Different strategies for setting requirements for sustainability

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Abstract

The construction industry significantly impacts climate, environment, and society and should consider how best to respond to the present challenges. This paper aims to investigate what requirements clients are setting for sustainability and to discuss what strategies might be more efficient when setting those requirements. The paper draws on findings from screening sustainability requirements in recent tenders for large infrastructure projects. It has been analysed to what extent clients tend to add specific project requirements and focus on collaboration to reduce the project's CO_2 footprint. This is supplemented by findings from a case where a client changed the collaboration model to partnering to achieve a more sustainable project. The different strategies have different benefits and consequences, which should be considered in relation to the project context.

Keywords: Sustainability, collaboration, innovation, requirements, carbon reductions.

1 Introduction

The construction industry has a significant impact on our society and environment. The building- and construction industry accounts for 39% of the global carbon emissions, of which 11% stems from embodied carbon (1) and 8% from cementitious materials (2). The industry uses approx. 25-40% of the global use of virgin materials (3) impacts 29% of threatened species, and near-threatened species (4), and 13% of the world's GDP stems from this industry (5). At the same time, we experience rapid urbanisation and, thereby, infrastructure. The construction industry is forecasted to grow on average by 3.6% per annum over the decade to 2030 – higher than the manufacturing or services sectors (5).

This all calls for the industry to address its negative impact and enhance the value delivered to society, climate, and the environment.

Engineers hold the knowledge and capabilities to support a transition to a more sustainable society (6), and this should be used to help clients and communities to become more sustainable (7) through innovation and collaboration across the value chain.

Sustainability includes many factors, e.g., acidification, land use, biodiversity, and social impact. This paper focuses on initiatives to reduce the embedded carbon footprint stemming from materials, incl. extracting, transporting, manufacturing, and installing materials on site. It is often referred to as Life Cycle Assessment, but only with a focus on the GHG emissions from production and construction phases (A1-A5). However, the resources investigated for this paper do not always clearly define this.

In the early planning and design phases, we have a real opportunity to reduce carbon (8). It is recognised that the professionals in the industry

https://doi.org/10.2749/newdelhi.2023.0313

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