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LAND USE POLICIES AND EXTENSION APPROACHES FOR DEVELOPING URBAN HORTICULTURE IN NOVI SAD

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Abstract

More than 50% of the Serbian population lives in urban areas that can provide multifunctional services and goods. Urban agriculture is about producing, processing and marketing food in cities and can help achieving urban ecosystems sustainability, improving urban residents' living conditions and diversifying their income-generating activities. This review paper presents the state-of-the-art on urban agriculture in particular benefits; constraints and risks; production sites, systems, techniques and strategies; and some socio-economic and gender aspects. Extension services should develop new advisory and communication approaches to meet urban producers' specific needs. Conducive land use and allocation policies, that can be designed and implemented to promote urban agriculture in Novi Sad, have been discussed.

Key words: *Urban agriculture; Land use; Extension; Novi Sad; Serbia*

Introduction

More than 50% of the world's population lives in cities (Martine, 2007). Many demographers warn that cities will be unable to accommodate large populations. To feed a 10 million inhabitant-city at least 6000 tones of food must be imported daily (Drescher *et al.*, 2000). With the world's cities growing rapidly, farming in urban and peri-urban areas is going to play a bigger role (FAO, 2005). FAO has defined urban agriculture (UA) as: “*An industry that produces, processes and markets food and fuel, largely in response to the daily demand of consumers within a town, city, or metropolis, on land and water dispersed throughout the*

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urban and peri-urban area, applying intensive production methods, using and reusing natural resources and urban wastes to yield a diversity of crops and livestock.” (in Smit *et al.*, 1996). Urban and peri-urban agriculture (UPA) already supplies food to about one-quarter of the world's urban population (FAO, 2005) and has become vital to the wellbeing of millions of people. About 15% of food consumed in cities is grown by urban producers and this percentage will double within 20 years. Some 800 million people are estimated to be involved in UA worldwide (UNEP, 2002).

The share of the urban population in Serbia increased for about two and half times, from 22.5% in 1953 to 56.4% in 2002. Over the past two decades, Serbian population increased only in cities (Maksin-Mičić, 2008). Serbian urban areas can become multifunctional thus insuring residential function, provision of services and production of goods. Novi Sad (NS) is the capital of Vojvodina province and Serbia's second largest city. The urban population is 286,157 (129.7 km²) out of a municipal population of 372,999 (702 km²). Some separate towns in the past are now parts of the urban area of NS. Liman and Novo Naselje are neighbourhoods. Neighbourhoods with new housing, as Telep, Klisa, Adice, Veternik, are located away from the city centre. Novi Sad's municipal area includes, apart from NS proper, 12 other settlements. 23.7% of city's population live in suburbs such as Futog and Veternik (Wikipedia, 2010a). UA can help achieving the sustainability of urban ecosystems, improving living conditions and diversifying urban residents' income-generating activities thus representing a very important opportunity in the context of the crisis, that increased significantly urban unemployment. In fact, due to the crisis about 7,000 jobs were lost in Serbia in 2008. According to the National Employment Service, the unemployment rate amounted to 26.54% in August 2009. According to Office of Statistics, in 2008 and 2009 prices increase was around 50%. Serbian households' purchasing power was negatively impacted. High unemployment and food prices are likely to promote UA development in NS.

This work presents the state-of-the-art on UA in particular opportunities and benefits; constraints, challenges and risks; production sites and systems; and small-scale growing methods and techniques. Some socio-economic and gender aspects of UA have been presented as well. Urban producers have specific needs which represent a challenge for extension services that have a new role to play and should develop new advisory approaches and communication methods. UA can not be developed without conducive land use and allocation policies. Therefore, policies that can be designed and implemented to develop UA in NS have been presented and discussed.

Material and methods

The lack of adequate, reliable and updated secondary data on UA in Serbia in general and NS in particular has been the main constraint faced during the preparation of this paper. In fact, it has been so difficult to get data about small agricultural producers and areas that are/can be dedicated to agricultural activities in NS from extension service and official offices. It was hard as well to get information from the public services data systems and websites. Even urban people; especially some women and elders who are producing vegetables and flowers on backyard gardens, balconies, etc; do not consider themselves as urban agricultural producers and consider these activities only as a pastime, hobby, etc.

Usually, their knowledge is based on tradition and they state that they have not been contacted by extension agents and other civil servants dealing with agriculture. For all these reasons, the paper is based mainly on the international specialised literature while the initial idea was to carry out some semi-structured interviews with urban agricultural producers, extension agents and decision makers. Moreover, international literature dealing with UA focus mainly on developing countries. Initiatives developed in some cities of developed and in transition countries can be hardly useful in the case of NS.

