewise the “peri-urban” area around cities ranges from densely to sparsely populated. The distinction between “urban” and “peri-urban” depends on the density, types, and patterns of land uses, which determine the constraints and opportunities for agriculture.

15. “Urban and peri-urban forestry” have critical environmental functions, besides some food and non-food production functions. The multiple benefits of urban and peri-urban forestry cannot be fully elaborated here but are mentioned briefly for the sake of comprehensiveness. A fully articulated strategy on the integration of urban and peri-urban agricultural production and urban and peri-urban forestry could be developed in conjunction with COFO.

16. What these diverse activities have in common - and in some cases what sets them apart from rural agriculture - is proximity to large settlements of people, thereby creating

opportunities as well as risks. The opportunities include:

- access to consumer markets;
- less need for packaging, storage and transportation of food;
- potential agricultural jobs and incomes;
- non-market access to food for poor consumers;
- availability of fresh, perishable food;
- proximity to services, including waste treatment facilities;
- waste recycling and re-use possibilities.

17. The risks include:

- environmental and health risks from inappropriate agricultural and aquacultural practices;
- increased competition for land, water, energy, and labour;
- reduced environmental capacity for pollution absorption.

18. The contribution of urban and peri-urban agriculture and forestry to the well-being of urban citizens is dependent upon the advantage taken of the opportunities listed above, and an awareness of how the risks can be monitored and controlled. It is essential to define the cases where UA or UPA has a clear comparative advantage over rural agriculture. The scale of production, the product or service provided, and the alternatives available are factors in determining the relative advantage. Broadly stated, a comparative advantage exists when either supply conditions or demand conditions allow UA or UPA to better serve the urban market by supplying something otherwise unavailable or by producing at a lower cost, including environmental cost. In places where rural infrastructure is poor, or where farm to market systems are inadequate, both UA and UPA fill critical gaps. However, UPA should not be developed in competition with rural agriculture, but should concentrate on activities in which it has a comparative advantage, such as production of fresh, perishable foods. Decentralized rural production zones are also essential to feeding cities.

V. ISSUES IN URBAN AND PERI-URBAN AGRICULTURE

(i) Safe and Nutritionally Adequate Food for Consumers

19. When carried out properly under safe conditions, UPA can contribute to food security in three ways.

20. Firstly, the quantity of food available is increased through both UA and UPA. Poor urban dwellers often lack the purchasing capacity to acquire adequate amounts of food. Urban agriculture appears to reduce food insecurity by providing direct access to home-produced food to households and to the informal market. Much UA is for own consumption with occasional surpluses sold into the local market. Even for people who have little or no land part-time farming of vegetables can provide food and income. Simple, popular hydroponics or substrate culture in beds can produce high value and nutritious vegetables on surfaces as small as one metre.

21. Urban agriculture also appears to enhance food security during times of crisis and severe scarcity. Whether caused by national crises (civil war, widespread drought, currency

devaluations, inability to import, etc.) or household crises (illness, health, sudden unemployment, etc.), UA plays an important role in providing emergency supplies of food.

22. Secondly, UPA enhances the freshness of perishable foods reaching urban consumers, increasing overall variety and the nutritional value of food available. While not universal, case studies have shown differences in nutrition, especially among children, when poor urban families farm. An important reason appears to be that food produced by consumers or in close proximity to them is often fresher than food that travels long distance to markets.

23. Thirdly, UPA offers opportunities for productive employment in a sector with low barriers to entry. UPA is estimated to involve 800 million urban residents worldwide in income-earning and/or food-producing activity. Based on a combination of national census data, household surveys, and individual research projects in specific cities, it is estimated that one-quarter to two-thirds of urban and peri-urban households are involved in agriculture. Urban agriculture is often carried out on a part-time basis by women, who can combine food production activity with child care and other household responsibilities. Case study data indicate that both food availability and incomes in poor farming households are significantly higher compared to households of non-farmers. Interestingly, the urban gardeners are not typically the poorest residents but rather those families that have lived long enough in the city to secure land and water, and become familiar with the market channels for selling surpluses.

24. Employment in peri-urban agriculture has not been estimated separately from employment in urban agriculture. Both UA and UPA farming methods have become adapted to the city conditions according to the type of production, and are often carried out in a more capital and/or labour intensive manner than they would be in rural areas. The intensive horticultural and livestock production that thrives in peri-urban areas employ workers and produce high value-added products that can be expected to yield reasonable income and returns. In particular, the commercial peri-urban production of livestock is an extremely fast-growing sector, representing 34 percent of total meat production and nearly 70 percent of egg production worldwide. With it comes expansion in food processing activities in the peri-urban zones.

