RESTORATION OF A POLLUTED INDUSTRIAL SITE
IN ORDER TO CONNECT URBAN DEVELOPMENT
AND NATURAL AREAS PROTECTION

Extended abstract

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Background

The presence of polluted areas, which often are abandoned and degraded, inside a town can represent a great element of discontinuity for the urban development; a work of restoration of a polluted site in a urban area has to cope with this problem. The present paper describes the restoration of the industrial site of the steelworks “Acciaierie e Ferriere Pugliesi (AFP)” located in the town of Giovinazzo, province of Bari, in the south of Italy, Apulia region.

The AFP was founded between 1923 and 1924 to produce steel; the factory was extended during the years 1932 and 1933 to build the rolling mill, the steelwork and later the foundry, the engineering workshop and a section to produce farming equipment (Pugliese, 1998). During the Second World War the factory was occupied by the British armed force and it was used only to produce military weapons and equipment. At the end of the war the steelworks was reorganized and the plant for the production of the steel was modernized with the presence of special cooking chambers; the factory produced steel pipes, rails and shapes for rail equipment, especially for the East market. During these years, thanks to the AFP, Giovinazzo became one of the most industrialized towns of south of Italy (Pugliese, 1998) (Fig. 1).

The steelworks was closed in 1979 because of the great crisis of the steel industry, started during the seventies. Currently, the site of the steelworks includes buildings occupied by small companies and unused buildings.

The interest of the present work is not only due to the importance of a polluted industrial site, one of the largest of the south of Italy, but also to its location. The site of the ex AFP is next to Lama Castello, which is a slightly incised valley typical of the Apulia region; this karst valley acts as water flow channel only during and immediately after heavy rainstorms and it reaches the shoreline. Even if the Lama Castello is protected by the regional landscape planning, it is actually in condition of degradation and abandonment because of the presence of

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wastes and steel slag which create a great embankment in the lower part of it. Furthermore, the south part of the site of the ex AFP is close to a great residential area planned in the general town plan, called C3. The residential area includes private and public residential buildings and a great green area corresponding to Lama Castello. The site of the planned residential area is separated by the site of the ex AFP by the railway from Bari to Bologna; the presence of the railway and of the polluted site represent an important separation of the residential area from the rest of the town; the presence of the polluted area of the ex AFP also can represent a danger for people health. Therefore, design for the intervention of restoration and of removal of pollution of the area of ex AFP in Giovinazzo also includes the area of Lama Castello and the area of the planned residential district.

The work also aims to regenerate the area of Lama Castello and to create a green course connecting the residential area to the town and to the sea in order to ascribe to the ex AFP the role of sewing up s parts of the urban context with different characteristic. The work of restoration of the area of the ex AFP is also connected with the Strategic Environmental Assessment of the plan for the residential area of the C3.

**Objectives**

The main objective of this work is to make people understand the importance of a connection between the restoration of a polluted site located inside a urban area and the needs of the town planning, in order to change an empty and insignificant space in a considerable place which can be able to connect different areas in a homogeneous way. In particular the present work is aimed at:

- Analyzing the pollution in the area of the ex AFP, of Lama Castello and the planned residential area C3;
- Designing and realizing intervention of restoration of the polluted areas;
- Regenerating the natural area of Lama Castello;
- Creating a green way connecting the planned residential area, to the town and to the sea through the Lama Castello.

The work of restoration and regeneration will be led together with the studies of the Strategic Environmental Assessment of the plan for the residential area of the C3, in order to integrate the analysis of the pollution with the studies on the environmental impacts of the implementation of the plan.

**Outline of the work**

The work is divided in three main parts (Fig. 2):

- **The Area A**, which is the area of the steelworks ex AFP. The area is about 98,000 square meters; the unused industrial building occupies an area of 30,500 square meters, whereas the buildings occupied by small companies occupy an area of 13,000 square meters. There are also 54,500 square meters occupied by service roads, wastes and steel slag. The project includes surveys and analysis of the pollution, emergency safety measures (MISE) and permanent safety measures (MISP) (D.Lgs, 2006). It also includes safety measures for the operability of the small companies working in the area of the ex AFP.

- **The Area B** is the area of the Lama Castello included between the railway and the road to Bari. The area is of about 14,00 square meters. The project of the Lama Castello consists of surveys and analysis of the pollution and of permanent safety measures (MISP). The work also includes interventions of regeneration of the lama (Fig. 3).

- **The Area C** is planned as residential area by the general town planning of Giovinazzo for an extension of about 223,200 square meters; the area also includes a part of the Lama Castello. The project consists of surveys and analysis aimed to know if the area is polluted in order to exclude danger for the health of resident people.

