



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

Extended Abstract



Healthy landscapes: green, regeneration, safety

From productive sites to healthy landscape production

Elisa Baldin,

¹ *Lab VTP, Faculté d'Architecture, Université de Liège, Liège, 4000, Belgium;* ² *LACTH, ENSAPL, Villeneuve d'Ascq, 59650, France;*

E-mail: Elisa.Baldin@uliege.be

Structure of the extended abstract

- **Abstract**

Remediation is one of the main issues in recovering industrial sites, as a healthy environment is the base for a healthy living. The interest in studying alternative methods such as phytoremediation and bioremediation techniques is based on the possibilities offered by these IN SITU techniques, to integrate biological dynamics, environmental engineering with the landscape design practices. In this way remediation represents an *integrated redevelopment process* (Kirkwood, 2001) where the materials and characters of the site are reinterpreted as sources for new productive activities. Referring to the Latin form “pro-ducere” as a revealing action (Heidgger, 1953), where technique makes (visible) “new elements”, in the case of the former industrial sites, production is a continuum - from the industrial settlement, to the recovering phase - marking the identity of these *productive sites*. Nevertheless these soft remediation techniques shift from a static outcome towards a regenerative one. The PhD research, developed at Labo Pay(S)age (Université de Liège), concerns the regenerative design strategies as production of new landscapes, where landscape design approach accompanies the change of the site. Through a comparison between recovered sites in Northern France and Walloon regions, the research, aims to question the spatial and landscape qualities introduced by these soft reclamation techniques.

The paper describes the *lagunage de Harnes* as a case study where the landscape design strategy uses phytoremediation techniques both as metabolic device and new landscape pattern. The former coal mine, transformed into a water treatment plant shows how regeneration can be read in biological, territorial and cultural dimensions. The paper discusses the relationship between remediation technique and landscape design as complementary elements operating the shift from productive site to a healthy landscape production.

- **Keywords**

integrated redevelopment process / regeneration strategies/ productive sites/ healthy landscape production



▪ Introduction

Deindustrialisation along the coal basin between Nord-pas de Calais and Walloon regions has marked the cross-border area with a constellation of abandoned industrial sites. Although the two Regions share territorial and historical characters, different strategies are adopted to recover their industrial heritage. From the earliest tree planting programs in the 80's to the recent regional recovery strategies, in the French region the landscape value of these sites has become a territorial regenerative lever. Mission Bassin Minier et Euralens organisations has developed recovery program and realisations based on the concept of “paysage culturel évolutif et vivant”, where the territorial renewal is activated on the respect of the industrial heritage. In this perspective the site of Harnes reveals in continuity with the past as a *productive site*, but also in evolution because the new technique (phytoremediation) integrated into new activities (water treatment and park) have enhanced landscape local characters.

▪ Materials and methods

The site of Harnes, located in the urban agglomeration of Lens-Lievin, takes its name from the ancient marsh along the Lens watercourse. From 1896 to 1968 the site has been exploited as a coal mine (fosse n. 9 et 17). After demolition and 30 years of abandon the site was recovered. The reconfiguration of the site makes it interesting for its double nature of water treatment system and public space. The project, designed by Agence Paysage in collaboration with BERIM and BURGEAP engineering studios, and F.U.L. University, consists of a system of basins where a phytoremediation technique, named MHEA (*mosaïque hiérarchisé d'écosystèmes artificiels*) completes the clean-up of water by the filtering action of aquatic vegetation. The site is also conceived as a public park where people can walk and rediscover a space of nature.

Therefore, the study of the site concerns two dimensions/scales.

- 1) As a water treatment system the questioning is about the remediation technique, its elements, processes, temporality, limiting factors, new productive sectors, the impact of the new use of the site in the urban system.
- 2) As a public park, observation are aimed at: the presence of ecologically different *milieux* and their accessibility through spatial structures, the permeability of the site in relation to the territory, the frequency of the users' presence, the diversification of users, the reuse of existing elements as memory/cultural activators.

These characters are analysed through:

- Observations on-site in different seasons;
- Documentation about the project and the site;
- Interview with actors of the design and management of the site;
- Interview with users by walking and talking along the site;

A following but iterative phase consists of the *interpretation of the collected data* in relation to a theoretical framework concerning the relationship between *pro-duction* and the landscape design approach in the reclaiming of the site (Corner, 1999). Finally, I experiment the *description of the site as a music narrative* by using the notation to represent the evolving relation to the soil in time.



