

Labor Management Practices of Selected Construction Contractors in Nepal

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Abstract

The objective of this study is to assess the labor management practices in Class 'A' construction contractors of Nepal. By identifying the challenges and exploring possible remedial measures, the study aims to contribute to the improvement of labor management practices in the industry. The paper is based on primary data and descriptive research design.

The findings of the study shed light on several aspects of labor management practices. It was observed that hiring trained and experienced workers was a common practice. However, issues related to poor communication and planning were identified. The study also revealed significant challenges such as inadequate wages, a lack of occupational health and safety measures, an absence of comprehensive labor policies, unfair hearing practices, and insufficient training opportunities.

Based on the study's findings, it is recommended that contractors prioritize to employee staffing, performance evaluation, work environment improvement, training initiatives, and compensation management. Addressing these areas can significantly enhance labor management practices.

Keywords: Labor, Contractors, Human Resources, Class A Construction Contractors

1. Introduction

The construction industry, a major contributor to global employment and GDP, faces numerous challenges, including complexity, risk, and labor management issues. With an estimated 2.5 million workers in Nepal alone, efficient human resource planning is crucial (Mandal, 2021). Labor costs constitute a significant portion of project expenses, making skilled labor management vital for project success. Studies indicate that labor costs can range from 30% to 50% of the total project cost (Karimi et al., 2017). Therefore, effective management of skilled labor is critical for project success. However, the Nepalese construction workforce often operates in the informal sector, lacking formal contracts, social security benefits, and legal protection (CBS, 2018). This informalization of labor leads to low wages, dangerous working conditions, and limited opportunities for skills development and career advancement (Maskey & Mishra, 2018).

Despite advancements in the Nepalese construction industry, challenges persist, including the need for skilled labor and infrastructure development. The industry's growth potential is hindered by issues such as informal labor practices, inadequate safety regulations, and low wages (Mishra, 2018). For instance, the Nepal Labor Force Survey of 2017/18 indicates that 13.8% of the workforce is employed in the construction sector, with forced labor being prevalent, particularly in the informal sector (CBS, 2018). Additionally, the implementation of safety regulations in Nepal's construction industry is often inadequate, leading to dangerous working conditions and accidents (Koirala, 2018). Amidst these, there is a lack of research on labor management practices within the country's construction sector, highlighting the need for further investigation to identify and address existing gaps. This study aims to assess current labor management practices in selected Nepalese construction companies and identify areas for improvement.

2. Literature Review

(Ghate & Minde, 2016) The construction industry plays a significant role in economic development and is closely monitored in national economic accounts. Nepal's economic landscape, characterized by average population growth and considerable poverty, highlights the importance of sectors like construction. (Torrington & Tan, 1998) Despite economic challenges, there's notable spending capacity attributed largely to remittances. Proper training and development in construction are crucial for maximizing individual capabilities within the industry. (Ghate & Minde, 2016) The construction sector's unique dual presence in GDP and Gross Domestic Capital Formation underscores its importance in economic policy formulation.

Skilled labor in the construction industry refers to workers with long periods of formal training, according to United States Legal (2021). eSub (2020) categorized skilled labor in construction into various types such as concreter, plasterer, and bricklayer. On the other hand, unskilled labor refers to workers lacking technical training or expertise within a trade, as defined by Tradesmen International. Labor management practices are crucial for efficient construction project management. Lill (2008) stressed the importance of labor utilization for timely project completion and cost reduction. Soe & Cho (2014) outlined essential labor management functions, including manpower planning, recruitment, training, and performance management. Recruitment and selection processes significantly impact organizational performance, as noted by Bratton and Gold (2007). Similarly, training and development are crucial in enhancing workforce skills and performance, as defined by Swanson and Holton (2001). The Labor Act of Nepal, particularly the Labor Act 2074 B.S., provides provisions for labor rights, including working hours, overtime, leaves, safety, and health arrangements, as detailed by Mishra (2018). Child Labor (Prohibition and Regulation) Act, 2000, prohibits child labor and ensures their rights and safety. The International Labor Organization has emphasized the need for policies addressing the challenges and opportunities presented by digital labor platforms, particularly in enhancing skills and ensuring decent work conditions, as highlighted in their report on the role of digital labor platforms in transforming the world of work. (Mishra, 2018; Baniya, 2004) Infrastructure investment correlates positively with overall economic output. However, there are challenges within the construction industry, such as inadequate HR systems and a lack of systematic human resource development. (Thiyagu & Dheenadhayalan, 2015) Labor productivity, a critical aspect of construction efficiency, is influenced by factors including workforce capacity, management competence, and worker motivation. (Jergeas, 2009) Ineffective labor management can lead to cost overruns and project delays. (Zwikael, 2009) Understanding the uniqueness of each construction project, including its design, site conditions, and labor dynamics, is essential for effective planning and budgeting. (El-Gohary & Aziz, 2014) Proper resource management, particularly of labor, is crucial for cost and time savings in construction projects. In Nepal, low labor productivity poses a challenge, emphasizing the need to address operational inefficiencies to enhance productivity (Maskey & Mishra, 2018).

