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## Hospital Building Sustainability: the Experience in using Qualitative Tools and Steps Towards the Life Cycle Approach

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### Abstract

With the rising worldwide sustainability trends, the healthcare industry is encouraged for philosophical, societal and economic reasons to implement the “greening movement” in its practice. Consequently, this move has resulted in the development of several sustainability certification tools focusing on healthcare settings. Among the best known ones are BREEAM, LEED and Green Guide for Healthcare. Their ease of use, holistic approach and possibility of implementation from the early-design phase, have made them very attractive among different building practitioners. Yet, their subjectivity in the assessment approach, leaves a doubt whether the use of these schemes leads to truly sustainable buildings. This has led to an increased awareness among building practitioners that the qualitative tools to assess the sustainability of their projects are not sufficient. The same questions on the sustainability of hospitals arose in the Flemish healthcare sector as well. On-going development of the Duurzaamheidsmeter zorg, a qualitative tool adapted for the Flemish context, aims at helping building practitioners in assessing the sustainability of their hospital projects. However, urban planners and architects who had the opportunity of using it, reported some disadvantages and shortcomings. A need is identified to develop a more reliable sustainability assessment method based on a quantitative approach. This paper elaborates the first step in the research, analyzing the building professionals’ experiences in using sustainability assessment tools on hospital facilities in Flanders. Their feedback is translated into a SWOT analysis which identifies the professionals’ expectations of an assessment method. The results are seen as valuable directions to consider when developing an evaluation method from a life cycle thinking perspective.

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## 1. Introduction

Demographic changes, followed by the alterations in disease patterns and technological advancement (1), have led to an increased interest in the way hospitals are designed today. Questions on their adaptability to meet the future, unpredictable patient needs and medical-technical equipment improvements are usually brought to the fore. However, with the aim to decrease the negative impacts of the construction sector to the environment, it is equally expected of hospitals to introduce the sustainability concept in their design and operation. Nevertheless, although these buildings represent one of the largest sectors of economy in the West, hospitals have been very slow in addressing the sustainability issue (2). Surprisingly, only few studies have been carried out concerning the sustainable development of healthcare units, mostly focusing on business or waste management and energy efficiency (3). To the present, a holistic assessment of the environmental impact of hospital building has not yet been developed.

To facilitate the sustainability evaluation of healthcare facilities from the early design phase, several certification tools have been developed. To name but a few, there are BREEAM, LEED and Green Guide for Healthcare. Although these tools gained popularity among different building practitioners due to their ease of use, their subjectivity in the assessment approach causes doubts whether the use of these schemes leads to truly sustainable buildings (4). Therefore a quantitative approach, using the life cycle thinking perspective seems to be the most appropriate in this case.

The paper focuses on two existing certification schemes used in Flanders, namely BREEAM New construction and Duurzaamheidsmeter Zorg. The aim is to compare both schemes in terms of their weighting criteria and coverage of the building life cycle phases in order to pinpoint the differences between the two tools. Furthermore, both schemes are evaluated through a SWOT analysis based on the architects experiences in using them.

## 2. Literature review

### 2.1. Changes in the Flemish healthcare landscape

Hospital buildings in Flanders, as many others all over the world, are facing the challenge of mitigating their environmental impact, while remaining focused on offering affordable and quality medical care available to everyone. During the past fifteen years, the number of general, specialized and psychiatry hospitals in the Flemish region has decreased, while the number of beds remained the same (Fig. 1.) (5).

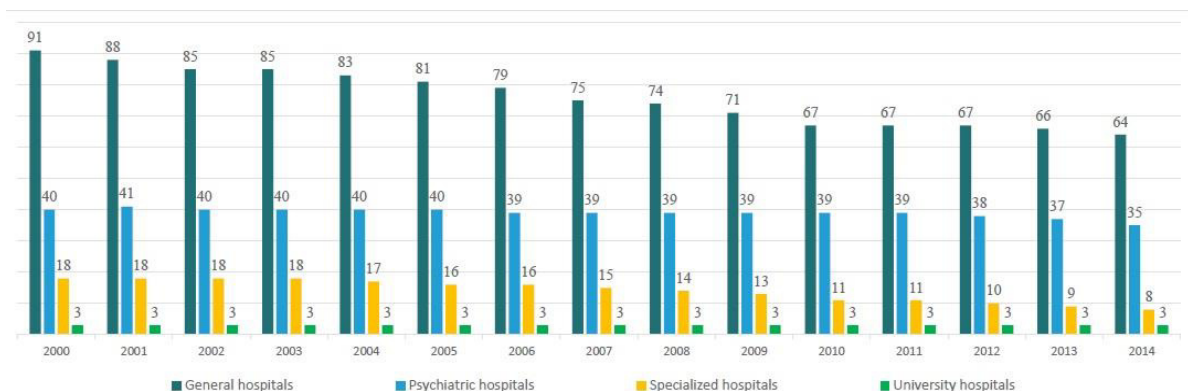


Fig. 1. The evolution of the hospital number in Flanders.

This change in the Flemish healthcare landscape is reflected in the merging of several hospitals into one, larger hospital building. The new facility is usually relocated to an empty greenfield in a peripheral area of a city, or it is clustered on an existing healthcare campus next to the old hospital, with the assumption that the latter will be

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