Brownfields contribution in managing urban sprawling and soil consumption in Brescia

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Abstract

The industrial district of Brescia is one of the most active in northern Italy. The scheduled reconversion of a large industrial site with a very central position (the so-called “Comparto Milano”) has given the opportunity, during the last year, to assess the general potential contribution of brownfields reuse in the urban dynamics management of the region. The results were very reassuring about the chosen direction of an intensive reuse of idled areas, but very alarming about enduring soil consumption and urban sprawling trends.

In many areas landscape identities are irreversibly lost, and the forecast doesn’t suggest significant changes: such a scenario addresses the opportunity of considerate urban reuse as the main answer to still growing urban market demand.

1 Introduction

With his 200 hectares of surface, the historical centre of Brescia is one of the largest in northern Italy. So large that, from the walls building at the end of the XII sec. until the end of the XIX, the city never spread out the ancient perimeter.¹

Since the first years of the last century, however, the steel and pipe industry sited the largest plants just outside the ring of the demolished walls. In the south-west, nearby the way to Milan, rose the largest industrial quarter.

The crisis of Italian steel and iron industry in the early eighties gave way to a general process of relinquishment of industrial sites, but for the city of Brescia the phenomenon was particularly dramatic since it involved the core business of its strong industrial district.
As a result a unique site (for location, relative dimension, history) was made available for a project of urban redevelopment capable to affect deeply the face of the city. Beyond the specific issue of the so-called Comparto Milano, what is of interest here is that such a large event, increasing the level of public attention on this subject, was a good opportunity to reconsider the whole theme of brownfields in the territory of the province.

This paper shows the results of an inquiry that tried to assess the potential role of former industrial areas on the general scenario of current soil consumption dynamics.
2 Methodology and instruments

To evaluate the general soil consumption, historical cartographic series has been digitalized within a GIS system. The first modern topographic survey for the province was made in the 1885, and, until the 1990, all the maps were on paper. Digitalizing urban areas from traditional cartography (in a 1:25.000 scale) it has been possible to obtain 7 layers of soil consumption: 1885, 1913, 1931, 1955, 1971, 1981 and 1991.²

After that date no further maps were made available, and to update our information we have used two series of orthophotographs, respectively visible RGB files and panchromatic scans: both have a resolution of 1 meter/pixel, and are as accurate as a 1:10.000 scale in traditional topography. This more flexible and accurate instrument made us able to distinguish industrial areas within urbanized surfaces, even if just in a “typological” sense. The results of this interpretation have also been projected over the historical layers, under a work hypothesis of typological persistence, to obtain an estimate of the industry-generated soil consumption.

To achieve a general assessment about the consistency of the abandoned or idled industrial areas, all local authorities have been asked to compile a questionnaire, considering entities larger than 10.000 square meters, or smaller areas with a particular strategic relevance.³ The 61% of the municipalities have completed the set of questions, but - from a proxy with commercial data: i.e. presence of large-
mid economic units in mature sectors - only the 19% of the defaulting ones were potential owners of brownfields. At this general level we should ascribe to our results a tolerance of 10-15%, which is acceptable for the general purpose of this survey.

As a second step, the province has been divided into nine homogeneous subsystems: in this paper we'll briefly report the results of the central subsystem (numbered as #1), including the city area.

At this second level we have considered more detailed data, both from the city administration statistics and regional GIS data from ERSAL, the regional office for land and soil studies.

3 The Province scenario: soil consumption and abandonment

![Figure 4: Historical trends of soil consumption, distinguishing residential and industrial settlements typology. On the background: present time urbanized surfaces.](image)

The total amount of dismissed industrial areas over the whole province is turned out to be of 215 hectares, counting the abandoned military area of Montichiari, for a total of 499,400 m² built surfaces.

The 26% of the reported areas are within parcels smaller than 10,000 m², the 18% are in the dimensional interval from 1 and 2 ha, and the 24% is between 2
and 10 hectares. Two sites, with the mentioned powder magazine, are larger than 100,000 m².

In this first survey it seems that, even if relevant in absolute terms, the idled industrial areas couldn't have a serious weight in the general soil consumption balance of the province: 215 ha are less of 2.5% of industrial use destined surfaces, and even just a 0.5% of the total amount of urbanized areas. At the current rates of the still growing demand of the real estate business, a complete re-use of these areas could, in theory, satisfy the market for a few months. Looking beyond these raw quantitative considerations, our subject could become more interesting if we consider the potential strategic role of these areas, sometimes due to their centrality, or in other cases for their attitude to industrial reuse.

To achieve a closer sight we have divided the provincial system in several, quite homogeneous areas, or subsystems, which we have chosen considering orographic parameters, economical structure and the different historical attitudes.

![Figure 5: The nine subsystems and the respective amounts of industrial areas.](image)

From the point of view of the potential demand, abandoned industrial areas should be considered in different ways in the valley floors (subsystems 2, 4 and 5), where the older steel and iron plants can likely be converted only into alternative industrial destinations, and in the central district or near the lakes, where the market could sustain the additional costs of the re-conversion even for offices,
residence or tourist trade. Here we have to adopt the conditional mood because, without a specific action of local administrations, and with the systematic definition of new building-suitable areas made by local plans, any private investor is induced in undertaking the risks and the additional costs of a complete reclamation of a site.

4 The city of Brescia and the central district

The only exception to the observations above could be found in the proximities of the central business district of Brescia. Here the usual lack of suitable lands for new buildings, that grows together with centrality, is become a fruitful background for innovative projects.

Within the city boundary there are 69 parcels completely or partially abandoned or idled, for a total amount of 52.2 ha of area and 25.8 ha of built surfaces. The 80% of the units is smaller than a hectare, and in the largest 7 units is concentrated the 78% of the total area. We have to stress the fact that only the 30% of the idled city areas can be strictly classified as “brownfield”, due to the
fact that the others were been generic warehouses or were dedicated to relatively low-impact manufacturing industries.
The situation is quite different in the outer part of the subsystem: in the belt of the municipalities around the city we have found several different situations, also with specific and sometimes heavy problems of reclamation, but the total weight of these brownfields is relatively insignificant if compared with the pursuing urbanization processes, reaching here the highest values in the province. The statement could be different if we considered the open marble quarries and the gravel pits, but this theme will put us far beyond the initial purpose of this work.

5 Conclusions

Beyond any consideration about specific situations and some isolated positive examples, what really emerges from this study is the hugeness of soil consumption in the province under study: a dynamic that is not directly related with an increase in population, nor with the number of families or with any increase in the actual number of workers.

Figure 7: The increase in soil occupation in the last three decades vs. demographic trends.
We can say that a general increase in personal pretensions (considering that the threshold of a room for each person is already surpassed) and speculative pressures are the real driving forces of the system. Also interesting is the fact that, from a series of contacts and interview with privileged actors, public administrators, local planners and real estate consultant there is no real perception (nor interest) of the problem. A continuous, growing process of soil consumption is generally considered just physiological.

The role of abandoned or idled areas could be significant only in the context of a strong policy of reduction of the loss of ecologically productive soils. In that case the large units, often in central position, left by the industrial relinquishment, could be strategically fundamental, if appropriately adopted as catalysts, or attractors to govern the urban processes.

Beyond this, the surveyed increasing soil-wasting is so dramatic that even the option of re-use even residential areas should be considered, giving the owners the opportunity, with permissions and incentives, of re-build low-density quarters with different typologies, trying to concentrate the settlements in “urban” and more closed forms.

Unfortunately the actual political and cultural trend in northern Italy is going in an opposite direction and the sprawling of urban forms seems to be a good spatial representation of a general attitude of minds.

References