![Fig. 2. Image of the project area](image1)

![Fig. 3. Image of Lama Castello with the steelwork in the background](image2)
The restoration of a polluted industrial site in order to connect urban development and natural areas protection

Methods

This paper presents a best practice in the restoration of polluted industrial sites connecting both the needs of removing pollution and the regeneration of a natural area and the urban development.

This is the reason why this paper talks not only about the techniques for the restoration of a polluted site, but also about the other measures affected to preserve the natural area of the Lama Castello and to solve the problem of the non-connection of the area C3 with the rest of the town caused by the presence of the railway and of the polluted site of the ex AFP. In such a project it is very important to work with people who live or work in the interested area or near it. So, one of the first action conducted during the project has been a number of meetings aimed to involve people. The citizens have been involved in two public meetings organized with the help of a city committee, the Osservatorio per la legalità e per la difesa del bene comune of the town of Giovinazzo.

The aim of the meetings was to explain the project and the main problems of the interested areas, and collect ideas for the restoration, regeneration and reuse of the area of the ex AFP. Each meeting consisted in a power point to explain the project and a question time to give people the opportunity to communicate ideas for the project or to ask question about the risks for their health due to the pollution of the area. Furthermore, one of the main problems of this project was that the industrial area of the ex AFP is actually in part occupied by small companies working in the industrial buildings; so it could be interference between the activities of restoration of the area and the activities of the companies. Each meeting consisted in a power point to explain the project and a question time, in order to give people the opportunity to communicate ideas for the project or to ask questions about the risks for their health due to the pollution of the area. Furthermore, one of the main problems of this project is that the industrial area of the ex AFP is actually in part occupied by small companies working in the industrial buildings and this could represent interference between the activities of restoration of the area and the activities of the companies.

In order to solve this problem the project includes safety measures for the operability of the small companies working in the area of the ex AFP. These measures have been agreed with the companies themselves in two different technical meetings aimed to establish the areas to be used only for the restoration interventions and the areas to be used by the companies, especially with reference to the interior road access. The result of the two meetings has been the plan of the safety measures for the operability of the small companies working in the area of the ex AFP (Fig. 4).

Fig. 4. The illustration of the safety measures for the operability of the small companies defined during the meetings

The presence of the natural area of Lama Castello nearest to the ex AFP was to be faced with particular regard because of its importance for the flora and fauna and its actual state of degradation. Furthermore, the restoration and regeneration of Lama Castello was to be conducted together with the activities of the planned residential area C3, because some soil analysis implemented in 2005 gave the result that the area was polluted with understandable risks for the health of residents. Besides, the presence of the ex AFP and the railway represented a great separation of the area C3 from the rest of the town. The plan for the area C3 was very old so that any Strategic Environmental Assessment has been assessed. The correct methodology has been suggested so to conduct together the analysis of the pollution in the area and the studies for the Strategic Environmental Assessment of the plan of the C3 in order to examine all the possible interaction of the plan with the environmental components and with the health of people.

The consideration of the need to reduce the environmental impacts due to the transportation of people living in the area of C3 suggested the need to create pedestrian paths and cycle lanes connecting it to the rest of the town; therefore the regeneration of Lama Castello could be the only way to create a connection with the town, such a green way from the area of the C3 to the town and to the sea.

Results and discussion

A good relationship with the small companies working in the area of the ex AFP has been started up. In a short time the operation of the emergency safety measures and of the safety measures for the operability of the companies will start; meanwhile the companies continue to work in their industrial buildings.
A collaboration with the owners of the industrial building began during the activity of the project, aimed to define together the appropriate future use of the area in order to combine the economic interest of the property with the needs of giving to the ex AFP the role of connection element between the protection of the natural area of Lama Castello and the development of the residential area C3.

The analysis of steel slag, which creates a great embankment in the lower part of Lama Castello, define it “non-hazardous waste” - CER code 100903 “furnace slag”. This suggests that the wastes can be removed to regenerate the course of the valley. Besides, the Strategic Environmental Assessment indicates that the lama can be a green course connecting the area of C3 with the town and with the sea.

There is also a web site of the project, always updated at the same speed of the activities, where people can be informed about the progress of the activities (Fig. 5).

![Fig. 5. The web site of the project](image)

**Concluding remarks**

The project will end in 2014 and it will give to the citizens of Giovinazzo not only a place with no pollution, but also a central crux connecting the new residential area of the C3 to the sea by means of pedestrian paths and cycle lanes in the regenerated Lama Castello.

**Keywords:** natural areas, regeneration, restoration, steelworks, urban development.

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**References**