Results and discussion

The scope of UPA can vary due to economic conditions, cultural aspects, infrastructure, availability of inputs (soil, water), climate, etc. (FAO, 2001). Often, multiple farming and gardening systems exist in and near a single city but the main components of UPA are crop production, animal husbandry, forestry, and aquaculture (Boland, 2005; FAO, 2001). Urban horticultural activities regard micro-gardens for production of mushroom, ornamentals, condiments and aromatics; highly intensive cultivation systems; and small-scale nurseries (FAO, 2001). UPA also includes non-food products and minimal processing (Boland, 2005). UA can be found in home, community and school gardens, on vacant plots, on balconies, on roof tops, on open spaces, on road strips, along railways, in fishponds, in rivers and their banks, in backyards, on walls, etc. (FAO, 2001). The most common small-scale growing techniques used in UA are: container culture; in pots or other containers or tires; in sacks; in shallow beds and in a compost pit, or variants such as compost trench or bed and dung pit (Boland, 2005). Crops may be grown for own food supply or for the market. Urban producers can also deal with trade, marketing or selling (Boland, 2005). The transformation of cities from only food consumers to generators of agricultural products contributes to poverty alleviation, food safety, sustainability, local development, health improvement, generation of jobs and income, self-esteem, and environmental improvement (Wikipedia, 2010b). Urban horticultural production can be a means to increase employment and satisfy food demand in cities (FAO, 2001). The main benefits of UA on urban households and communities includes also recreation; economic diversity and stability; reduction of solid waste disposal costs; dietary diversity; community cohesion and well-being; and gender equity (Koc *et al.*, 1999).

Women play an important role in household food supply and their income has a greater positive impact on children's health and nutritional status (FAO, 2001). UA can be an opportunity for urban women to provide their households with food that is not dependent on prices, cash incomes or fluctuating markets and can be an important income source for them. That's why women perceive very often urban agricultural activities as a way to achieve self-reliance and empowerment (Boland, 2005).

UA development requires water-conserving farming systems; adequate agricultural extension services; strong linkages between production, processing and marketing; greater decentralization of agricultural policy, etc. (FAO, 2001). Basic constraints of UA are excessive use of agricultural inputs, land tenure and low income of UA producers. UPA, especially animal husbandry, can cause many health and environmental risks (FAO, 2001).

The use of waste water without treatment can spread diseases and cultivation on biologically or chemically polluted land can represent a health hazard to workers, producers, handlers and consumers (Boland, 2005). UA can produce noise, dust, odours, and a perception of untidiness (HBPG *et al.*, 2002; Koc *et al.*, 1999). These negative outputs can lead to conflicts and undermine urban community cohesion and harmony thus should be kept under check. Most of these problems can be prevented and/or addressed by adequate support of producers by extension services to adopt Good Agricultural Practices (GAPs) (FAO, 2001). Availability of and access to land and water are fundamental for UA (FAO, 2001). However, space is expensive and, often, fragmented in cities and agriculture is less competitive than other sectors (HBPG *et al.*, 2002). It is necessary to increase access to land by eliminating all legal and economic restrictions. This can be a challenge for urban planners and requires the definition and implementation of sustainable urban development plans. Low income urban and peri-urban households can have difficult access to credit and should be assisted by adequate savings facilities and complementary credits (FAO, 2001).

UPA is hardly ever recognized as being an important subject by extension agents. Extension services for UA; that are extremely limited to not existent; can help urban producers; through training, education, communication and community organization; to select appropriate crops, to achieve integrated pest management, to use efficient production and water management technologies, to add value to their production through processing, to schedule production, to improve harvesting techniques while ensuring food safety, etc. They can also coordinate inputs purchase, transportation, storage, credit and marketing. For that extension staff need a sound necessary background theory and multifaceted practical skills (FAO, 2001). In Serbia, public agricultural extension is mainly addressed to commercial family farms and lesser attention is paid to small producers such as urban ones. Extension work includes mostly visits to farms, but other types of communication and extension methods are needed to deal with urban producers. Usually, small producers, must go by themselves to ask for an advice. In general, extension agents can not provide urban producers with all the specific information they need. Moreover, extension agents prefer, generally, to work with farmers with whom the cooperation is easier, who are more interested in extension support and who have more financial means to put into practice their production and management advice. Furthermore, extension services in Serbia in general and Vojvodina in particular face many problems in dealing with producers as well as finance, management, technical support problems, overload with non-extension activities, low number of extension agents, etc. (Petrović *et al.*, 2009). Lack of adequate administrative data system about producers is another salient problem. It goes without saying that these problems should be addressed in order to allow advisors to provide effective and timely advice to urban producers.

The future of UPA in NS, as in any other city, depends on policies for managing urban areas and coordination and information sharing among authorities dealing with agriculture, forestry, parks and gardens, public works, transportation, urban planning, etc. Municipalities, such as NS, should formulate and implement urban development policies that take into account the need to dedicate areas for UA. It is necessary to design urban development plans that impose specific norms for land use (FAO, 2001). The main requirements for planning and implementation