(ii) Agricultural Efficiency of Producers

25. There are mixed implications from urban and peri-urban agriculture on the efficiency of agricultural and forestry production, but for different reasons. Cost savings can be achieved because of proximity to consumers of less need for an extensive and expensive infrastructure for transportation and preservation of perishable products. Moreover, quality increases because of greater responsiveness to consumer preferences as well as availability of products that cannot be obtained from rural producers, such as wood energy.

26. But in spite of such potential efficiencies, there is a strong perception of the unsuitability of agriculture in the urban and peri-urban areas. Concerns arise over competition for resources (land, water, labour, and energy) and incompatible uses (smells, noises, pollution). Though many of the same concerns can and do arise in rural agricultural production, two important differences make the concerns more acute in the urban environment: proximity to greater numbers of people and already-high stresses on the natural resource base. Without appropriate management and monitoring of resources, negative environmental and health effects of UPA can be imposed on society.

27. Horticulture, mainly vegetable production, has expanded in and around cities in many developing countries as an informal activity practised by poor and landless city dwellers. The broad diversity of horticultural crop species allows year-round production, employment and income. Growers have realized that intensive horticulture can be practised on small plots, making efficient use of limited water and land resources. Horticultural species, as opposed to other food crops, have a considerable yield potential and can provide up to 50 kg of fresh produce per m² per year depending upon the technology applied. In addition, due to their short cycle they provide a quick response to emergency needs for food (several species can be harvested 60 to 90 days after planting.) Leafy vegetables provide a quick return to meet a family's daily cash requirements for purchasing food. Leafy vegetables are particularly perishable and post-harvest losses can be reduced significantly when production is located close to consumers.

28. Urban producers also achieve real efficiencies by making productive use of under-utilized resources, such as vacant land, treated wastewater and recycled waste, and unemployed labour. Productivity can be as much as 15 times the output per acre of rural agriculture; however, yields often suffer from inferior or insufficient inputs, use of poorly adapted varieties, poor water management, and lack of farming knowledge.

29. Urban farming links farm cultivation with small-scale enterprises, such as street food stands, fresh milk outlets, and maize roasters. Some urban and peri-urban farmers are moving towards intensive production of high value-added produce, rather than basic food stuffs; such activities can become major sources of income for more sophisticated members of the population who have investment capacity.

30. The level of post-harvest processing in urban and peri-urban agriculture depends on the product. For peri-urban horticulture it is generally minimal and the product is delivered straightaway to the consumer on a week to week basis. One reason for the growth of peri-urban horticultural production is less need for storage, refrigeration, and transportation infrastructure, compared to food coming from rural areas. There is extensive processing for peri-urban livestock and its products.

31. Urban farmers engaged in production for themselves and their neighbours often use low-input processing and storage techniques. Estimates of the households engaged in urban farming which also preserve and store some of their production range up to 90 percent. However, for market - including street food - sales, there are limits to the quantities that can be produced and delivered without infrastructure for transportation, distribution, and marketing. Some micro-credit support for storage and refrigeration could greatly change the income potential of urban farmers, and improve the safety of food sold by street vendors who rely heavily on urban and peri-urban food production.

(iii) The Sustainability of the Urban Environment for Society

32. Doubts have been raised about the contribution of UPA to a city's environmental sustainability - in the sense of the quantity and quality of urban natural resources being maintained. Indeed, basic resources (water, soil) needed for agricultural production are in competition with other priority urban needs (drinking and industrial water use, infrastructure construction, etc.) There is real risk involved in food production in and near cities, just as there is also the possibility of improving the urban environment if food production and forestry are managed appropriately. The long-term viability of UPA itself depends on how successful farmers and urban officials are at exploiting the potential environmental benefits, minimizing the problems, and finding ways to secure growers access to land. A comprehensive assessment of the impacts is urgently needed before policies and guidelines are implemented.

33. Optimal management of urban and peri-urban resources requires land use planning which views agriculture as an integral component of the urban natural resources system and balances the competitive and synergistic interactions among the users of the natural resources (water, land, air, wastes). Benefits of appropriate management include improved hydrological functioning through soil and water conservation, micro-climate improvements, avoided costs of disposal of the recycled urban wastes (wastewater and solid waste), improved biodiversity, and greater recreational and aesthetic values of green space.

