

Assessment of Labour Shortage in Bhutanese Construction Industry during Covid-19 Pandemic

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Abstract: With the detection of the first positive case of Coronavirus disease (COVID-19), Bhutan, like every other nation faced pandemic challenges. The nation eventually imposed restrictions on the recruitment of foreign labour. Bhutanese construction industry which was primarily dependent on foreign labours (Indians) suddenly halted its daily activities. A mixed-method, qualitative and quantitative approach were adopted for obtaining various aspects of the study, consisting of data collected via a questionnaire survey and from labour agencies. Thematical and Computer Assisted Personal Interview (CAPI) analysis was opted to study the shortage of labour faced by the Bhutanese construction industry during this pandemic. Results indicate the main factors that led to the labour shortage within the country were due to the lack of necessary skills required, the lack of foreign labour and the lack of Bhutanese youth to work in the construction industry which is ranked 1st, 2nd and 3rd with 48, 43 and 39 responses respectively. The unavailability of Bhutanese workers ranked 4th, with 30 respondents. The minimal population of the nation was the least concern for the labour shortage. This study provides precautionary methods to consider for sustainability during such an emergency.

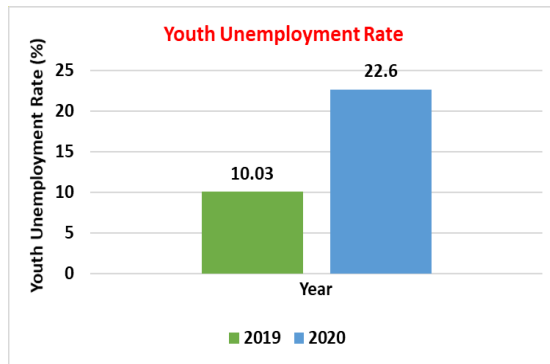
Key Words: Labour Shortage, COVID-19, Bhutanese Construction Industry

Introduction

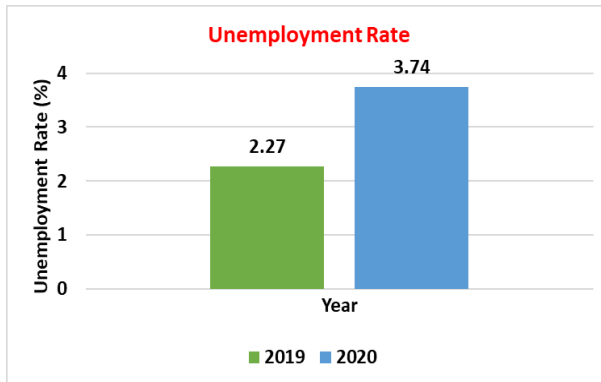
The World Health Organization (WHO) first declared COVID-19 a global health emergency in January 2020 and on March 11, it announced the viral outbreak was formally an epidemic, the uppermost level of health emergency (Chappell, 2020). The term coronavirus which sounded so vague and distant, within no time reached Bhutan. The first-ever coronavirus-positive case in Bhutan was detected on 5th March 2020 which was followed by the second positive case on 11th of August 2020 leading to the first nationwide lockdown (Ministry of Health, 2020). Thereafter, adhering to the national preparedness and response plan, Standard Operating Procedures (SOP) and follow-up actions were initiated immediately in all places. The nation introduced mandatory quarantine for a minimum of 21 days for all the travellers entering Bhutan from 16th March 2020 and gradually had to close its international borders on 23rd March 2020.

The construction sector is one of the significant sectors in improving the overall economy of a country (Alfadil et al., 2022). The construction industry is solely dependent on the workers and the skills they have (Mezher, 1998). Bhutanese construction industry being dependent on foreign labour got affected instantly, eventually leading to the shortage of human workforce, delay in projects and financial losses. Skilled labour plays a vital role in the success of every construction project and stands high in the advent of sophistication and technology in building construction project delivery. Skilled manpower as pointed out by (Gudiene et al., 2012) is considered to be one of the important factors of production in construction projects. Therefore, finding approaches to reduce the adverse effects of COVID-19 is crucial to

avoid negative economic growth in the nation that can eventually result in an economic recession (Majumder et al., 2021). With the rapid economic expansion in the last decade, construction has become one of the fast-growing industries in Bhutan. The construction of hydropower plants, particularly, is one of the driving forces for this rapid growth in the economy (Dukpa et al., 2017). This study assessed some of the factors that caused labour shortage in Bhutanese construction industry.



(a)



(b)

Figure 1. (a) Youth unemployment rate; (b) Overall unemployment rate

The youth unemployment rate of Bhutan has increased from 10.03% in 2019 to 22.6% in 2020 (World Bank, 2021) as shown in Figure 1. On other hand, the Bhutanese construction industry had to halt indefinitely during the pandemic mainly due to the shortage of labour for project execution.

A survey found that the pandemic had affected the society as well as the economy of every country (Biswas et al., 2021). The disease was spreading so fast that the government was forced to lockdown. As a result of this lockdown, all transportation systems have been shut down, supply chains have been disrupted and workers are not able to come to the construction site even from home. That's why work in the construction fields has stopped and the construction workers have also faced extreme uncertainty. So, construction companies are facing a financial recession. Construction is commonly regarded as a major investment component and is highly dependent on human labour, where the most numerous workers are low-skilled workers. Furthermore, the lack of qualified construction workers has become an alarming issue all over the globe, with the recent global growth in the construction sector (Juricic, et al., 2021). Building construction companies should invest in the training of people to build their skills (Akomah et al., 2020).

Amid the COVID-19 pandemic, most construction projects were at a halt due to restrictions on the supply of foreign labour. During a quick assessment carried out by MoLHR, it was observed that the total demand for foreign workers was estimated at 35,567 as of June 2020 but the supply of foreign workers is short by 14,495 due to restrictions imposed (RGOB, 2020). This study aims to assess on labour shortage in the Bhutanese construction industry during the COVID-19 pandemic and determine the strategies to overcome it, with a primary objective of the research to identify the required

labour trades within the Bhutanese construction industry and motivate the youth to participate in the industry in abundance to eliminate future impacts due to labour shortage. Eventually achieving self-sufficiency based on skilled workforce availability and decreasing the dependency on foreign (Indian) labour.

Methodology

The mix-method approach including both qualitative and quantitative approaches was adopted for obtaining the various aspects of the study. After exhaustive literature reviews and reports, following flow chart as shown in Figure 2 was developed to carry out the research.

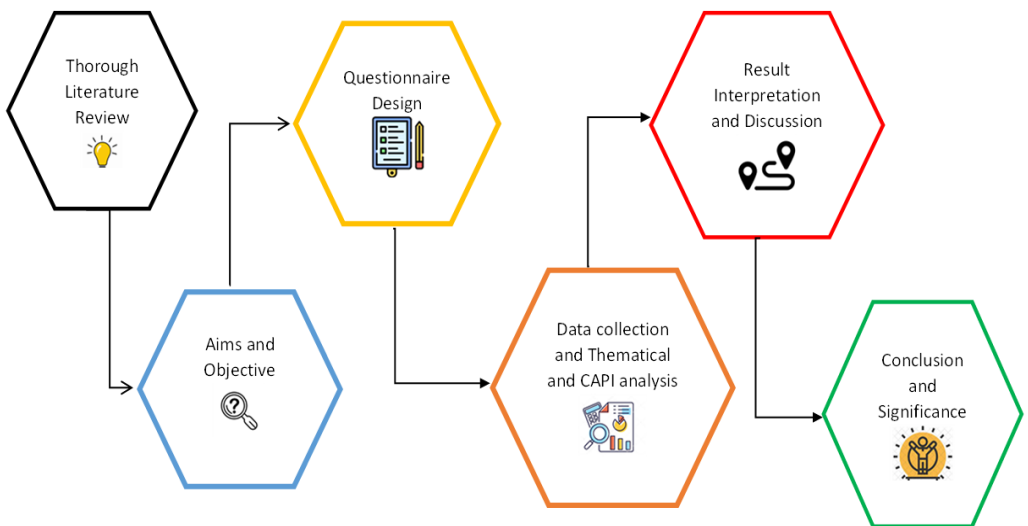


Figure 2. Methodology adopted

Data collection

The collection of data was obtained from one of the labour agencies located in Phuentsholing. The data of all the recruited labour within 2019, 2020 and till Oct 2021 were collected. This approach was used to quantify the number of labourers recruited before and during the COVID-19 pandemic.

Questionnaire survey

The questionnaire survey was conducted covering 42 project engineer, 12 contractors and 7 project managers. The minimum qualification of respondents who participated for this research was diploma in civil engineering for project engineer, bachelor's degree for project managers and contractors had a minimum of 5 years' experience in construction works. A total of 22 questions was prepared using CAPI with google forms. The questionnaire was distributed to respondents via social media platforms and email. The questionnaire survey through social media platforms is economic as well as one of the fastest methods to reach the respondents (Kevin, 2005).

Sample size determination

Till 2020, 2514 contractors; 1356 project engineers and 198 project managers have been registered through the Construction Development Board (CDB Annual Report, 2020).

Equation 1. Yamane's equation

$$n = \frac{N}{1 + Ne^2}$$

Where N: Population Size; n: Sample Size

N = 2514

n = 61

Error = 12.64%

E = Margin of Error

Confidence level = 87.36 %

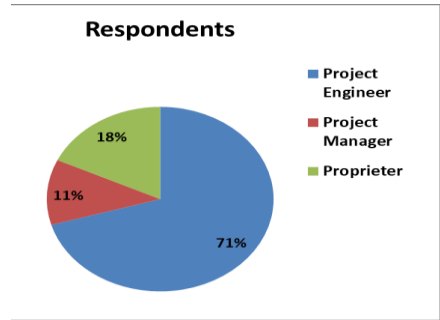
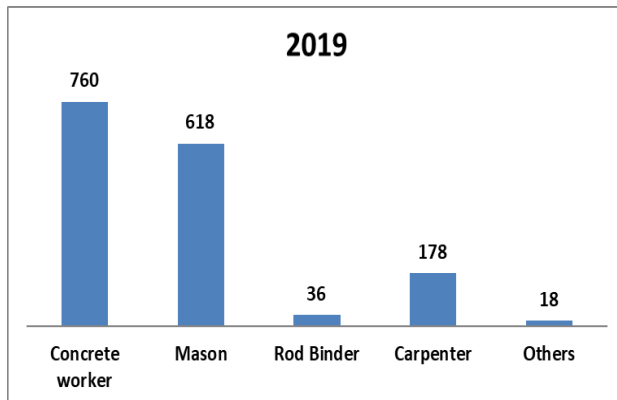


Figure 3. Respondents during questionnaire

A total of 61 responses was received during the questionnaire survey including 43 project engineer, 7 project managers and 11 of them were construction firm proprietor (Figure 3), achieving a confidence level of 87.36% determined by using Yamane’s equation (Adam, 2020) (Equation 1).

Data Analysis and Results:

Data collected from labour Agency:



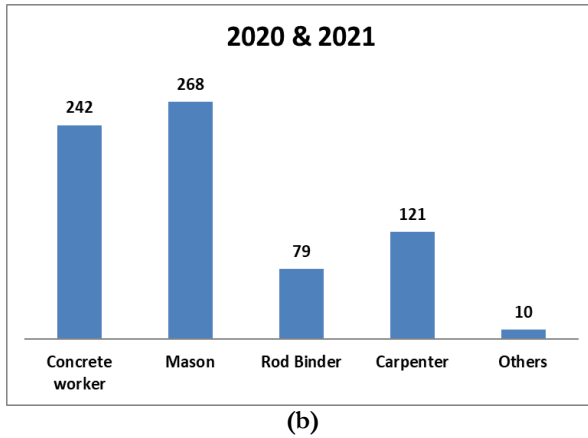


Figure 4. (a) Number of foreign labourers recruited before the pandemic i.e., in the year 2019; **(b)** Number of foreign labours recruited during the pandemic

Figure 4 represents the number of labourers recruited before and during pandemic. Except for Rod Binders, all the other labour trades recruited decreased drastically in 2020 and 2021 combined together than in 2019. Amongst all the labour trades, concrete workers and mason were found to be recruited in abundance signifying the necessity of those particular workers in the Bhutanese construction industry. The bar graph also mentions the core labour trades to focus on for skill development training. It also shows the absence in the involvement of Bhutanese labourers in those fields which eventually leads to the recruitment of the foreign labourers.

