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New forms of agriculture in the sprawl as vector of “productive landscape”

Fulvio Adobati, Maria Felicia Della Valle

Abstract – The main focus of the paper is the analysis of the opportunities for new functions that sprawl may serve linked to agricultural network and food system. Urban agriculture in peri-urban zones is considered as one of the strategies to contribute to more resilient urban food system. The policy scientific debates consider its potential co-benefits and contribution to community organisation, city greening, waste management, food chain and food self sufficiency. In this territorial zones a different form of spatial quality reigns and different rules are applicable. Moreover, this middle condition entails many side effects. For example, the mixture between city, countryside and nature provides a different view of the relationship between people and settlement (landscape diversity). An interesting challenge is defining rules about private back-yard, public green, capable to integrate the planning of urban agriculture as productive landscape of the sprawl.

Keywords – productive landscape, urban sprawl and self sufficiency, participative planning process

INTRODUCTION

The “urban sprawl” or “horizontal city” occupies a considerable part of the urban areas in many parts of the world. By the way, debates on the urban question continue to proliferate and intensify within the social sciences, the planning and design disciplines (Brenner N., Schmid C., 2015). Its contribution to the growth special related to and activation of the surrounding rural areas could be implemented. The condition of the urban sprawl, on one hand, can be characterized by fragmented space, invested by rapid changes and open boundaries; on other hand can be recognized as a context in which multiplicity and diversity are prominent.

The phenomenon of sprawl is one of the main drive of change in future scenario linked to a growing population and its food self-sufficiency in peri-urban zones. If we consider the sprawl as a distinctive element characteristic feature of the contemporary city, one of its most peculiar (Secchi, 2015), it should be primarily understood as a process of expansion of the urban way of life in agricultural areas, but not only as physical growth of cities (Lanzani, 2011). The positive effects of urban and peri-urban agriculture and its basic perspectives linked to food production can generally be observed and reflected primarily through the facts that this specific kind of agriculture provides safety and quality food, increases incomes and preserves natural resources and environment. Due to its significant economic, environmental and social impacts, the issue of periurban zones, the peri-urban agriculture development (as an activity that implies a number of interaction in these areas) and landscape planning are the subject of discussions in many European forums and documents. In order to preserve the peri-urban agricultural zones from the city’s constant need for land (for urban growth, industrial and territorial development and infrastructure), some guidelines should be followed: a) applying the instruments for land use and land tenure in peri-urban zones (which will be a result of the instruments of regional and urban planning in the European Union, at national and regional levels); b) reinforcing the principle of subsidiarity (the responsibility of local authorities) at the municipal level planning; c) introducing an obligatory study on the agricultural impact, which will consider all the planned land use changes in periurban zones (EESC, 2004). In recent years, multifunctional agriculture, multifunctional landscape and multifunctional land use have been a common subject of scientific research and programmes (PURPLE 2012, SUBURBFOOD 2013). In most cases, researchers were focusing on developing strategies concerning the preservation of multifunctional urban agriculture and diversification activities on multifunctional farms, but less on the impacts of multifunctional use of agricultural land (Živanović Miljković, 2012).

If new forms of farming are emerging and the systems left behind after the modernisation of agriculture are re-emerging, the agricultural development in peri-urban areas remains largely unknown. There are several peri-urban dynamics that are expressed at different organisational levels. The differentiation of peri-urban areas is an intrinsic quality that zoning statistics or sectorial developmental models do not fully explain. One of this lack is related to the food self-sufficiency potential of growing areas and mapping the food system at city and regional level.

The project presented here aimed to evaluate the productive potentiality of backyard gardens in the area of Great Bergamo and their connections with food system. The aim is to build a sustainable agro landscape evolution scenario in a peri-urban area using an integrated framework designed to combine social demands for multifunctionality in agriculture and define efficient as a function of market and nonmarket net benefits at the landscape level.

STUDY CASE AND METHODOLOGY

Bergamo, in Milan urban region, represents a relevant example for green infrastructure, linkage between urban and periurban area. On the other hand low density areas have similar characteristics to Milan urban region.

Significant and growing are the initiatives of urban horticulture, especially related to the schools as school gardens program "horticulture and gardens for schools that grow: grow projects and sow knowledge" which
has received recognition for Expo 2015. With a view to developing a system of food the educational project “I think local, I eat global” active from 2011 connects the canteens-drainer tics associated with local producers Association in farmers Coldiretti. It also keeps track of capillary diffusion of fair trade groups, over seventy gathered in a provincial network. Despite the growing of multifunctional agriculture, there remain some critical factors: agricultural land can be used are limited, land consumption above average, fragmentation and lack of coloration in agriculture, lack of coordination rolement of local institutions.

The methodological framework consists of four main steps. In step one, we have identified low density fields such as codified in database land use DUSAF4-2012 (Lombardy Region). In step two we have calculated the media incidence of growing green areas through model zones only in dwellings backyard, (excluding other green areas). The result of analysis has given a percentage of growing green available of 42%. In step three we have extended the average to the Great Bergamo area (49 municipalities, 475,559 inhabitants, land area 34,150 ha, low density area 4,650 ha) for what concerne low density zones. Growing areas so calculated amounts to 1,953 hectares. The model-based exploration, involving allocation of the growing horticultural in the landscape, has given a large set of landscape scenario. We have different patterns that generate set of alternative landscapes, with productive and social/leisure activities integrated with existing green open spaces.

CONCLUSIONS

Peri-urban areas are often characterized by overlapping of different land uses as a result of competing interests. In Bergamo they need to be reconnected. The necessity to re-establish the balance between urban areas sometimes have problems to maintain sustainable multifunctional use of agricultural land and alternative food networks as desired by population. On other hand green spaces in peri-urban zones are environments with important recreational and leisure activities and that they thus provide beneficial goods for urban community (so called “ecosystem goods” or “quality of life” factors – biodiversity, air quality, water, health, recreation), represents a green social infrastructure development. Referring to the role of spatial planning interesting the recommendation proposed by the American Planning Association: “(...) land use planners may use growth management strategies to preserve farm and ranch land, or recommend commercial districts where restaurants and grocery stores are located, or suggest policies to encourage community gardens and other ways of growing food in communities. Economic development planners may support the revitalization of main streets with traditional mom-and-pop grocery stores, or devise strategies to attract food processing plants to industrial zones. Transportation planners may create transit routes connecting low-income neighborhoods with supermarkets, and environmental planners may provide guidance to farmers to avoid adverse impacts on lakes and rivers. This policy guide seeks to strengthen connections between traditional planning and the emerging field of community and regional food planning (...) (APA, 2007, p. 2).

In this perspective agriculture and green spaces in peri-urban areas should have the goals which will make the whole zone sustainable; it is necessary to promote the concept of multifunctionality in the planning process of peri-urban zones, as the basic concept which supports the sustainable development of numerous interactions in these zones.

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REFERENCES


EESC-European Economic and Social Committee- (2004), Opinion of the European and Social Committee on Agriculture in Peri-Urban Areas, Brussels, Nat/204.


SUBURBFOOD (2013), Sustainable urban and periurban food provision, http://www.suburbfood.eu/