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Global Perception of Sustainable Construction Project Risks

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Abstract

Sustainability goals move projects away from narrowly focused traditional management oriented ambitions of time, cost and quality, giving attention to economic, environmental and social impacts of construction projects. The recent literature identifies the critical project delivery attributes influencing sustainable building and infrastructure project outcomes as: trust and collaboration between key project participants, their commitment to sustainability, their early involvement and contract conditions. This paper presents results of the still ongoing study which is in relatively under-researched area and examines the global perception of sustainable Construction Project Risks. The survey goals were to compare different stakeholders' evaluation of risks and stakeholders influence on project success. Risk was defined as an implication of uncertainty that could potentially impact project goals, either positively or negatively. Opposite of hypothesis, which was that different stakeholders will prioritize risk sources differently, the findings suggest there is no significant discrepancy between the perceptions of different stakeholders about the sustainable project risks.

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Keywords: Sustainable construction projects; Risk Identification; Stakeholders

1. Introduction

Success in a construction project has been regarded as achieving project objectives, which traditionally have been provision on time, on budget, of a required performance or achievement (Williams 1995). Through the last few decades, from the UN Summit on Environment and Development in 1972, over the 'Agenda 21', which

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appeared at the UN 'Earth Summit' in 1992, the growing concerns for protecting the environment for the future generations produced sustainable development concept (IISD 2012). Sustainable development concept is a way to express society's demand for all aspects of decisions to be taken into account and it is a modern expression of the ambition to act responsibly, fairly, effectively, efficiently, sensitively, and with a view to the long term (FIDIC 2012). Although in contemporary research, there are additional areas proposed, the three basic areas of sustainability are economic, social and environmental aspect (UN 2002). In 1994 the concept of sustainable construction was born at a tactical level in the building sector and in civil engineering. New targets for projects were added to the common triple objectives (Fernandez-Sanchez and Rodriguez-Lopez 2010) to move projects away from the narrowly focused ambitions, which can potentially be optimized to the detriment of other important parameters such as robustness and societal, environmental and economic enhancement (FIDIC 2012). Examples of construction project sustainability aspects are, for economic effects: life cycle costs, cost-benefit of society, costs incurred by users; environmental effects are those on soil, air, water, biodiversity, energy consumption, waste, and social are effects on culture, accessibility, participation of all actors, security, social integration (FIDIC 2004).

Construction project involve numerous stakeholders, long production durations, an open production system, entailing significant interaction between internal and external environments (BS 6079-4:2006). It also has other unique attributes and such organizational and technological complexity that causes great amount of risks (Zou et al. 2007). PMI (PMBOK 2008) defines risk as an uncertain event or condition that, if occurs, has a positive or a negative impact on at least one project objective. In ISO 31000 Risk Management standard (2009) and in BS 6079-1 (2010), risk is defined as the 'effect of uncertainty on objectives'. Even before introducing sustainability goals in construction industry, it is claimed that construction is exposed to more risk and uncertainty than perhaps any other industry sector (Flanagan & Norman 1993).

Managing risks in construction projects has been recognized as a very important process in order to achieve project objectives (Zou et al. 2007). A lot of extensive researches have been undertaken in the field of risk management for construction projects recently. Major outcomes of these attempts are the identification of the project objectives related risks and the project phase related risks (Zou et al. 2007). There is little evidence of researches emphasized on the two-edged nature of risks – threats and opportunities (Bryde and Volm 2009, Zou et al. 2007, Chapman and Ward 2003). The focus of the studies is rather on the threats, i.e. negative impacts with specific risks being described exclusively in negative terms and also on events and conditions as known unknowns. Such a focus does not project the message that risk is more than threat (Bryde and Volm 2009) and can result in a lack of attention to uncertainty, which is proven by no common understanding as to what it is, in PRM literature (Perminova et al. 2008). The terms 'risk' and 'uncertainty' are often used in an interchangeable manner, but there is a formal difference between the two. In the plain English sense of 'lack of certainty', uncertainty is in part about 'variability' in relation to performance measures but also about 'ambiguity' associated with lack of clarity, lack of data, lack of detail, lack of structure to consider issues, known and unknown sources of bias (Ward & Chapman 2003). Uncertainty implies that either all the alternative possible outcomes cannot be identified, or that no probability can be attached to the alternative possible outcomes (Terje et al. 2011). In other words it is when the established facts are questioned and thereby the basis for calculating risks in the narrow sense (known negative events) or opportunities (known positive events) is questioned (Perminova et al. 2008). Since the definition of risk becomes 'the implications of uncertainty about the level of project performance achievable', we need to move focus from one of the products – risk management to the process – uncertainty management (Ward & Chapman 2003). With this definition, managing project risk and related uncertainty implies searching for and exploiting opportunities to enhance project performance that include synergies between the interests of different parties that may not be fully understood, ambiguity from all other sources, and the way uncertainty can accumulate. (Ward and Chapman 2008). Other products of uncertainty management are enhanced communications, more focus on project objectives, more focus on value analysis issues, and a range of widely appreciated spin-offs which are valuable in their own right (Ward & Chapman 2003). All of these products of uncertainty management are very desirable attributes for sustainable project to be successful, as it is showed further.

This paper seeks to explore and compare project stakeholders perception of uncertainties as sources of risk affecting success of sustainable construction project. Perception of sources of risks is compared for sustainable and traditional projects. Also, the perception of different stakeholder influence on project success is examined. The

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