3. Research Design

The research on labor management practices in Nepalese construction companies employed an exploratory design, utilizing both quantitative and qualitative methodologies to gather comprehensive insights. A sample of 50 fully operational Class 'A' construction companies was selected from the broader pool of construction firms in Nepal using a convenient sampling technique. This sample size was carefully chosen to ensure the study's objectives could be adequately addressed while considering factors like data availability and feasibility. The targeted sample size consisted of 50 companies with 420 respondents, including human resource managers, project managers, and executive teams. Of the 420 questionnaires distributed, 390 were returned, with 384 considered valid. This represents a robust response rate of 91.43%, indicating a high level of engagement and interest from the participants in contributing to the research. The data collection methods included questionnaire surveys, key informant interviews with in total five experts; three industry experts and two association members, and the gathering of secondary data from national and international sources. Quantitative data analysis involved using SPSS 26.0 software to compute descriptive statistics, Response Index of Importance (RII), and correlation measures, while qualitative insights were synthesized to provide a comprehensive understanding of labor management practices in the Nepalese construction sector.

The formulated hypothesis, which postulates a significant difference between the rankings of sampled respondents' opinion and experts' opinion, is tested at 0.05 level of significance using the calculated Spearman's correlation coefficient and associated p-value.

4. Results and Discussion

4.1. Labor Practices and in Construction Companies

The current labor management practices in 'A' class construction companies were analyzed with questionnaire to 384 respondents in total from 50 different 'A' class construction companies across the Nepal. Demographic characteristics of Respondents shows that 85.2% respondents were male and remaining 14.8% were female. Majority of the respondents were aged between 31 and 40 that is 60.2%, 23.4% respondents were aged between 41 and 50 while only 2.6% were above 50 and 13.8% were under 30.

