

The Twelfth East Asia-Pacific Conference on Structural Engineering and Construction

Factors Relating to Labor Productivity Affecting the Project Schedule Performance in Indonesia

A. SOEKIMAN^{a*}, K. S. PRIBADI^b, B.W. SOEMARDI^b, R.D. WIRAHADIKUSUMAH^b

^aDepartment of Civil Engineering, Parahyangan Catholic University, Indonesia

^bDepartment of Civil Engineering, Bandung Institute of Technology, Indonesia

Abstract

Construction industry faces challenges with regard to problems associated with productivity and the problems are usually associated with performance of labor. The performance of labor is affected by many factors and is usually linked to the performance of time, cost, and quality.

Meanwhile identification and evaluating factors affecting construction labor productivity have been done in the last decade; however, a deeper understanding is still needed to improve the labor productivity. This study conducted with the aim to get the latest information on key factors that affect project performance in terms of project completion time and this is part of major research to model the interaction relationships between key factors affecting productivity.

This paper reports on a survey made on respondents who involve in managing various types of projects in wide area in Indonesia. Respondents were required to rate using their experience how 113 factors identified from past researches, which grouped into 15 groups, affecting project schedule performance and then measured their level of affect. The result show that the groups of factors that give high effect are: *supervision factors*, *material factors*, *execution plan factors*, and *design factors*. In addition to these factors, for large companies *equipment factors* have also high effect. While in small and medium companies, *owner/consultant factors* also need special attention because it has high effect too. Research findings also show that *health and safety factors* has not been a concern of small and medium companies and only has some effect, while in large companies are better, although not as major concern and has average effect.

The results will become worthwhile information in determining the major steps to improve the performance of project completion time and also as part of further research in modeling the interaction relationship between the key factors affecting productivity to improve the labor productivity in Indonesian construction industry.

© 2011 Published by Elsevier Ltd. Open access under [CC BY-NC-ND license](https://creativecommons.org/licenses/by-nc-nd/4.0/).

Selection

Keywords: Schedule performance, labor productivity, productivity factors, interaction model

* Corresponding author and Presenter

Email: soekiman@home.unpar.ac.id

1. Introduction

The level of productivity in construction showed a decreasing rate compared to other sectors (Bernstein 2007). This also happened in Indonesia. Data from Central Bureau of National Statistics (BPS 2007) showed unsatisfactory level of Indonesian construction productivity. The facts of unsatisfactory projects completion are indicators of problems associated with productivity and productivity problems usually associated with labor performance (Lowe 1987; Handa and Abdalla 1989; Olomolaiye and Ogunlana 1989).

Efforts to produce better performance and increasing productivity in construction requires an understanding of the various indicators of productivity as a path to understanding the performance of the project (Atkinson et al. 1997). Besides that, efforts to improve productivity in construction industry can essentially be done by reducing project cost overrun and also project completion delay (Kaming et al. 1998).

Identification and evaluation of factors affecting labor construction productivity have become a critical issue facing project managers for a long time in order to increase productivity in construction (Motwani et al. 1995). Understanding critical factors affecting productivity of both positive and negative can be used to prepare a strategy to reduce inefficiencies and to improve the effectiveness of project performance.

Knowledge and understanding of the various factors affecting construction labor productivity is needed to determine the focus of the necessary steps in an effort to reduce project cost overrun and project completion delay, thereby increasing productivity and overall project performance.

This study aimed to identify factors affecting or contributing to the delay of projects completion in Indonesia through a survey. The results will be useful information to improve construction productivity in Indonesia.

2. Factors Affecting Productivity

Problems to increase productivity have long been a concern of researchers. Based on previous studies, key factors that can affect labor productivity in construction have been obtained from works by Oglesby et al. (1989); Sanders and Thomas (1991); Thomas (1992); Langford et al. (1995); Motwani et al. (1995); Lim and Alum (1995); Baba (1995); Zakeri et al. (1996); Lema (1995); Kaming et al. (1997); Olomolaiye et al. (1998); Thomas et al. (1999); Makulsawatudom and Emsley (2002); Ibbs (2005); Hanna et al. (2005); Nepal et al. (2006); Khoramshahi et al. (2006); Enshassi et al. (2007); Alinaitwe et al. (2007); Weng-Tat (2007); Hanna et al. (2008); and Kazaz et al. (2008).

Identified Key factors usually were used by stakeholders in each country to formulate its strategies to improve the performance of the construction industry. Although many researches have been done and produce the factors that affect productivity, there are still many productivity problems that remain unknown and need to be further investigated even in developed countries (Makulsawatudom and Emsley, 2002). In addition, policies for increasing productivity is not necessarily the same in every country. Polat and Arditi (2005) showed that the critical factors in developing countries differs from that in developing countries.

Based on past researches, 113 factors affecting construction labor have been identified and were grouped into 15 groups according to their characteristics, namely: 1. *design* (5 factors); 2. *execution plan* (5 factors); 3. *material* (8 factors); 4. *equipment* (6 factors); 5. *labor* (18 factors); 6. *health and safety* (4 factors); 7. *supervision* (6 factors); 8. *working time* (6 factors); 9. *project factor* (15 factors); 10. *quality* (3 factors); 11. *financial* (6 factors); 12. *leadership and coordination* (5 factors); 13. *organization* (12 factors); 14. *owner/consultant* (4 factors); 15. *external factor* (10 factors).

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات