

Multifunctionality and Sustainability of Urban Agriculture

Growing cities spontaneously tend to engulf unoccupied urban spaces, i.e. all the non-constructed areas whose presence seems unjustified. Cultivated areas are relocated towards the periphery. This is the spatial expression of the economic logic of ground rent which, in the long term, achieves a balance between economic productivity and land value.

Maintaining agriculture in the city in this respect seems unjustified as its capacity to cover local supplies has not evolved. An example is Dakar, where over several decades the urbanisation of the Niayes has mobilised other Niayes for the provision of supplies to the city. However, other spatial processes need to be considered, as soon as other modes for the assessment of the agricultural use of land prevail because of proximity (like cultural and recreational values). In general, these processes concern all urban *open spaces*: natural (ecosystems), economic (agro systems) or urban (public green spaces), each of them having its own logic. Considering these new values of urbanity, there is a need to maintain these spaces in line with their new identity of collective property and thus protect them against urbanisation. This is especially so, since the expansion of the city on the natural or agricultural spaces generally prompts their disorganisation, not only at the system level, but also at the level of farming societies: abandonment of community social structures, substitution of a land entitlement based on cadastral registration and individual appropriation. To keep farming inside or near the urban fabric, a new spatial organisation is required.

André Fleury

ENSP, Versailles, France

✉ a.fleury@versailles.ecole-paysage.fr

Awa Ba

INAPG, Paris, France

✉ awa.ba@laposte.net



Awa Ba

Market flower gardening improves the looks of the Camberene Road

EXTERNALITY, MULTIFUNCTIONALITY, DIVERSIFICATION AND PLURIACTIVITY

Based on C. Laurent (1999) and A. Mollard (2002), *externality* is defined as transformations of the physical or social environment, caused by the farming activity beyond the limits of its productive system, which can be direct (such as water pollution and soil drifting); indirect (environmental shape or contribution to development); or territorial (in line with the concept of public property). The farmer can give these impacts a value by *internalising* them in the exploitation of the farm; it is positive if it brings an added value, or negative when investment or tax payment are necessary (e.g. to compensate for an environmental nuisance).

Multifunctionality, then, represents positive *externalities* as a result of the enrichment of their significance in a certain context. This is first described in terms of space: when decision makers and modern urban planners start to realise the importance of open spaces inside the cities in creating a sustainable urban environment. Multifunctionality also relates to all the activities of the production chain: site and land development, orchards, processing, etc., even the know-how involved.

Multifunctionality takes on a particular meaning related to (urban) agriculture that points to *diversification* and *pluriactivity*, a variety of activities with specific know-how that often make up the farming family's livelihood. Pluriactivity improves the economic returns of production factors, like labour. Yet, it is still subject to a debate insofar as most of the forms developed by urban and periurban farmers come up against already-organised professions (Laurent, 2002).

Urban cultivated space serves the needs of both the agricultural and urban populations, each of them still having their own value system. It becomes common property, raising the issue of sustainability. Innovative urban and periurban producers therefore pay heed to emergent city markets: new agricultural (nursery, pet breeding), recreational, cultural and health activities.

There are two different socio-economic scales to consider here: the farm itself and its relation to the neighbourhood, and the landscape properties of the cultivated space, which has several functions. The term *landscape* can be used in the strict sense to mean spatial organisation, as in *landscape ecology*; in a more emotional way to mean a pleasant

space to visit, like the countryside; or it can even have a more aesthetic and artistic connotation. The value of the landscape is thus socially determined and needs to be discussed among actors. French urban farmers, for instance, have always refused to be seen as *landscape gardeners*, but they welcome the opportunity to engage in a dialogue on their roles in the city with city-dwellers.