Data Collected from Questionnaire survey:

- 1) Did your project get delayed during this pandemic?

Table 1 shows that head mason, rod binders, tiles workers and asphalt workers were the professions that were in a shortage within the construction industry with 61, 57, 30 and 30 respondents confirming it respectively and were ranked 1st, 2nd and 3rd (Table 1).

On other hand, welders, operators, riggers and helpers were classified as the skilled labour force that occupied the 7th, 8th and 9th with only 3, 2, and 1 response (Table 1). The data collected signifies that one of the most important skilled labourers needed in any construction i.e., head mason and rod binders was absent and directly impacted the project delay. Skilled manpower as pointed out by (Gudiene et al., 2012) is considered to be one of the critical factors of production in construction projects. As activities on site are largely reliant on a skilled workforce (Iqbal et al, 2021) any shortage has a negative implication for the construction industry.

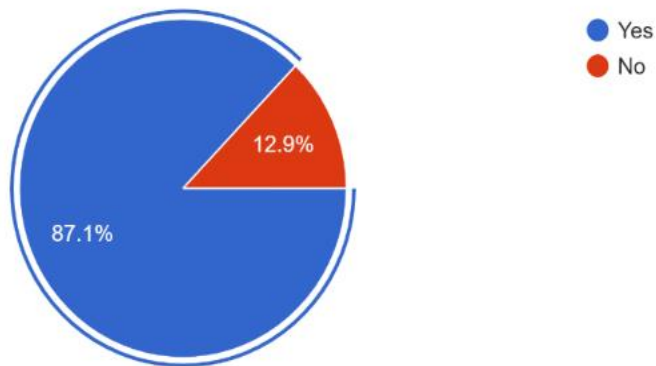


Figure 5. Delay in project during the pandemic

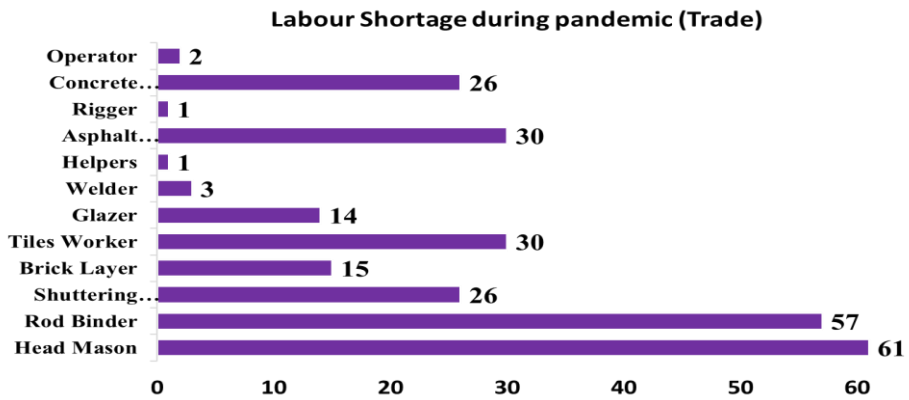


Figure 6. Skilled labour shortage according to trades.

Table 1. Ranking labour trades shortage

| Sl.no | Labour trades | No. of responses | Rank |
|-------|----------------------|------------------|------|
| 1 | Head Mason | 61 | 1 |
| 2 | Rod binder | 57 | 2 |
| 3 | Tiles worker | 30 | 3 |
| 4 | Asphalt worker | 30 | 3 |
| 5 | Shuttering carpenter | 26 | 4 |
| 6 | Brick layer | 15 | 5 |
| 7 | Glazer | 14 | 6 |
| 8 | Welder | 3 | 7 |
| 9 | operator | 2 | 8 |
| 10 | Helpers | 1 | 9 |
| 11 | Rigger | 1 | 9 |

2) Adversities during pandemic

As shown in Figure 7, skilled labour shortage and ineligibility to participate in new work-tenders were the main challenges faced

by the construction firms during the pandemic. Followed by losses the firms had to incur due to damage of stored materials. Unavailability of construction materials, financial and climatic factors offered least obstruction to the firm’s operations. The drastic decrease in skilled labour led to delays in projects which made them ineligible indefinitely for possible new projects announced during the period. With this delay and frequent lockdowns imposed, the stored materials degraded adding to the losses. Construction materials were mostly available within the country which confirms the absence of skilled labour was the core of all adversities during the pandemic.

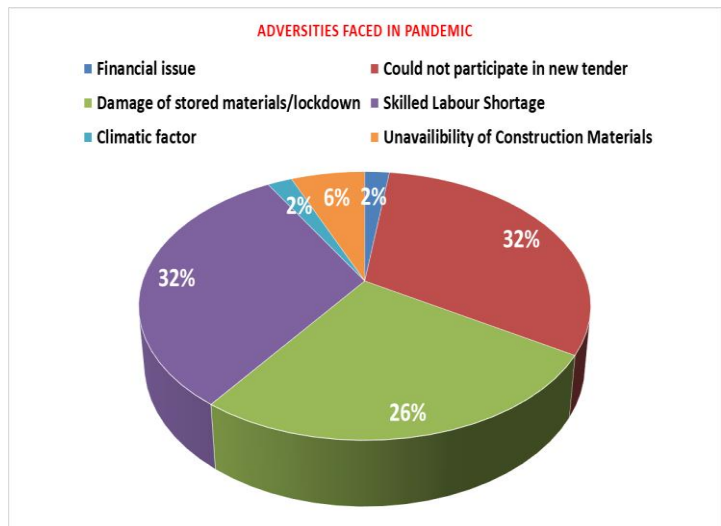


Figure 7. Adversities faced by construction firms during the pandemic

3) Causes of Labour shortage

The main factors that led to labour shortage within the country were the lack of necessary skills required, lack of foreign labour and lack of Bhutanese youth to work in the construction industry which is ranked 1st, 2nd and 3rd with 48, 43 and 39 responses respectively. The unavailability of Bhutanese workers ranked 4th, with 30 respondents. The minimal population of the nation was the least concern for the labour shortage as presented in Figure 9. Individuals who have a higher education have higher reservation wages thus they wait until they get a better-paid job (Tangtipongkul et al., 2018).

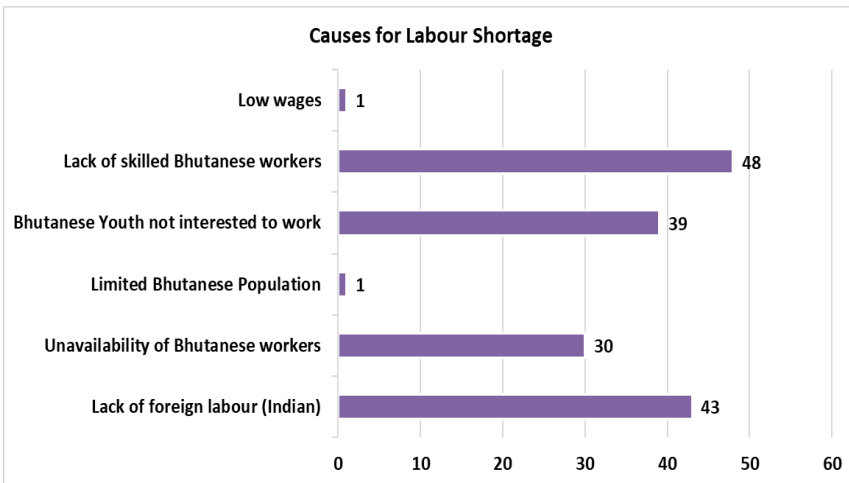


Figure 9. Factors leading to the shortage

Data indicate that the scarce population did not affect the labour shortage but the lack of required skills for the projects and uninterested youths was the major concern to rectify upon.