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

Extended Abstract



▪ **Results and discussion**

The water tertiary treatment device represents a regenerative system (Lyle, 1994), where the reclaim action is done using ecological processes (phyto-remediation). In the sequenced basins, willows and alders operate the absorption of phosphorous and nitrogen. Then water is progressively purified by *Typha angustifolia*, *Phragmites australis*, *Scirpus lacustris* and *Iris pseudacorus*.

The system is completed by some mechanical elements such as the wind turbines, activating an oxygenation process, and a ditch, leading water to the final swim basin. This last has not been realized, in relation to complex topography variations. In fact, the balance and functioning of this delicate system require a rigorous management. Although the goal of water quality has not been achieved at 100%, in the last section water is present as a trace, activating wet environment biotopes, and unexpected and lush *milieux*. The variety of *ambiances* and a richness of fauna and flora make the site environmentally interesting.

The park is used almost by citizens, groups of students, and some local visitors in the week end: people of different ages coming to visit the Harnes lagoon for different reasons. Many people come from the neighbourhood to have a walk in a quiet place, coming in little groups or with their dogs. There are also didactic visits, explaining the artificial wetland and its biodiversity (eco-citizenship program). The site is also used as sport area, where people come jogging and biking. Fishermen also come to collect mosquito larvae from the existing stream.

In conclusion, although the efficacy of the water treatment device is not completely achieved, the project has recovered the site revealing water as the source of the new productive activity but also as a matrix of the valley landscape. The delicate topography and the paths, varied in form and material, accompany the visitor in the discovery of water and its perceptual qualities. A succession of tree planted corridors, lawns, little dams offer views and access making the park a living place.

▪ **Conclusions**

Reintroducing water as a character of the place may not refer to the original marshland, but rather reconnects the site to the territory by considering morphology as basic element of the valley landscape ecology.

The phytoremediation device depends strictly on the rigorous maintenance actions, otherwise the vegetation succession would modify the wetlands into another landscape. This fact points out the role of the management of the park after its realisation: the human action at the same time accompanies the continuous regeneration of the aquatic vegetation but also imposes as a stability factor of the landscape. At the same time biomass harvesting represents a source for compost and bioenergy production.

The landscape approach integrates the phytoremediation technique into a spatial design. In this way regeneration can be read at different scales: the water treatment system offers



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

Extended Abstract



a healthy environment and the park changes the image of the site revealing landscape for inhabitants.

▪ **Acknowledgments**

The PhD research is supported by LabVTP (Uliège) and LACTH (Ensapl), so I wish to thank prof. Denis Delbaere (LACTH) and prof. Rita Occhiuto (Lab VTP) for the productive discussions; M. Chevalier (Agglomération Lens-Lievin) for all attention and helpful documentation.

▪ **References**

- BERIM, BURGEAP, F.U.L., PAYSAGES (2000). Epuration mixte sur le site de la Fosse 9 sur les communes de Harnes et Foquières-Les-Lens, note descriptive résumée.
- Corner, J. (1999). Recovering Landscape as a Critical Cultural Practice. In J. Corner (Ed), Recovering landscape, Essays in Contemporary Landscape Architecture (pp.1-26). New York: Princeton Architectural Press.
- Delbaere, D., Pousin, F. (2011). Paysage et environnement: une poétique commune. Entretien avec François-Xavier Mousquet. Espaces et sociétés, 146, 93-104.
- Kirkwood, N. (2001). Manufactured sites: integrating technology and design in reclaimed landscapes. In N. Kirkwood, Manufactured Sites: Rethinking the Post-Industrial Landscape. New York: Taylor&Francis.
- Loriers, M.C. (2006). Réhabilitation du site minier, Harnes (62) .In Techniques & Architecture, 487 (pp. 40-42).
- Lyle, J.T. (1994). Regenerative design for sustainable development. New York: John Wiley & Sons.
- Margolis, L., Robinson, A. (2008). Digérer. In Systèmes vivants et Paysages, technologies et matériaux évolutifs pour l'architecture du paysage (pp. 100-121). Berlin: Birkhauser.
- Roncken, P.A., Stremke, S., Paulissen, M.P.C.P (2011). Landscape machines: productive nature and the future sublime. JoLa, 6 (1),(pp.68-81)