ECONOMIC SIGNIFICANCE OF MULTIFUNCTIONALITY

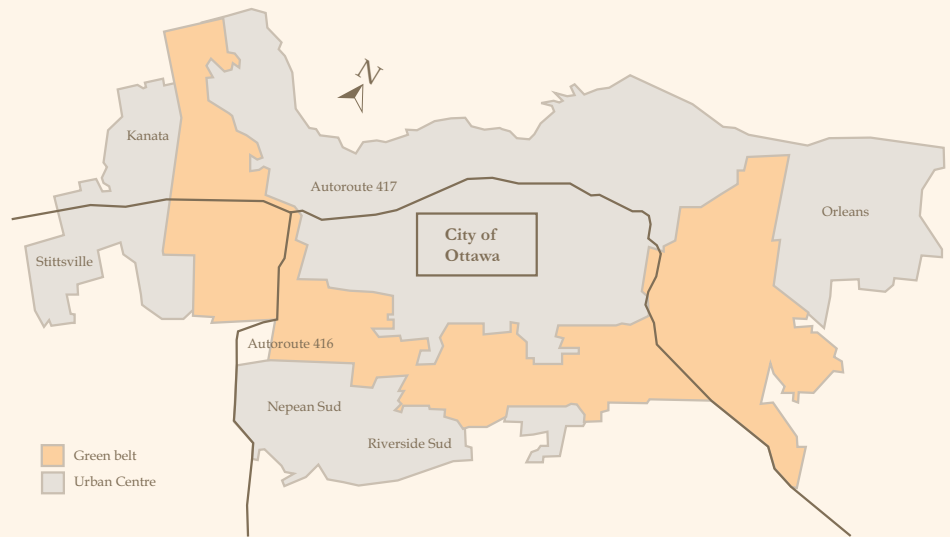
International agreements (Agricultural Accord of Marrakech) have recognised that certain important issues have no commercial character, like the security of supplies at country level or food security. Other values, like landscape, are still sometimes seen as an “excessive” protection of agriculture in the context of globalisation. But European countries are very keen on multifunctionality, because they see it as a way to preserve the countryside and rural landscapes. The perception of multifunctionality has further improved through the recognition that multifunctionality programmes promote rural development in the countries of the South (Akesbi, 2002).

The periurban context is more complex, if analysed from the angle of rural development of cultivated spaces. The multifunctionality of (urban) agriculture is that it produces both agricultural commodities and a useful area for the city. Maintenance of the space’s properties through farming activities then justifies public interventions, like direct financial compensations (the French government reflected a few years ago on an *urban handicap compensating indemnity* meant to help restore the economic equilibrium of farms facing bankruptcy) or special arrangements for urban farming activities like land insurance.

DIVERSIFICATION AND SUSTAINABILITY

It is necessary to distinguish between the sustainability of agricultural space and of the farm itself. The evolution of a system of activities can go from a unifunctional state through a multifunctional state to a new unifunctional state. This was demonstrated in France for instance when vegetable producers focused on wholesale marketing rather than

Source: <http://www.ottawa.ca>



Map of the Ottawa's green belt

production, and horticultural producers specialising in nursery or ornamental plants turned to landscape engineering. The effect of such evolutions is that anchorage to the ground is jeopardized: the enterprise remains economically sustainable, but it is no longer dependant on land.

Some public policies of social transformation in certain South-East Asian countries have been deliberately aimed at changing farmers into city-dwellers (by taking their land) to meet the need for a larger workforce caused by their rapid economic development. Urban agriculture then plays an initial role in helping the family adapt to life in the city, but it is not in essence sustainable (neither economically nor in the minds of the farmers themselves).

These issues should be addressed in the planning and regulation of protected farming areas. Maintenance of green spaces in the new urban fabrics is the lifeline of the new urban regions. This was expressed by a farmer and local elected representative of Dakar who said: “Our cultivated areas represent your breathing spaces”.

THREE CASES

The Programme of Development for the Protection and Urban Development of the Niayes and Green Areas of Dakar (PASDUNE) represents a *green vision* attached to the Urban Master Plan of Dakar for 2025, in which environmental spaces are considered as such (*conservation*) and in relation to urban development. These spaces concern all

the green and aquatic areas, the historical park of Camberene and the area comprising the landscape component of large development projects. In this respect, it represents the Dakar link to PACN (1) aimed at the restraint of urban pressure and the preservation of the living environment (ENDA, 2004).

Despite this *green vision*, agriculture is still seen only in terms of economic activity. Its territory could be protected through zoning, but PDAS (2), which is a tool for the management of PASDUNE, also provides for the development and promotion of alternative local markets (to reduce producers’ dependency on Dakar markets), a better management of water resources (improved irrigated production by avoiding salinisation) and the reinforcement of cattle paths. The multifunctionality of the area is not (yet) being considered. The efforts deployed by PDAS (2004) are centred on the environmental aspect, considered to be the unique space made available for the relaxation of city-dwellers and the improvement of their living conditions.