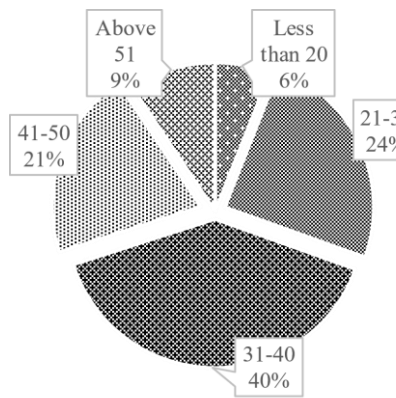


Figure 1. Age Group

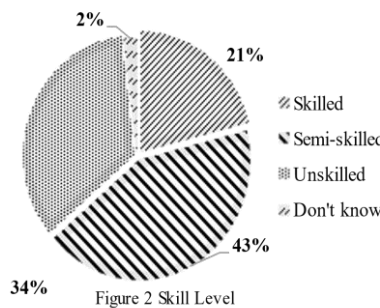


Figure 2. Skill Level

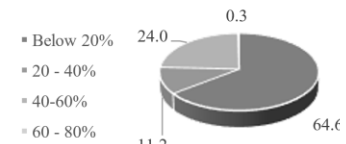


Figure 3. Percentage of Skilled Labor

The majority of the labor force, accounting for 39.6%, falls within the age range of 31-40, indicating a significant presence of workers in their prime working years. However, there is also representation across other age groups, with younger workers (21-30) comprising 24.5% and experienced workers (41-50) comprising 20.6% of the workforce. The workers above 50 years old account for 9.4% of the labor force, suggesting a diverse age demographic with varying levels of experience. In terms of skill level, the data reveals an imbalance, with 42.7% of the workforce classified as semi-skilled, 34.4% as unskilled, and only 21.1% as skilled. This highlights a challenge for the construction industry in Nepal, as a significant percentage of the labor force lacks specialized skills or formal training. The majority of construction projects (64.6%) reportedly have less than 20% skilled labor, indicating a concerning skill gap within the industry.

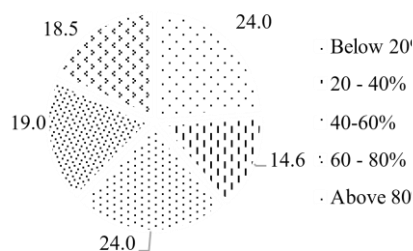


Figure 4. Supervisor

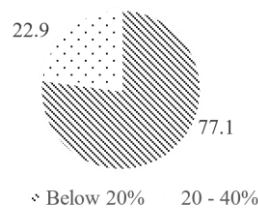


Figure 5. Women Labor of Total Labor

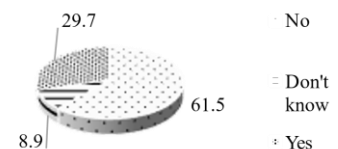


Figure 6. On-site Training and Skill Sharing

According to the responses obtained, the distribution of experienced and educated supervisors in Nepalese construction companies appears to be relatively even. The highest percentage of respondents (24.0%) falls into the category of 40-60%, indicating a significant number of supervisors possess a blend of experience and education, potentially contributing to effective management at construction sites. Additionally, an equal

percentage of supervisors (19.0%) fall into the below 20% and 60-80% categories, indicating a mix of less experienced and more expert supervisors among the respondents.

There is concerning labor management and gender inclusivity, the data portrays a worrisome picture. Most of respondents (77.1%) indicated that women constitute less than 20% of their construction projects, underscoring a significant gender disparity within the industry. These highlights potential barriers hindering the inclusion of women in construction work. Conversely, a smaller percentage of respondents (22.9%) reported a higher proportion of women, suggesting ongoing efforts to address this issue.

The findings expose that most of construction companies in Nepal (61.5%) do not engage in on-site training and skill-sharing programs for their labor force, indicating a lack of prioritization or implementation of such initiatives. On the other hand, 29.7% of respondents reported conducting such programs, implying that some companies are actively investing in enhancing the skills and capabilities of their workforce.

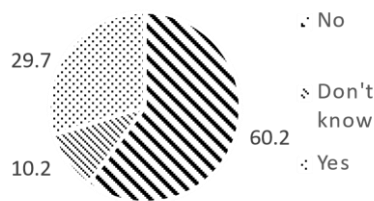


Figure 7. Prior Orientation & Training

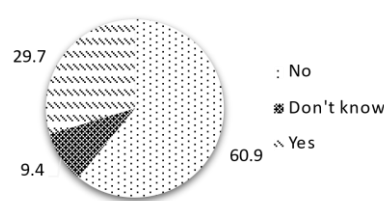


Figure 8. Timely Remuneration

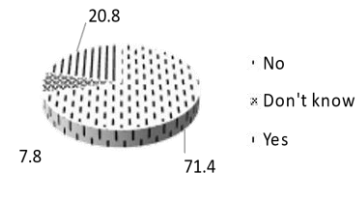


Figure 9. Bonus and Incentives

A notable finding from the survey is that a significant percentage of respondents (60.2%) do not conduct orientation or training before assigning construction work. This indicates a potential gap in providing necessary information and guidance to the labor force. However, 29.7% of respondents reported conducting such programs, which can aid in preparing workers for their assigned tasks. The data reveals that many respondents (60.9%) believe that timely payment is not effectively practiced by companies. This lack of punctuality in remuneration can negatively impact the motivation and productivity of the workforce. Conversely, 29.7% of respondents claim that they do provide timely payment, which is seen as a positive factor in boosting labor productivity.

According to the respondents, a majority (71.4%) feel that there is a prevalent practice of not providing bonuses and incentives among companies. This approach is perceived as detrimental to the motivation and productivity of the workforce. A significant proportion of respondents (20.8%) reported that companies do implement bonus and incentive programs, recognizing them as practical tools for reinforcing and enhancing work performance.

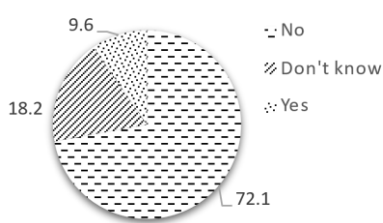


Figure 10. Provision of First-aid/health facility

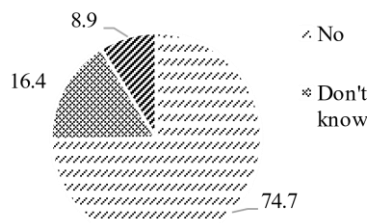


Figure 11. Health and Safety Measures

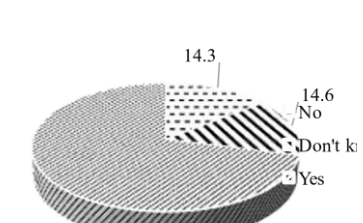


Figure 12. Labor Shortage

A staggering 72.1% of respondents reported the absence of proper first aid facilities on construction sites, indicating a concerning lack of immediate medical assistance in case of accidents or injuries. A majority of

companies, comprising 74.7% of respondents, do not prioritize health and safety measures for their employees, neglecting crucial aspects such as insurance coverage and accident policies. This neglect raises severe concerns about worker well-being and security. The survey highlighted the prevalent issue of labor shortages during construction projects, with 71.1% of respondents reporting such shortages. This shortage poses significant challenges in recruiting an adequate workforce, potentially impacting project timelines and outcomes. The study revealed a persistent shortage of skilled labor in Nepal, with a preference for trained workers due to their superior skills and lower training costs. The survey indicated a lack of emphasis on proper material planning, a crucial aspect for project efficiency and worker productivity.

4.2. Challenges in Current Labor Management Practices

The challenges in current labor management practices in Nepal's construction industry were analyzed using a questionnaire adapted from Manoharan et al. (2022). The survey identified eleven key challenges, ranked by their Relative Importance Index (RII).

Table 1. Challenges in Current Labor Management Practices (n=384)

Challenges in Current Labor Management	RII	Rank
Less recognition and inadequate pay	0.806	1
Lack of a comprehensive labor policy to address labor issues	0.803	2
Long working hours	0.728	3
Lack of access to flexible work arrangements	0.645	4
Lack of incentives and bonuses	0.632	5
Labor unions and their activities	0.621	6
Lack of knowledge of professional roles and career opportunities	0.612	7
Lack of Occupational Safety and Health (OSH) standards	0.608	8
Incompetent immediate supervisor or manager	0.606	9
Lack of trainings and development programs for labors	0.604	10
Shortage of Skilled labor	0.599	11

The highest-ranked challenge, with an RII of 0.806, was the issue of less recognition and inadequate pay. This indicates that it is considered the most significant problem in labor management practices within the selected construction companies in Nepal. Following closely behind, with an RII of 0.803, was the lack of a comprehensive labor policy to address labor issues, emphasizing its high importance in the context of labor management. The third-ranked challenge, with an RII of 0.728, was the concern regarding long working hours faced by the labor force. The fourth-ranked challenge, with an RII of 0.645, highlighted the absence of flexible work arrangements as a notable issue in labor management practices. The importance of providing appropriate incentives and bonuses to the labor force was ranked fifth, with an RII of 0.632. The role of labor unions and their activities was the sixth-ranked challenge, with an RII of 0.621, indicating their significance in labor management practices. Addressing the lack of knowledge about professional roles and career opportunities among the labor force was ranked seventh, with an RII of 0.612. The need to implement adequate Occupational Safety and Health standards in construction companies was the eighth-ranked challenge, with an RII of 0.608. The impact of ineffective immediate supervisors or managers on labor management practices was ranked ninth, with an RII of 0.606. The lack of training and development programs for laborers was ranked tenth, with an RII of 0.604, suggesting the need to enhance the skills of the labor force. Finally, addressing the shortage of skilled labor was the eleventh-ranked challenge, with an RII of 0.599, indicating that it was considered a relatively lower priority than other identified challenges in the research.

The majority of people agreed that low wages were a hindrance to labor productivity. Workers in Nepal earn a minimum wage of Rs 77 per hour, which is less than \$1 per hour when converted to USD (i.e Rs 121) (MOLESS, 2021). When considering the inflation rate of 6.15% in 2020, which decreases the value of money over time, it becomes apparent that laborers are being paid inadequately. According to Feldstein (2008), wages have a significant impact on worker productivity up to a certain extent. It is evident that low wages

have limited the productivity of laborers. The prolonged working hours can lead to fatigue, stress, and increased risk of accidents, ultimately diminishing workers' ability to perform effectively (Wong et al., 2019). The survey respondents also indicated that occupational health and safety were poor in the projects. The majority of respondents reported having little knowledge of occupational health and safety, which affected the productivity of laborers. Adjotor (2013) supports this finding, stating that occupational health and safety has a positive and significant relationship with labor productivity, and that workers tend to perform better when they are not concerned about their health or safety. The majority of respondents believed that there was a lack of comprehensive labor policy in Nepal. Although the government has replaced the old Labor Act of Nepal, 2048, with the new and updated Labor Act, 2074, which includes new provisions, rights, interests, and facilities for all workers, it has yet to be properly implemented. Most respondents disagreed that laborers were receiving adequate training and development. This is consistent with current management practices, which place little emphasis on training and favor hiring already trained labor to reduce costs. The lack of training negatively affects labor productivity as skills deteriorate over time (Sala & Silva, 2013).

Table 2. Correlation Coefficient between challenges

Correlation Coefficient	Low wages	Availability of Skilled Labor	Trainings	Trade unions	Fair hearing	OSH	Labor policy
Low wages	1.000						
Availability of Skilled Labor	.176**	1.000					
Trainings	.192**	.052	1.000				
Trade Unions	.009	.042	-.118*	1.000			
Fair Hearing	.175**	.039	.984**	-.115*	1.000		
OSH	.172**	-.069	-.078	.465**	-.080	1.000	
Labor Policy	.973**	.200**	.192**	.028	.176**	.158**	1.000

The availability of skilled labor exhibits a weak positive correlation of 0.176 with low wages, which is statistically significant. This implies that as availability of labor number increase, there is a tendency for a slight reduction in the wages. However, no other variables in the table demonstrate a strong or statistically significant correlation with the availability of skilled labor. Therefore, it suggests that factors not listed in the table may have a more significant influence on the availability of skilled labor.

Trainings reveal several notable correlations. There is a significant weak positive correlation of 0.192 with low wages, indicating that as low wages increase, the importance of training tends to slightly increase as well. Moreover, there is a powerful positive correlation of 0.984 with fair hearing, indicating a high association between the provision of fair hearing and the emphasis on training. Furthermore, there is a significant weak positive correlation of 0.192 with labor policy, suggesting that labor policy impact the need for training initiatives.

Trade unions exhibit weak correlations with the other variables. The correlation coefficient with low wages is 0.009, indicating no significantly relationship. Similarly, the correlation with the availability of skilled labor is 0.042, suggesting a weak positive relationship. However, there is a significant strong negative correlation of -0.115 with fair hearing, suggesting that as fair hearing increases, trade unions may tend to decrease.