of UA are awareness raising, creation of a municipal institutional framework, and identification of stakeholders, main constraints to agriculture and greening; current and potential sites for UPA, and potential cultivation practices (FAO, 2001). In order to integrate UA in NS municipal area it is necessary to provide a clear policy and new regulations encouraging UA; to provide incentives to public and private developers to encourage them to include UA in the new residential and commercial projects; to use public buildings and land for small demonstration projects; to develop trainings for extension staff, urban planners and producers; to establish partnership with NGOs to develop a culture celebrating local food, etc. Moreover, UA should be regulated by municipality and included in urban development plans dealing with political, legal and regulatory issues (Cabannes and Dubbeling, 2003). Defining a well tuned land use policy means to examine the existing situation, to establish a municipal committee for UA, and to initiate a process of public consultation involving all relevant public, civil society and private stakeholders in round-tables or mixed committees, that can also monitor the implementation of the policy and resolve conflicts. The policy should encompass regulatory and legal frameworks, and planning and management tools to pave the way to the development of UA in NS. UA should be included in municipal and sub-municipal urban development and land use plans. Land use plans should clearly delineate spaces that could potentially be used for UA and allow an easy and secure access to land suitable for UA by issuing transfer of land titles for temporary use; allowing private, group, and cooperative land ownership; defining land taxation and tax exemptions; etc. Apart from land ownership there is a wide range of arrangements that can be applied for insuring an easy access to land by urban producers such as economic and usufruct rent or lease, licensed and unsanctioned farming, and informal agreements (Boland, 2005). Planning and management tools will allow the legal and regulatory frameworks to be implemented effectively and efficiently. It is important to have registration of urban agricultural land. Geographic Information System (GIS) use can allow improving land use monitoring and evaluation. It is also important to have municipal UA land price registries as they are useful for monitoring fluctuation of urban land prices and the rate of return on agricultural plots (Cabannes and Dubbeling, 2003).

Conclusions

Urban agricultural activities development can bring about many benefits to the residents of NS. However, public institutions should tackle effectively the new challenges and problems that will arise in order to minimize health and environmental risks and hazards. Extension agents should be able to advise urban producers on the use of appropriate small-scale and intensive production methods and techniques and GAPs and also on how they can reduce the negative impacts of their activities on their urban neighbours and the urban ecosystem mosaic as a whole. Women are often highly motivated to deal with UA so that they should be considered as key stakeholders and involved in consultations and roundtables, organized by public institutions, and capacity building activities and trainings, organized by extension services and civil society organizations, among others. UA can not be developed without conducive and enabling land use policies and regulations and frameworks facilitating access to and securing use of urban spaces for agricultural purposes and promoting agricultural production in urban and peri-urban areas. These policies should be developed in a participatory and inclusive way involving all

actors in the municipal area of NS. Planning, management, monitoring and evaluation tools are also necessary to make sure that plans for UA development are implemented properly.

Literature

1. Boland, J. (2005). Urban agriculture: Growing vegetables in cities. Agrodok 24, Agromisa Foundation, Wageningen, 82 p.
2. Cabannes, Y. & Dubbeling, M. (2003). Guidelines for municipal policymaking on urban agriculture. Urban agriculture: Land management and physical planning. No 3, First Edition – March 2003. IDRC; PGU-ALC/UN-HABITAT and IPES.
3. Drescher *et al.* (2000). Urban food security: Urban agriculture, a response to crisis? Urban Agriculture Magazine (2000): 1/1.
4. FAO (2001). Urban and peri-urban agriculture: A briefing guide for the successful implementation of urban and peri-urban agriculture in developing countries and countries of transition. Special Programme for Food Security (SPFS)/DOC/27.8, Handbook Series, Volume III, Rome, 84 p.
5. FAO (2005). Farming in urban areas can boost food security. Green the cities through agriculture - World Environment Day. <<http://www.fao.org/newsroom/en/news/2005/102877/index.html>>, (July 15, 2010).
6. HBPG *et al.* (2002). Urban agriculture strategy. Prepared for Vancouver City by Holland Barrs Planning Group (HBPG) and Lees + Associates Sustainability Vent. Group. Southeast False Creek Urban Agriculture Study.
7. Koc, M., *et al.* (1999). For hunger-proof cities - Sustainable urban food systems. International Development Research Centre (IDRC), Canada. ISBN: 0-88936-882-1.
8. Maksin-Mičić, M. (2008). Urban sprawl in serbia. 44th ISOCARP Congress - “Urban growth without sprawl - A way towards sustainable urbanization”, 19-23 September 2008, Dalian (China).
9. Martine, G. (2007). State of world population 2007. United Nations Population Fund (UNPF), New York, 99 pp.
10. Petrović Ž., Janković D. & Čikić J. (2009). Problems in the extension work and farmers' needs in Serbia. 113th EAAE Seminar “The role of knowledge, innovation and human capital in multifunctional agriculture and territorial rural development”, Belgrade, December 9-11, 2009.
11. Smit, J., Ratta, A. & Nasr, J. (1996). Urban agriculture: Food, jobs, and sustainable cities. United Nations Development Programme (UNDP), NY.
12. UNEP (2002). GEO-3: Global environment outlook - State of the environment and policy retrospective: 1972–2002 - Chapter 2: Urban areas.
13. Wikipedia (2010a). Novi Sad. <http://en.wikipedia.org/wiki/Novi_Sad>, (July 25, 2010).
14. Wikipedia (2010b). Urban agriculture. <http://en.wikipedia.org/wiki/Urban_agriculture>, (July 15, 2010).