The Identification of Risk Factors of Quality that Affecting Contractors’ Performance at XYZ Company

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Abstract. In the implementation of construction projects often present several problems, both are technical and non-technical. Risk management is an activity carried out to minimize the risks that might occur in the project. Construction in the Green Office Park district owned by PT. XYZ gives trust to one of the leading contractors in Indonesia and assisted by other specialist contractors. Green Office Park was recognized for incorporating advanced green architectures to conserve energy, water and natural resources. This district is located on a land area of 25 Ha and there are 6 office buildings and a lifestyle mall with beautiful and unique concepts that have Green features, like Microclimate Optimization, Green Transport and Integrated Parking, and Sustainable Management Practice. During the construction of several buildings in this district, they often experience various obstacles and more or less have similar problems in every development in this district. The purpose of this study is to identify the risk factors of quality of the contractors’ work in the PT. XYZ. This study was examined based on various literature sources, namely: project life cycle, construction phase, risk management, quality management, the parties involved in the construction process, project performance, and various relevant research results. The research methodology is carried out by stages: discussing the problems that occur in the field, identifying research problems, preparing research instruments, analysing research problems and discussing the results of the research obtained. Through this research, resulted identification of risk factors of quality that affecting contractors’ performance at the XYZ company.

1. Introduction
A construction project can be said to be successful not only when the building is formed, but the success of a project when it can achieve project objectives that are project delivered within cost, project delivered on time and meet quality requirements. Project management is a scientific discipline in terms of planning, organizing, and managing (carrying out and controlling), to achieve project goals. However, in the implementation of construction projects, it is often found problems occur in the field, both technical and non-technical problems. These problems can certainly hinder the achievement of construction project objectives that are cost, time and quality. Risk management is an activity carried out to minimize the risks that might occur.

One of the projects in the first office district in Indonesia which received the Gold Green District certification from BCA (Building Construction Authority-Singapore), began build a building with the concept of green building. This office district is on an area of 25 hectares. In the green office park area there are 6 office buildings and a lifestyle mall with a beautiful and unique concept that has Green features, namely Microclimate Optimization, Green Transport and Integrated Parking, and Sustainable Management Practice. The construction of each building in the green office park area gives trust to one of the leading
contractors in Indonesia as the main contractor and assisted by other specialist contractors. During the construction of some of these buildings, carried out by the same main contractor. In the implementation of these developments quite often there are problems of quality of work and more or less have similar problems in this district. A contractor's performance evaluation is always done for each project that has been completed to get input from the construction team about what problems are often encountered and hopes for improvement in the future. But unfortunately, the same problems often reappear in next developments, so that the quality of the work contractor’ performance is not achieved as expected. The problem of not achieving the quality as expected certainly has an impact on the cost and time of project during construction. Project may require extra time or cost or resources because repairs are needed in order to achieve the desired quality and may need to rework.

Based on this, the researcher is interested in knowing what the risk factors of quality at the construction phase are, and can find out the impacts, causes and what improvements need to be made to the results of the work in the future. Research problems can be formulated, namely to identify risk factors of quality that affecting contractors’ performance at XYZ Company.

2. Research methodology
This research was conducted for the first time by conducting a literature review to be able to determine the factors and variables that influence the issues discussed in this study. Literature review is carried out from a variety of literature and relevant research results in the last 10 years related to quality risk factors that affect contractor performance. This research was conducted after researchers saw the issue of problems regarding the existence of risks during the construction process by the contractor on the quality of work in XYZ company.

Broadly speaking, this research process can be seen from the flowchart below:

![Flowchart of Research Process](image)

3. Results and discussion
3.1. The results of the study identified risk factors of quality that affecting contractors’ performance at XYZ company

Table 1. Table of risk factors of quality that affecting contractors’ performance at XYZ company.
| Factor | Risk Factor of Quality Variable | Reference |
|--------|---------------------------------|-----------|
| X1     | Lack of experience and competence of project manager | Russel (1992) |
|        | Lack of personnel who have experience in construction management | Dun & Bradstreet Corporation dalam Russel (1996) |
| X2     | Qualifications of personnel who are not professional in their fields | Proboyo (1998) |
| X3     | The incomplete identification of the type of works that must exist | Proboyo (1998) |
| X4     | Work plan details that are not well structured | Proboyo (1998) |
| X5     | Determination of the duration of work time that is not carefully | Proboyo (1998) |
| X6     | Incorrect construction method | Proboyo (1998) |
| X7     | Lack of worker knowledge and work motivation | Proboyo (1998) |
| X8     | Inadequate number of workers in accordance with existing work activities | Proboyo (1998) |
| X9     | Poor communication and coordination between parts in work organization | Whittington. E. et al (1997) |
| X10    | Top management is always late getting work information due to poor communication and conflicting interests | Whittington. E. et al (1997) |
| X11    | Too many projects are handled at the same time | Indriani (1998) |
| X12    | Poor quality control of material | Indriani (1998) |
| X13    | Ineffective or absence of quality management procedures | Russel, J.S (1991) |
| X14    | Many work results must be repaired/repeated because of defects or incorrect | Proboyo (1998) |
| X15    | Incompatibility of inspection systems and job control | Proboyo (1998) |
| X16    | Lack of materials | Proboyo (1998) |

**Competence of personnel expertise in Construction Management**

**Implementation of Quality Management**

**Availability of equipments,**
| X18 | Lack of equipments | Proboyo (1998) |
|-----|--------------------|----------------|
| X19 | Slow mobilization of resources (materials, tools, labor) | Proboyo (1998) |
| X20 | Inadequate equipment and working capital | Dun & Bradstreet Corporation dalam Russel (1996) |
| X21 | Wrong cost estimates | Scheifer (1987) |
| X22 | Funding project activities that are not well planned | Proboyo (1998) |
| X23 | Does not consider for unexpected costs | Indriani (1998) |
| X24 | No design review before construction | Whittington. E. et al (1997) |

| X25 | Poor coordination in design issues | Whittington. E. et al (1997) |
|-----|----------------------------------|-----------------------------|
| X26 | Wrong or incomplete process in planning phase | Holt et al (1994) |
| X27 | Design cannot be implemented | Whittington. E. et al (1997) |
| X28 | Designer doesn’t know about material | Whittington. E. et al (1997) |
| X29 | Unclear information on the scope of work when describing work | Proboyo (1998) |
| X30 | The high frequency of changes during construction | Indriani (1998) |
| X31 | There are request for changes to the work that has been completed | Proboyo (1998) |
| X32 | Changes of design or detail of work during construction | Proboyo (1998) |
| X33 | Do not pay attention to risk factors on the construction locations | Indriani (1998) |
| X34 | There was a work accident | Indriani (1998) |
| X35 | Poor OHS (Occupational Health and Safety) regulations and procedures Top Management’s commitment to OSH is inconsistent | Wieke Yuni Christina, Ludfi Djakfar, Armanu Thoyib (2012) |
| X36 | | Wieke Yuni Christina, Ludfi Djakfar, Armanu Thoyib (2012) |
4. Conclusion
The research conclude several key issues according to the research problem, namely the risk factor of quality that affecting contractors’ performance at XYZ company, which must be considered in determining the factors that influence are the competence of personnel expertise in Construction Management, implementation of Quality Management, availability equipment, materials and working capital, the design cannot be implemented, and regarding occupational health and safety. This study also identified 36 risk of quality variables that affecting contractors’ performance in XYZ company.

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