Fair hearing displays exciting correlations. It has a significant weak positive correlation of 0.175 with low wages, implying that as low wages increase, the emphasis on fair hearing tends to slightly increase. There is also a robust positive correlation of 0.984 with trainings, indicating that the provision of fair hearing is closely associated with the emphasis on training. Additionally, fair hearing has a significant weak positive correlation of 0.158 with labor policy, suggesting that fair hearing may be influenced by labor policy measures.

OSH demonstrates a significant weak positive correlation of 0.172 with low wages, suggesting that as low wages increase, the importance of occupational safety and health tends to slightly increase as well. However, OSH does not exhibit statistically significant correlations with the other variables, indicating that its relationship with those variables may be weaker or less direct.

Labor policy reveals several notable correlations. It has a significant very strong positive correlation of 0.973 with low wages, indicating that as low wages increase, the importance of labor policy also tends to significantly increase. Additionally, labor policy has significant weak positive correlations with the availability of skilled labor (0.200), trainings (0.192), and fair hearing (0.176). The inverse relationship observed between trade unions and training initiatives implies that trade union presence or activity is associated with a minor decrease in the tendency to provide training opportunities for workers. Likewise, the negative correlation between trade unions and fair hearing indicates that as trade unions gain importance or apply greater influence, there is a marginal decrease in the perceived fairness of hearings or procedures related to dispute resolution. Studies such as Freeman & Medoff (1984), have suggested that trade unions may sometimes be perceived as hindering investments in training due to concerns about cost or potential conflicts with labor management. The complexities of labor relations in unionized settings, where formalized fair hearing procedures may be perceived as less necessary due to the presence of collective bargaining agreements or union representation (Kaufman, 2004). These correlations indicate that labor policy measures may influence these variables and play a role in shaping them within the analyzed context.

4.3 Remedial Measures to Improve the Current Labor Management Practices

The section outlines remedial measures to enhance current labor management practices, as suggested by respondents. It encompasses the presentation and discussion of results obtained from experts and members of contractor's associations. Similarly, opinions from members of construction associations were gathered through interviews and presented in a table format, depicting the rankings of various remedial measures aimed at improving labor management, with 1 being the highest and 7 being the lowest in importance.

The rankings obtained from expert opinions for the research on revealed varying perceptions regarding the importance of different measures. Adequate pay and recognition were consistently ranked as highly important, while flexible working hours and technical education and on site & vocational training received mixed opinions. The provision of occupational safety and health facilities, reformation in labor laws and regulations, hiring of competent immediate supervisors or managers, and provision of economic benefits exhibited diverse rankings, indicating differing views among the experts. These rankings shed light on the perceived significance of labor management practices in the context of the selected construction companies in Nepal.

Adequate pay and recognition, along with technical education and on-site training, were considered highly important. Flexible working hours, provision of occupational safety and health facilities, reformation in labor laws and regulations, hiring of competent supervisors or managers, and provision of economic benefits had more diverse opinions, with some experts ranking them highly and others ranking them lower. Adopting strict OHS could aid in labor productivity as lack of proper OHS was found to be the major challenge. According to Nasirzadeh & Nojedehi (2013), by simply implementing a strict occupational health and safety policy, employers can ease the mind of labor through hazard-free work condition which boosts their productivity. In addition to this, development and implementation a comprehensive labor policy would ensure things stay in place making it easier for the laborers and the employers. The hypothesis, there is a significant difference between the rankings of sampled respondents' opinion and experts' opinion on remedial measures in labor management practices within the construction sector is tested with Spearman's correlation coefficient using p-value approach.

Table 3. Rank Comparison between Expert and Respondents

Measures	Expert Opinion		Sampled Respondent's Opinion		Rank Correlation
	RII	Rank	RII	Rank	
Adequate pay and recognition	0.943	1	1.00	1	$\rho = 0.791^*$ p-value = 0.034
Technical Education and On Site & Vocational Training	0.886	2	0.714	3	
Reformation in Labor laws& regulations	0.657	3	0.371	5	
Provision of Economic Benefits (Incentives and Bonus)	0.571	4	0.829	2	
Provision of Occupational Safety and Health facilities	0.457	5	0.40	4	
Hiring of competent immediate supervisor or manager	0.371	6	0.314	7	
Flexible working hours	0.286	7	0.343	6	

