Hierarchy and Weight of Influence Factors on Labor Productivity in the Construction Industry of the Nepal

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Abstract : The construction industry is the most labor intensive in Nepal. It is obvious that construction is a major sector and any productivity enhancement activity in this sector will have a positive impact in the overall improvement of the national economy. Previous studies have stated that Nepal has poor labor productivity among other south Asian countries. Though considerable research has been done on productivity factors in other countries, no study has addressed labor productivity issues in Nepal. Therefore, the main objective of this study is to identify and hierarchy the influence factors for poor labor productivity. In this study, a questionnaire approach is chosen as a method of the survey from thirty experts involved in the construction industry, such as Architects, Civil Engineers, Project Engineers and Site Engineers. A survey was conducted in Nepal, to identify the major factors impacting construction labor productivity. Analytic Hierarchy Process (AHP) analysis method was used to understand the underlying relationships among the factors, categorized into five groups, namely (1) Labor-management group; (2) Material management group; (3) Human labor group; (4) Technological group and (5) External group and was divided into 33 subfactors. AHP was used to establish the relative importance of the criteria. The AHP makes pairwise comparisons of relative importance between hierarchy elements grouped by labor productivity decision criteria. Respondents were asked to answer based on their experience of construction works. On the basis of the respondent's response, weight of all the factors were calculated and ranked it. The AHP results were tabulated based on weight and ranking of influence factors. AHP model consists of five main criteria and 33 sub-criteria. Among five main criteria, the scenario assigns a weight of highest influential factor i.e. 26.15% to human labor group followed by 23.01% to technological group, 22.97% to labor management group, 17.61% material management group and 10.25% to external group. While in 33 sub-criteria, the most influential factor for poor productivity in Nepal are lack of monetary incentive (20.53%) for human labor group, unsafe working condition (17.55%) for technological group, lack of leadership (18.43%) for labor management group, unavailability of tools at site (25.03%) for material management group and strikes (35.01%) for external group. The results show that AHP model associated criteria are helpful to predict the current situation of labor productivity. It is essential to consider these influence factors to improve the labor productivity in the construction industry of Nepal.

Keywords : construction, hierarchical analysis, influence factors, labor productivity