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An operational monitoring tool facilitating the transformation of urban brownfields into sustainable neighborhoods

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Abstract (150-250 words)

The regeneration of urban brownfields is a relevant strategy to limit the sprawling of post-industrial European cities. However, the integration of sustainability issues in urban brownfield regeneration projects is not a spontaneous process, remaining in most cases partial or superficial. Achieving the goals of sustainable development requires high global quality objectives, integrated into the project dynamics, and a continuous monitoring of environmental, social, and economic indicators, adapted to the specificities of brownfields. Following these considerations, an operational monitoring tool facilitating the transformation of urban brownfields into sustainable neighborhoods was created. This paper presents and discusses the verification stage of the tool, divided into two complementary tests: 1) test-applications on three case studies in Belgium, France and Switzerland and 2) interactions with the involved stakeholders.

First, we describe the functioning of the tool. Then, we present the test-applications results, supported by the Val Benoit project in Liège (Belgium) as an example. They are followed by the interactions with the stakeholders that took the form of roundtable discussions. Finally, we discuss the performance of the tool looking at its potential added-value. It reveals that an adapted operational monitoring tool can facilitate sustainability assessment, reporting, decision-making and multidisciplinary collaboration. Globally speaking, the integration of monitoring practices appears not only feasible, but also realistic and desired.

Keywords: (6) Monitoring tool; Brownfield regeneration; Sustainable neighborhood; Sustainability assessment, Indicator system, Decision-making.

1. Introduction

1.1. Urban Brownfield Regeneration Projects and sustainability issues

It is now generally acknowledged that most European countries are confronted with the problem of urban sprawl and are coping with its negative impacts. There is no need to dwell on the fact that excessive and disorganized consumption of land, resulting from the sprawling of post-industrial cities, causes environmental damages, is economically unviable and creates social disparities [1,2]. To address these contradictions with the concept of sustainable development, a consensus has emerged in order to promote densification within already built areas [3]. Referring to the compact and polycentric city model [4,5], the goal is to increase density and improve accessibility in urban areas while reducing spatial dissociation of functions. Various densification

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