34. The risks from agricultural production systems in urban and peri-urban areas to health and environment arise from the inappropriate or excessive use of agricultural inputs (pesticides, nitrogen, phosphorus, raw organic matter containing undesirable residues such as heavy metals) which may leach or runoff into drinking water sources; microbial contamination of soil and water, including by pathogens; air pollution (e.g. carbon dioxide and methane from organic matter, ammonia, nitrous oxide and nitrogen oxide from nitrates); and odour nuisance. In particular, produce (especially leafy vegetables) can be contaminated through overuse of chemical sprays. Further, zoonotic diseases and veterinary public health issues can arise from intensive livestock production methods without proper space and equipment.

35. None of these problems are specific to urban and peri-urban production as they also result from inappropriate management in rural areas. Furthermore, while urban agriculture consists of small production units that may not present problems individually, and thus are not subject to controls or environmental restrictions, they can create substantial problems through cumulative effects.

36. Access to adequate supplies of land and water is critical to the successful integration of urban and peri-urban agriculture with urban environments. The potential for achieving such integration is simultaneously proclaimed and doubted by many. The issues involved in both challenges are discussed in some detail below.

37. The most viable source of water for urban and peri-urban agriculture is recycled treated wastewater. The guidelines developed by the World Health Organization (WHO) describe the levels of treatment needed for agricultural uses. FAO has been involved in promoting the safe use of recycled urban wastewater for horticultural crops, i.e. floriculture and fruit crops. FAO has also been involved in projects in cities in arid and semi-arid zones which use waste water

to irrigate forest plantations for purposes of combatting desertification and providing fuelwood supply.

38. FAO (1992) estimated that typical wastewater effluent from domestic sources, when appropriately treated for agricultural reuse, could supply all of the nitrogen and much of the phosphorus and potassium that are normally required for agricultural crop production. Duckweed, a floating macrophyte used to clean wastewater, can be transformed into chicken and fish feed of high quality (International Bank for Reconstruction and Development, IBRD). Sometimes unprocessed liquid waste (e.g. pig slurry, flush waters) or semi-processed waste is used for fertilization. Raw chicken and cattle manure is often used to enhance soil fertility and structure. These practices imply some health risk, but when properly managed, the risk can be minimized and the wastes used as a valuable nutrient.

39. The major danger in utilizing waste waters is food contamination by pathogenic micro-organisms and outbreaks of water-borne diseases. High health risks associated with the use of untreated or improperly treated sewage water in irrigation is infection from helminths (worms) such as *Ascaris* (nematode) and *Ancylostoma* (hookworm.) Medium to low risk is associated with enteric bacteria and viruses. In general, the evidence suggests that negative health effects are a problem only when raw or poorly treated wastewater is used for irrigation.

40. Another case of water quality risks arises with the intensive aquaculture that occurs in peri-urban areas. Intensification implies heavier use of water for recirculation, commercial feed, and drugs (antibiotics, bacteriostatics). Excess nutrients and organic matter enhance the proliferation of micro-organisms that lead to eutrophication by depleting dissolved oxygen in the water systems.

41. Some of these problems can be dealt with through small-scale irrigation using proper water quality management and monitoring and a crop selection programme. Although small-scale irrigation is the preferred choice, attention ought to be given to the cumulative effects of small but badly managed systems. FAO has published technical documents on the subject.

42. Another major challenge to the viability of UPA is land availability. UPA is influenced by rapidly changing land rights, uses, and values. High population densities give rise to competition and conflicts over land and natural resources through conversion of land from agricultural to residential and business uses, and agricultural intensification on the scarce spaces available for cultivation.

43. Steady access to land at affordable prices is almost unknown to urban, and even some peri-urban farmers. Looming over many urban farmers, both men and women, is the constant threat of losing access to their plot and being forced to stop production activities. In many areas non-farming households' inability to access land in the city is the major reason given for not farming. Farming is done in city core areas, wedge areas, the corridors out of the city, and on the periphery. One study of urban agriculture in Nairobi showed the land used for farming was 32 percent private residential land, 29 percent roadside land, 16 percent along river banks, and 16 percent in other publicly-owned areas. Each area encourages its own farming methods.

44. One of the paradoxes of UPA is that substantial agricultural investments appear to occur on very insecure holdings. One explanation may be that it is generally women and socially or economically vulnerable groups who are the most dynamic actors in UA, and since these

groups control few resources they risk little by cultivating on lands held under ambiguous or insecure tenure. Good markets for agricultural produce guarantee high short-term returns and make the risks of agricultural investment worthwhile, even on insecure lands, held by squatter, short term leasehold and other tenuous arrangements.

