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Procedia - Social and Behavioral Sciences 223 (2016) 209 – 216

Procedia Social and Behavioral Sciences

2nd International Symposium "NEW METROPOLITAN PERSPECTIVES" - Strategic planning, spatial planning, economic programs and decision support tools, through the implementation of Horizon/€pe2020. ISTH2020, Reggio Calabria (Italy), 18-20 May 2016

Reclamation Costs and their Weight in the Economic Sustainability of a Project

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Abstract

Since the late 80's, reclamation of former industrial sites has become one of the most debated issues, nationally and internationally. This is due to the presence of toxic and harmful substances in the soil and subsoil, and to the need to regain, functionally, those areas that represent "urban voids" within the cities.
Negative effects generated by the presence of abandoned sites are essentially attributable to the increased amount of diseases (even serious ones) affecting the population who lives near those areas and to the related higher costs needed to ensure health care; to the costs (often public) for implementing measures finalized to secure those sites; to the revenue losses that the non-use of those areas determines for the public entity, and to the negative effects generated towards the development of other activities located nearby (Meyer, 2003). The expansion of the cities has incorporated these areas inside their structure; those became strategic also for the provision of public services such as green areas, parking lots, etc.. The restoration of former industrial sites collides with some critical issues related to the uncertainty on the level of pollution and, therefore, to the consequent reclamation costs and to the time required for their approval, as well as to the uncertainty about who should be in charge of this operation. The valuation of the economic and financial feasibility thus becomes the tool that, not only allows identifying possible solutions for the recovery of former industrial sites, but also allows identifying risk factors that threaten the success of the operation.
This work, after a presentation of the topic and an attempt to analyse parametrical costs for completed works, presents a case study of a former factory in Lentate sul Seveso, the "Tessitoria Schiatti", now abandoned, on which a series of project has been developed within the Workshop of Architectural Project and Constructions held in Polytechnic of Milan[1]. Each work-group verified the economic and financial sustainability of its project through the application of a discounted cash-flow analysis (DCFA) model. All the models revealed that reclamation costs strongly affected the sustainability of those projects; those, in fact, cannot be paid entirely by the ones who develop the operation, but they need an external economic support in order to ensure the

[1] The Workshop has held by professors: Barbara Croce, Sara Cattaneo and Leopoldo Sdino.

Peer-review under responsibility of the organizing committee of ISTH2020
doi:10.1016/j.sbspro.2016.05.351

financial feasibility of the intervention.

Peer-review under responsibility of the organizing committee of ISTH2020

Keywords: Reclamation costs; Parametric analysis, Economic sustainability.

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1. Introduction

Because of the industrial development that has characterized numerous countries after World War II, many industrial sites have been located in the suburban areas of the cities. Those industries have ensured the employment and the economic welfare of a number of generations and have triggered urbanization phenomena of a large portion of population who have moved from the countryside to the city in order to search for a job. With the spatial reorganization of production processes and the changes in regulations, since the late 70's a gradual relocation of industrial activities has begun. It often happened toward foreign countries, toward other areas that are more accessible or that require lower labour costs. This circumstance led to the abandonment of former industrial sites that were near the urban and living area. In addition to the many brownfields there are, also, military facilities (such as stations, shooting ranges etc.), which are no longer functional to the training activities, that the Ministry of the Defence gave to the State for their valorisation, even through the cession to third parties (public or private) after the submission of a valorisation plan. The phenomenon of industrial sites to be reclaimed and recovered for other uses affects all the most industrialized countries. According to Environmental Protection Agency (EPA), only in the United States there are about 450.000 abandoned sites (US Environmental Protection Agency); in the six major industrialized European countries (Germany, UK, France, Holland, Belgium and Italy), to date, about 215,600 hectares of abandoned industrial areas are counted (Rho, Tonin & Trombetta, 2002), many of which require remediation from pollutant. Because of their dimension and location within the urban structure, the recovery of these areas and buildings is strategic for the economic and social development of the city. In addition to the establishment of new sustainable productive activities, from an environmental point of view, they allow the provision of those services that in many cities are still missing (such as green areas and spaces, sport facilities, etc.), which contribute to the quality's improvement of the citizens lives.

Promoted restorations of those areas represent also a great catalyst for private investments: the Council for Urban Economic Development (CUED) (Council for Urban Development, 1999) has analysed 107 remediation promoted by the American Government, and found out that, for every dollar spent, this triggers 2.48 dollars of private investments on the area; furthermore, every 14,000 dollar spent on the reclamation of the area, a new job is generated.

The conversion of former industrial areas has to face with the high costs of operations for the reclamation of pollutant in the soil and subsoil, legacy of previous activities. At least nationally, difficulties related to cost estimates (which are strictly dependent on the level of pollution and the type of toxic substances that are there) and complex regulatory system represent the major critical issues that need to be deal with in order to verify the financial and economic sustainability and to plan the operations, otherwise hindering the development of recovery and valorisation initiatives.

2. The former industrial sites in Italy and the reclamation costs

There are several definitions of abandoned land to be reclaimed; the EPA of the United States defines those as "a property whose development or reuse may be hindered by the presence - or the possible presence - of pollutants" (US Environmental Protection Agency); in Europe, the network CLARINET (Contamined Land Rehabilitation Network for Environmental Technologies) defines them as "abandoned or underused sites characterized by a