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Social cost in construction projects

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ABSTRACT

Despite the fact that completion of construction projects has a direct positive impact on the growth of national and local economies as well as humans' wellbeing, construction projects, especially in the urban areas, generate serious environmental nuisances for the adjacent residents and have unintentional adverse impacts on their surrounding environment. Construction causative adverse impacts on the neighbouring communities are known as the social costs. This study aims to present a state-of-the-art overview of social costs in construction industry in terms of definition, consideration, classification and quantification. Furthermore, it is aimed to bring the construction social cost phenomenon for the agenda of Environmental Impact Assessors.

Contents

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1. Introduction

Construction is a large, multifaceted, and dynamic industry that accommodates processes for building new structures and engineering projects. Construction works also concern processes for renovation encompassing additions, alterations, or maintenance and repair of existing structures and engineering projects (Behm, 2008). Construction plays an important role for the growth of local and national economies (Chen, 1996; Lewis, 2004; Rameezdeen and Rameezdeen, 2006; Behm, 2008; Osei, 2013). The built environment which comprises all structures and living spaces constructed or modified by human beings offers social and welfare benefits (Ofori, 2004; Sarkis et al., 2009). For instance, housing accomplishes to meet the second necessity of mankind by offering shelter from the elements (George, 2002; Ijigah et al., 2013). Concordantly, construction industry underpins to foster a good quality of life as it creates the built environment and provides the tangible facilities and infrastructures in accordance with the needs, wants and values of the people (Bartuska, 2007; Myers, 2013; Osei, 2013). Therefore, happiness, life and need satisfactions of the society are interrelated with the quality of the built environment thus it is one of the standard indicators of the quality of life (Pearce, 2003; Mohit, 2013; Sassi, 2016).

Despite the fact that completion of construction projects and their entry into service have a direct influence on people's wellbeing, development phases of construction projects generate countless unintentional adverse impacts on their surrounding environments (Butterworth, 2000; Gilchrist and Allouche, 2005; Centre for Good Governance, 2006; Sev, 2009; Zainul Abidin, 2010; Balaban, 2012; Matthews et al., 2015). Especially in urban areas, due to high density of population implementation of construction projects turns out to be the sources of serious nuisances to, including but not limited, adjacent residents and businesses (Pucker et al., 2006; Gangolells et al., 2009; Ferguson, 2012). Apeldoorn (2013) put forward that level of construction causative nuisances incurred to the surrounding society is highly dependent on the location of a project. He performed several case studies and determined that in densely populated areas, the negative effects of construction activities are greater compared to the areas with lower population.

Near or in every construction zone, no matter if the executed project accommodates processes for building new or renovating existing structures, contractors place signs which state “We apologise for the inconvenience we cause to environment”. Many researchers (Allouche et al., 2000; Gilchrist and Allouche, 2005; Najafi and Gokhale, 2005; Rahman et al., 2005; Yu and Lo, 2005; Matthews et al., 2015), by referring the term “environment” as the society who surround the construction sites that are adversely impacted by the operation of these sites in terms of pollution, traffic problems, economic activities and damage to natural/built environment, embark to estimate the cost of contractors' “apology” on behalf of the society (Apeldoorn, 2013; Xueqing et al., 2008). These researchers have commonly entitled this attempt as the quantification of the construction causative “social costs”.

In construction industry contracts are mostly awarded at the end of a severe competition. In traditional practices strongest and final factor for contract awarding is the tender price. However, in the decision making process for proposed construction projects, apart from economic sense of it, decision-makers need to be provided with other useful information: (1) analytical and procedural assessment to comment on the convenience of the expected environmental impacts (EIA) once proposed project is implemented, (2) social assessment to find if the consequences of developing the proposed project are socially acceptable, (3) integration of (1) and (2) to perform analytical assessment and quantification of the social costs so decision makers take these costs into account during economic assessment of the project proposals. This suggestion, of course is directly in line with the inference.

Since social costs are not compensated, problems can emerge for the surrounding communities. In the existing body of knowledge, there are attempts to estimate the social costs of construction, repair and maintenance of infrastructure projects. However, rare attempts have been made to estimate building construction related social costs.

Thus, this paper aims to review literature to diagnose the social cost phenomenon in the construction industry to develop a clear understanding about it and to form an imperative step of consolidating collective movements towards social cost quantification and to provide strategies and recommendations for the construction industry for the social cost estimation.

In the paper, a critical review on social costs in the construction projects is presented to establish the rationale why and how social cost should be considered in the initial cost estimation process. This review incorporates previous studies about definition, identification, classification and quantification of social costs in the construction industry.

2. Research process

The focus of this paper is to assess the current understanding about the social cost through a collective and critical review of literature while building the rationale for why and how it should be considered in the cost estimation process.

The research philosophy reflects the way the authors' beliefs in gathering, analyzing, and using data about the phenomenon under investigation. There are commonly known two philosophical branches, namely ontology and epistemology. Logically, epistemology comes after ontology because ontology is the study of the nature of reality or existence in general and its categories and relations (Lawson, 2004), while epistemology concerns with the theory of knowledge, and how the reality is perceived and the methods are evaluated. Epistemological stance is required to determine true from false, and to obtain knowledge about the reality around the domain under investigation (Dawood and Underwood, 2010). Therefore, epistemology is regarded as the philosophy of knowledge that helps the researchers to understand what knowledge is, describe the ways to acquire knowledge and subsequently answer the targeted research questions. Two epistemological philosophies are namely positivist and interpretivist. Each has meta-theoretical assumptions about each of the philosophical branches in terms of the research objectives, methods, and theory of truth, validity and reliability.

The positivist thinks about reality as it can be observed, studied and modelled, while the interpretivist thinks that the reality can be interpreted and theories can be proposed to define new knowledge. The research in this paper attempts to apply the existing knowledge about social cost in the construction industry, conduct comparative interpretation and diagnosis of social cost, and develop a clear understanding. Thus, it adopts a critical review of literature for gathering data about social cost, leading to qualitative assessment for the analysis and evaluation.

Therefore, the data gathering and data analysis approaches and the way the researchers apply the existing knowledge on social cost reflect an objectivism ontological position, while the epistemological position for the researchers throughout the study is interpretivist as the research depends mainly on the qualitative analysis of the findings through concept mapping method on social cost. In other words, the paper examines the existing knowledge about social cost and possible methods for quantification and provides strategies and recommendations for the social cost estimation in the construction industry. Fig. 1 shows the stages in the research process. Initially, literature review will establish the views and perspectives and definitions of social cost and related aspects and challenges. This will be highlighted and analyzed holistically via concept mapping approach. Following that, through literature review for data collection and concept mapping for data analysis will be used to articulate on why and how questions of the research in relation of social cost rationalization and classification. This will then lead to seek answer for how to quantify social cost to embed it into initial cost estimation in the construction projects. Finally, the research will collectively present the key findings from the review and identify key