45. Land tenure is made more difficult because credit is almost universally unavailable to urban farmers, even where credit is granted to poor urban business-owners. Conditions appear to be different for peri-urban farmers, who are more often commercially-oriented, established enterprises with collateral for obtaining credit for capital investments.

VI. HOW TO ADDRESS URBAN AND PERI-URBAN AGRICULTURE ISSUES IN MEMBER COUNTRIES

46. The visible growth in urban and peri-urban agriculture throughout the world casts a spotlight upon some existing issues in agriculture and food security and raises new ones. The immediate needs are observable and have long been commented upon even as conditions intensify. These include a need for effective ways to deal with urban food insecurity, for basic infrastructure in urban areas to protect public health and the environment, and for integrated resource management and land use planning. These issues all arise in the context of UPA. However, new perspectives stimulated by the growth of UPA present opportunities to address these issues in innovative ways. The first steps are to recognize and understand the dynamic urban landscape and its changes, to gather necessary data and perform research, and to define the levels of authority to appropriately make decisions.

(i) Recognize Rapidly Changing Urban Conditions

47. Urban and peri-urban agriculture present complex interactions of social, economic, and environmental phenomena in locations that are undergoing extremely fast change, often with inadequate financial means to respond. Officially the choice of whether to allocate urban and peri-urban lands to agriculture, parks, or other uses is fundamentally a policy decision dependent upon priorities and political interests. Unofficially it also depends on where the city's immigrants and poor residents choose to settle. The future habitability, competitiveness, and viability of the cities in developing nations will depend on whether decision makers and urban planners develop and adhere to coherent policies for managing their urban and peri-urban areas.

48. Distinct policies and planning efforts are needed for the management of agriculture, horticulture, forestry and fisheries in the urban and peri-urban environments. As one example, urban planners must choose whether to restrict urban sprawl, force the city to grow upwards, and depend upon a surrounding green belt for agricultural produce - or to allow the urban area to expand outwards, preserving peri-urban agricultural zones within its margins. Such a choice offers differing social (food security, gender, food safety) and environmental (hydrology, amenity, soil erosion) results. Moreover, such a choice involves different economic costs, particularly since the high servicing costs of roads, water, and transport infrastructure required for agricultural production are not always taken into account by urban planners. There are few models and little information available to city managers to address these competing demands, and to develop alternative visions of the future.

(ii) Improve Data and Research

49. Urban and peri-urban agriculture are growing phenomena in most cities and a great deal of activity goes undocumented and unmonitored. The current knowledge base about UPA is growing but fundamental gaps include: how to define UPA; what are the linkages and complementarities between rural, peri-urban and urban production; how affordable is it compared to alternative food sources; and the full range of impacts, including economic, social, and environmental. A comprehensive and sustained effort at data collection is needed to fully comprehend the possibilities posed by UPA.

50. While good qualitative and case study data exist and contribute to understanding UPA, a more comprehensive set of basic data is needed. The priority needs include:

- numbers, location and characteristics of farms
- volume and type of food produced
- costs and prices of food produced and sold, both in formal and informal markets
- income earned from farming
- inputs used and methods used in urban and peri-urban farming
- environmental impact analysis
- veterinary public health effects
- use of urban wastewater and solid waste
- water needs and availability among all competing uses.

51. Once those data are available, specific research and analysis would explore:

- a model of agro-economic urban planning
- the quantitative need for organic wastes and the potential to supply it
- environmentally-friendly technologies for commercial production
- small-plot agronomic requirements
- intensified sustainable cropping systems
- harvesting technology and food processing methods for different income levels
- land use changes due to future demographic shifts
- valuation of non-market (e.g. recreational, aesthetic, and environmental) effects.

(iii) Coordinate Multiple Levels of Responsibility

52. Institutional gaps can exacerbate problems and neglect opportunities from UPA. In most places, UPA falls under the jurisdiction of several different levels and types of authorities. For instance, officials at municipal, provincial and national levels may deal with different issues, including agriculture, public works, forestry, urban planning, transportation, environment, justice, and the interior. Coordination and information-sharing is needed for a comprehensive policy approach.

VII. FAO'S CONTRIBUTION TO URBAN AND PERI-URBAN AGRICULTURE IN MEMBER COUNTRIES

While the interest, potential, and risks of UPA are clearly perceived, it is surprising to note that, in most cases, policy and strategy development -- as well as technical guidance -- are still embryonic.

