

## CONSTRUCTION ENGINEERING MASTERS DISSERTATION ABSTRACT

### **The relationship between environmental commitments and environmental performance indicators in construction projects - a case study approach**

Contractors working on major infrastructure projects are expected, based on their key performance indicators (KPIs), to gather a significant amount of environmental data. These KPIs are used to facilitate decision-making and often aid in assessing how the project interacts with the environment. At the same time, contractors are also required to meet the project's environmental commitments (ECs), which are a product of the Environmental Impact Assessment (EIA) process. This is a legal obligation governed by the EIA Regulations in several countries, including the UK and the European nations. Compliance necessitates dedicated resources, expertise, robust reporting systems, and time.

The challenges faced by contractors in this context become considerably more difficult when KPIs do not align with ECs, rendering the reporting process complex and inefficient. The aim of this dissertation is to analyse how well KPIs actually reflect ECs in order to improve data capture and, ultimately, achieve better environmental outcomes.

The research focused on a case study of the Thames Tideway Tunnel to explore the relationship between KPIs and ECs. Qualitative methodology was applied in three stages: 1. desk research, which included identifying strategic documents; 2. a comparative analysis of the Thames Tideway Tunnel KPIs and ECs; and, 3. validating the findings using a case study of Crossrail and conducting interviews with key stakeholders on both projects.

The main discovery was that KPIs are indeed linked to ECs, but this link has failed to ensure better environmental outcomes. Further, KPIs are not typically used to measure EIA compliance, which is assessed using other mechanisms. In conclusion, the correct commitments and targets need to be set during the project's planning stage. These commitments must then be laid out in KPIs included in contracts and incentivised to encourage senior management and contractors to take them into account. As a result, KPIs will become more meaningful, driving performance while also supporting compliance.

The current approach involves starting from scratch on every project. To stop reinventing the wheel, more work needs to be done on standardising methods to set KPIs, using automation to enhance data quality and streamline processes to improve environmental performance and begin to address climate concerns.

**Keywords:** *key performance indicators, environmental impact assessment, environmental statement, commitments, infrastructure, standardisation*

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