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## Brussels Construction Consolidation Centre's first operations: preliminary results and lessons learned

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**Abstract:** The economic and social attractiveness of cities is concentrating increasingly more new construction and infrastructure works. Given construction strongly relies on logistics activities, and new managerial concepts became commonplace, greater amounts of (partial) transport deliveries can be observed. These construction logistics activities cause significant environmental damages, referred to as external costs, such as air pollution, GHG emissions, congestion, etc. Their impact is especially noticeable in urban areas, where receptor densities are high, and on-site storage space and site accessibility are limited. The Brussels Construction Consolidation Centre (BCCC) project consists in providing construction sites in the Brussels Capital Region (BCR) with a collaborative and intelligent tool for mobility and urban logistics of construction materials, with the aim to reduce its negative externalities and improve the use of existing transport infrastructure, for which an integrated Impact Assessment Framework will be developed. This paper presents preliminary results of the first operations through the BCCC, compared to Business-As-Usual (BAU) with truck deliveries to site without BCCC. Two main conclusions can be drawn. First, an overall decrease in external costs is noticeable through the BCCC setup, with the modal shift from road to IWT causing a significant drop in congestion costs, and to a lesser extent also climate change, noise and accidents costs. However, it also presents a strong increase in air pollution costs, highlighting the increasing gap with modern road haulage engines and the sense of urgency to render IWT more sustainable. Second, it also illustrates the main hurdle of the analysis: the collection of unified data and its format. Further integration of logistics data flows from the project partners (the BCCC, the LSPs and the Logistics Cloud Solution) is required, as to model fine-grained trips and reduce assumptions, allowing to understand how their environmental effects will alter using an urban water-bound CCC.

**Keywords:** Sustainable Construction Logistics; Construction Consolidation Centre; Impact Assessment; External Costs.