Adequate pay and recognition were consistently regarded as highly significant by the respondents. Flexible working hours generated mixed opinions, with varying rankings indicating differing views on its importance. Technical education and on-site vocational training were considered important by some respondents, while others assigned it a lower rank. Providing occupational safety and health facilities garnered recognition, but opinions varied. Similarly, reformation in labor laws and regulations elicited diverse opinions. Hiring competent supervisors or managers was generally seen as important, but some respondents ranked it lower. The provision of economic benefits received mixed opinions among the respondents. These labor opinions shed light on the varying perspectives regarding labor management practices in the construction companies in Nepal.

The labor opinions regarding remedial measures for improving labor management practices varied among the interviewees in the selected construction companies in Nepal. Adequate pay and recognition were consistently regarded as highly important, while other measures such as flexible working hours, technical education and on-site training, provision of occupational safety and health facilities, reformation in labor laws and regulations, hiring of competent supervisors or managers, and provision of economic benefits elicited diverse rankings, indicating differing perceptions among the respondents.

The research findings indicate a strong positive correlation, with a coefficient of 0.79, between the rankings of sampled respondents' opinion and experts' opinion on remedial measures in labor management practices within the construction sector. The reported p-value of 0.034 suggests that this correlation is statistically significant. Key informants provided several suggestions for remedial measures in labor management practices, including implementing policies to ensure equal opportunities and prevent discrimination, offering incentives to contractors for hiring trained workers, providing comprehensive training programs, promoting supportive work environments, establishing codes of conduct for safety, organizing motivational programs for workers, increasing awareness about skills and safety, enforcing minimum wage standards, and developing inclusive policies to support women traders. Awareness programs in society were also recommended to promote equal opportunities and encourage labor force participation. These measures aim to address various aspects of labor management and foster a more inclusive and supportive environment within the construction industry.

5. Conclusion

The survey conducted on 'A' class construction companies in Nepal highlights several key findings regarding the current labor management practices. The majority of the labor force falls within the age range of 31-40, indicating a workforce in their prime working years. However, there is also representation in other age groups,

including younger workers (21-30) and experienced workers (41-50 and above 50). The data suggests an imbalance in the skill levels of the labor force, with a significant proportion categorized as semi-skilled (42.7%) and unskilled (34.4%) workers. Skilled labor represents only 21.1% of the workforce. The presence of a gender disparity is evident, as women constitute less than 20% of the construction projects. Furthermore, the study reveals shortcomings in areas such as training and skill-sharing programs, orientation/training before assigning work, timely remuneration, material management, bonus and incentive provisions, provision of first-aid/health facilities, and health and safety measures. The findings emphasize the need for addressing skill gaps, promoting gender inclusion, enhancing training programs, and improving various aspects of labor management practices in the construction industry in Nepal.

The analysis of the questionnaire responses and correlation matrix highlights several significant challenges in current labor management practices within the construction companies in Nepal. The findings emphasize the urgent need to address issues such as inadequate pay, the absence of comprehensive labor policies, long working hours, and the lack of training and development opportunities for workers. These challenges have a direct impact on labor productivity, worker well-being, and overall organizational performance.

The analysis of remedial measures to improve current labor management practices in the construction companies in Nepal reveals important insights from both expert and labor perspectives. Adequate pay and recognition consistently emerge as highly important, according to both experts and sampled respondents. Other measures, such as flexible working hours, technical education and on-site training, provision of occupational safety and health facilities, reformation in labor laws and regulations, hiring of competent supervisors or managers, and provision of economic benefits, generate diverse opinions from both groups. However, there is a strong correlation ($\rho=0.78$) between the rankings provided by experts and respondents, indicating a significant agreement on the importance of remedial measures. These findings emphasize the critical need for addressing issues related to pay, recognition, training, safety, and labor regulations to enhance labor management practices in the construction industry in Nepal. By implementing these remedial measures, companies can improve worker satisfaction, productivity, and overall organizational performance, creating a more sustainable and supportive work environment.

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