

The Future of Agriculture within its Competition with Urban Sprawl

Patrizia Tassinari¹, Daniele Torreggiani¹, Stefano Benni¹, Francesca Minarelli¹

¹ Dept. of Agricultural Economics and Engineering, University of Bologna, Italy, patrizia.tassinari@unibo.it

In recent decades, territorial systems and specifically those in European countries, have been significantly transformed, especially as regards the areas that lie outside the compact urban fabric of cities. In these so-called “periurban” settings, the landscape has assumed highly distinctive features typical of both built-up areas and rural ones used primarily for farming.

The study has the general aim of exploring some of the main critical aspects of periurban areas, and specifically those involved by development processes and their interaction with the local agriculture. The specific objective of the paper is to provide elements supporting the interpretation of evolution at the urban fringe.

Methodology

The analyses refer to four territorial case studies, identified within Italy using a multi-level approach that considered increasing scales of detail: regional, provincial, super-municipal and municipal level. With reference to those study areas, the analytical aspects useful for characterising some of the main processes undergone in periurban areas were considered: land use maps, demography, the built-up system geo-database and town planning zoning were used. Evolutionary analyses of the study areas were performed, and density maps of population and buildings were produced in GIS raster environment by means of areal interpolation.

In the interests of brevity, only the analyses regarding the provincial level are herein reported. This level is represented by the Province of Bologna (3703 km²), characterised by significant geomorphologic and landscape diversification (Cavalcoli, 2006), which makes it possible to observe structured dynamics for all the main land-use systems. The analyses involved the comparison between the most recent land-use database (Emilia-Romagna Region, 2006) and a previous one dating back to the Seventies (Emilia-Romagna Region, 1976), in order to investigate the main variations which took place (Tassinari et al., 2007). The databases relating to the two different eras examined were jointly processed, firstly, to define the necessary consolidation of information levels according to suitable criteria to obtain a restricted number of macro-classes of land use common and transverse to both. The reclassification of the geometrical component of both maps according to the macro-classes and the calculation of the total areas for each one, allowed a concise diachronic interpretation of the main evolution in land use.

Results

In general, the processing performed demonstrated that the integrated analysis of land-use/land-cover, town planning schemes, developed land and population density variables contributes to provide both qualitative and quantitative indications, useful for measuring the level of efficiency of development arrangements and the degree of alteration of the landscape matrix. In particular, the results of the provincial level, briefly summarized in figure 1, show a significant expansion of the inhabited centres in terms of compact urban areas, and the formation and intensification of urban fringes starting from the city of Bologna and extending along the main roads; as well as a fusion between urban territories, with the consequent formation of an enlarged metropolitan area. Moreover farming land has been

reduced due to both urban expansion and sprawl and to land abandonment that, in hill and mountain territories (in the south of the via Emilia, see figure 1), have led to a significant increase in wooded and semi-natural areas. More modest re-naturalisation and recovery initiatives involving areas of environmental value (such as wetlands) also took place in the lowland areas, following the assimilation of European Union regulations.

On the whole, the results underline that the transformation of periurban and rural land caused by urban diffusion gives rise to a situation of territorial and environmental precariousness that presents a complex tangle of critical aspects. In periurban and, more generally, megapolitan settings, the infrastructures, residential lot distribution, commercial and industrial areas and logistic centres overlap with the rural landscape matrix to create an amalgamation of extensive conurbation, where the agricultural landscape is highly fragmented. In these slivers of landscape, the albeit partial permanence of agricultural features and sometimes even traditional landscape elements constitutes a strong distinctive character and potential strong point and, at the same time, a challenge for planning.



Figure 1. Land-use change in the Province of Bologna (Italy) in the 1976–2003 period.

Conclusions

Due to the gradual dissolution of the monocentric town model and of the polycentric settlement system, which have characterized the European landscapes until the first half of the past century, and whose characters remain today altered and included in the more recent chaotic developments, the discussion of the issues of suburban areas and therefore the identification of their landscape characteristics call for a necessary evolution of the former concept of periurban area itself. Actually, the pervasive processes connected to urban sprawl cause such concept to be no longer appropriate to the interpretation and representation of current situations. The study has therefore developed a contemporary point of view in the study of periurban landscapes, by suggesting their role as an interpretative key for what concerns the urban sprawl processes and related dynamics of agrarian mosaics.

The study thus shed light on the extent of land consumption for development purposes both as part of the current scenario and in terms of an increase compared to recent decades. These phenomena shed light on the common need to adopt suitable sector policies aimed at rationalising land use and restricting the consumption of new resources. In actual fact, despite the progress achieved in recent decades in terms of both knowledge and legislative instruments on town/territorial planning issues, the planned transformations have often been implemented with a high consumption of environmental resources and producing the aforesaid effects of urban sprawl and landscape fragmentation. On the contrary, the urbanocentric concept in which agriculture is attributed residual and ancillary roles should be overcome, without refusing the strong urban 'contaminations' of periurban and fringe spaces.

References

- Cavalcoli, P. 2006. L'esperienza di pianificazione nella provincia di Bologna. In M. G. Gibelli and E. Salzano (eds). No sprawl. Perché è necessario controllare la dispersione urbana e il consumo di suolo. Alinea, Florence.
- Istat, Italian statistic board, 2001. 14th Census of Population and Housing. Rome. <http://www.istat.it/english>.
- Tassinari P. et al. 2007. Agriculture and development processes: critical aspects, potential and multilevel analysis of periurban landscapes. Part II. Agricultural Engineering International: the CIGR Ejournal. IX, 1–21.