53. The need for an interdisciplinary and multi-sectoral approach to understanding and responding to UPA is apparent. Strategic ways of dealing with the competition for water and land, as well as other environmental issues, must be developed. An objective centre of knowledge equipped with the technical capabilities to evaluate the appropriate place of UPA in agricultural and urban food systems, and to integrate that technical knowledge with sociological and economic expertise, as well as practical experience, would be an innovative and timely initiative. Some components of such a forum are available in various institutions and FAO would be a natural home for coordination of these efforts because of existing relationships with relevant institutions and the multi-dimensional nature of its work.

54. In coordination with partners from the international agency community, NGOs and academic institutions, FAO could develop increased networking opportunities, in-country activities, and inter-organizational joint efforts to gather and disseminate information and technical assistance. Partners from the international community include the UN agencies previously mentioned, the World Bank and Habitat. Among the potential NGO partners active in UPA are those providing grassroots technical assistance in food, health care and nutrition, agricultural production methods, and services, and employment programs. Academic institutions and researchers in both developed and developing countries are actively involved.

55. FAO could develop an interdepartmental strategy to operate a “virtual knowledge programme,” drawing expertise on an as-needs basis from technical divisions. It would comprise a critical mass of multi-disciplinary expertise that would have the capacity for objective, in-depth, technically-sound, and long-term analysis of UPA. An awareness of the appropriate scope and scale of policy response to UPA can be created and integrated into existing programmes and institutions.

56. Specific goals and actions that would arise out of such a programme fall into three categories:

- incorporation of UPA into existing FAO programmes
- support for activities in member countries
- coordination and cooperation with partners.

(i) Incorporation of UPA into existing FAO Programmes

57. FAO can incorporate urban and peri-urban agriculture more fully and holistically into its programmes by:

- **testing methodologies for UPA** through new and existing programmes including crop intensification and diversification opportunities
- **providing specialized guidance** on food safety to urban and peri-urban farmers, food handlers and food processors
- **offering technical back-stopping** for existing and on-going local project development in urban and peri-urban agriculture.
- **identifying appropriate policy interventions** for maximizing contributions of food supplies for at-risk groups and poor households.

(ii) Support for Activities for Member Countries

58. FAO can support activities in member countries directed at sustainably managing urban and peri-urban resources by:

- **proposing and developing training** and demonstration programmes to improve quality and safety of horticultural production systems and promote marketing of “labelled” produce
- assisting member countries to **establish the appropriate policy** framework to facilitate the accrual of benefits from rural-urban linkages in national and local rural development strategies
- **assisting member countries’ efforts to collect data** about urban and peri-urban agriculture using uniform definitions, including availability and accuracy of data on gender dimensions of urban and peri-urban agriculture
- **working with countries** to develop integrated land use plans in and near cities using FAO’s own experience in participatory methods and land management, including watershed management.

(iii) Coordination and Cooperation with Partners

59. FAO can coordinate and cooperate with private, civil society groups, and other public entities to facilitate information exchange by:

- **participating** more actively in the *Global Initiative on Urban Agriculture*, and enhancing the urban forestry component of that initiative
- **working with NGOs** to strengthen the skills and capacity of urban women farmers, in particular to increase their income potential
- **providing training** for government decision-makers and municipal authorities regarding extension and education to increase awareness of UPA
- **serving as a forum** for discussion and experience-sharing among member countries and promoting inter-country cooperation through networking.

VIII. PROPOSAL FOR COAG’S CONSIDERATION

60. In the light of the four questions posed at the beginning of this paper which articulate the relationship between UPA and FAO’s mandate, the Organization seeks COAG’s direction on the following initiative:

- Should FAO establish a proactive and comprehensive programme on the subject of UPA in full partnership with relevant institutions at international and national levels, particularly those with responsibilities for urban development, by developing an interdisciplinary and inter-departmental programme in urban and peri-urban agriculture?
- This programme would develop a knowledge base around the subject, serve as a forum for debate and information dissemination, and provide guidance and assistance for member countries responding to the challenges of urbanization and feeding their populations.
- The expertise necessary for such a programme already exists within FAO but the work is being undertaken under different auspices in an uncoordinated fashion. By focusing the efforts of the multi-disciplinary specialists involved, and creating opportunities for collaboration, FAO would maximize the benefits of its existing resources to respond to on-going demographic and social shifts, without the need to add resources. Great synergy with existing programmes would be captured, as many of the issues raised by urban and

peri-urban agriculture are common to those of rural agriculture, but the difference in setting raises original questions that need to be addressed.