

TITLE OF DIPLOMA THESIS

Risk analysis of the construction of underground metro in urban environment

AUTHOR

Plainos Panagiotis

Tsiouris Nikiforos

ACADEMIC YEAR

2017-2018

ABSTRACT

The constantly increasing need for the development of infrastructures globally, especially in urban areas, has led to an increase of underground projects, the construction of which is a complicated and time-consuming procedure with many important parameters affecting it. The influence of those parameters and their gravity varies and it is considered useful that it is determined qualitatively and quantitatively in order to complete the project efficiently. In the present thesis "Risk Analysis in the Construction of Underground Metro in Urban Areas" the concept and procedure of risk management is analyzed theoretically. A literature review is performed on risks and accidents that have occurred in underground projects similar to the Thessaloniki metro, separated in the planning phase and construction phase. Subsequently, a risk analysis simulation of the construction of an underground metro is attempted. Specifically, after detecting some important risks through literature and questionnaires, the qualitative and quantitative analysis is performed in order to categorize them based on the importance concerning the cost and time of the project. In addition, for every recorded risk, response strategies have been proposed. Finally, the present thesis concludes in highlighting the importance of risk analysis, as well as the use of statistical methods in this procedure to maximize the reliability of the results and their exploitation in the completion of the project.

KEYWORDS

Risk, Risk management, Statistical Analysis, Underground Projects, Thessaloniki Metro.