Ottawa, the federal capital of Canada, presents a remarkable example of a **green belt** that is part of a political project. At first, it represented a “simple” green urbanisation development, where urban growth was channelled to new cities located beyond the green belt, which was legally protected through procurement of all the land (20,000 ha) by the federal government. The project later remarkably shifted emphasis towards multifunctionality of the open spaces, and it is expected from the



Fishing, arboriculture and market gardening begin to be recognized as a valuable landscape by urban dwellers: Great Niaye of Pikine

natural and agricultural systems developed on these spaces that beyond their own production function: they improve the image of the federal capital by highlighting the *main landscape* of Canada; to this end, forests and environmental (mainly aquatic) spaces have been created, with 5,000 ha devoted to agriculture; they accent the fundamental role of agriculture and forest in the history and future of Canada: a museum of agriculture coexists there with the Agronomic Research Institute *Agriculture Canada*; and they constitute green space offered as a place of relaxation for residents. Agriculture is a strictly private activity, but the affirmation of the space's multifunctionality is clear, and under urbanisation it has become a component of the urban territory of the capital city.

Swamps normally do not allow any human activity due to the risk of water-borne parasites. Even with spontaneous urban agricultural development, the city-dwellers in Yaounde, Cameroon, did not appropriate these spaces: swamp agriculture and its actors are shunned by city residents (Laurent Parrot, pers comm.) and in many places the swamps are doomed to disappear like in Antananarivo (Madagascar) (CORUS, 2002). However, their agronomic qualities (abundance of organic materials and water) make them potentially very useful for market gardening after hydraulic development. The marshes (or floating gardens) of Xochimilco, inside Mexico City (Mexico), are good examples; they were developed during the pre-Colombian era into an agricultural area and are still dedicated to ornamental production. With

contemporary urban growth, the marshes on the periphery of Mexico City, were facing the threat of drainage (diversion of their water sources to supply the city) and land fill in the nineties. But, their value has since been recognised, and they have, in the meantime, become an essential element of urban society: navigation back and forth to the commercial flower parcels on their wide channels has become an integral part of family and popular ceremonies. Many leisure sites on land and on the water (restaurants, pubs, etc.) have been set up. Ornamental and market gardening production is essential for their landscape: water is now supplied from wastewater processing stations.

CONCLUSION

Urban agriculture seems to fit into the dynamics of multifunctionality, that is, it preserves urban open spaces through agricultural activities or projects. Producers are generally free to choose their strategies (though they face frequent restrictions related to the nuisance their activities cause for city residents).

As soon as open spaces are appreciated inside cities, agriculture is welcome, especially because it provides green areas in the city without (high) public expenses. A contradiction may arise, if a farmer's strategies favour shifting from farming towards business or if the difficulties of farming inside the city are insurmountable. Public policies are needed to encourage farming. In a lot of countries, both in the North and South, public authorities still do not have a clear conception of such a policy: urban agriculture is still synonymous with archaism, and farmers are often not socially accepted. New governance is needed for agro-urban territories. Appropriate public policies will be able to ensure the means for sustainable agriculture amidst the urban context and will allow the urban population to enjoy rural amenities inside the city.

The three examples, though distant from one another in time and space, are complementary insofar as they show the importance of the multifunctionality of the spaces. The Dakar example masks the agricultural multifunctionality through zoning; but it highlights the need for

public investment: the cost of developing local markets is considered to be a worthwhile intervention in favour of agriculture. The economic benefits of Xochimilco wetlands are positive in terms of the use of purified water, booming agricultural activity and tourism, etc., but the social benefit is also significant as the city residents would not allow the destruction of their marsh, which has become a key component of the society.

Finally, the importance of urban planning needs to be emphasised. It is illusory to think that agriculture would maintain momentum through its economic force alone. A real urban project needs to be accepted by the population: this is the case in Ottawa and Mexico City, where the disappearance of the inter-urban agricultural space would be seen as an unacceptable alteration of the landscape. In Dakar, the PACN project has a participatory approach: its officials are aware that a project cannot be sustainable without the support of its actors.

Notes

- 1) Programme of Support for the Development and Concerted and Sustainable Management of the Niayes
- 2) Master Plan for the Development and Protection of the Niayes and Green Areas of Dakar

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