Encouragement of the youth to engage in the country's construction activities should be made a priority. With appropriate strategies, above mentioned major factors can be resolved within the nation and with proper implementation, the sustainability of the industry during similar exigencies could be achieved.

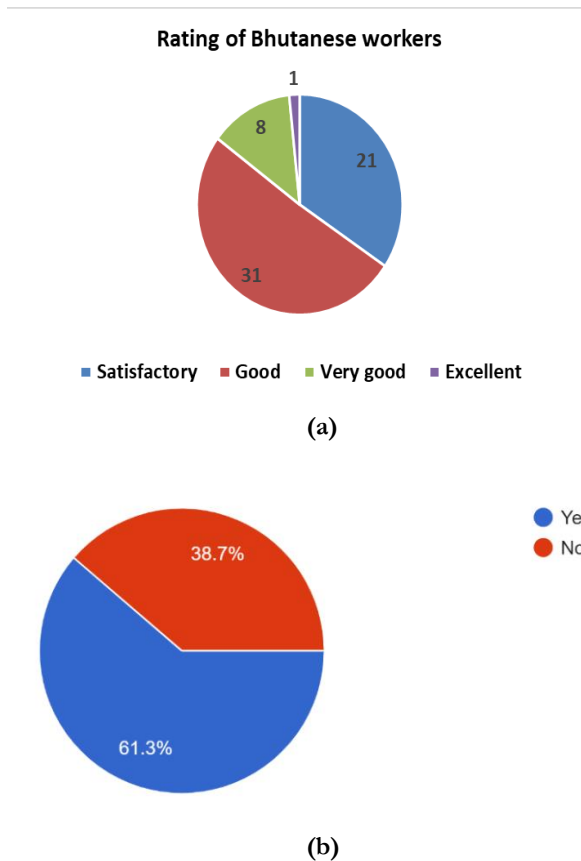


Figure 10. a) Bhutanese labour ratings from the employer; b) % response voting Bhutanese are capable to substitute foreign skilled labours.

The above-mentioned factors alone are not responsible for the causes of labour shortage; the construction industry will have to reevaluate the option of strict office work as this pandemic has brought about the possibility of “working from home”. The eye-opener is discovered as not all construction work is office-based. It is evident that the world is moving towards a digitalized future, hence professionals are expected to embrace innovative technologies to improve productivity (Ogunnusi et al., 2020). As some sections of the Bhutanese population are looking for jobs in the hydropower sector but cannot get them due to the predominance of Indian construction firms, which prefer to hire Indian labour and technical consultants (Saklani et al., 2019).

When asked to rate the skills of Bhutanese workers who are currently working on their projects, the majority of the respondents have rated the workers as ‘good’ and ‘satisfactory’ as shown in Figure 10 (a). Only 1 respondent out of 61 has rated Bhutanese workers as ‘excellent’ which goes to show that the Bhutanese workers need improvement in skills required in the construction sector. On the other hand, the majority of the respondents agree that Bhutanese could substitute foreign workers provided that they are given better platforms to develop the skills (Figure 10 (b)). The skilled labour shortage is an intricate phenomenon, which influences the performance of construction activities (Healy, 2011).

To reduce the dependency on foreign labour and move toward a sustainable Bhutanese construction industry, the following recommendation could be incorporated:

1. Provide skill development training to the Bhutanese youth since Bhutanese right now requires skill development in construction works. Promotion of projects such as the Build Bhutan Project (BBP) and Technical Training Institute (TTI). Focusing on skill development based on needs such as head mason, carpentry, rod binding etc.
2. Encourage Bhutanese youth to undertake construction work by providing better facilities, attractive wages, health and job security. Despite introducing Occupational Health and Safety (OHS) in Bhutan, it is not practised all over the region strictly.
3. Provide awareness and advocacy to relevant agencies such as the Construction Association Board, Construction Development Board (CDB) etc., to form a construction labour centre in the country where both the employers and the job seekers can interact. This way communication gap between the employees and the employers could be reduced significantly. The platform could also be used to provide internship opportunities to the youth currently in high schools, technical training institutes and colleges, preparing them for practical work with necessary skills.
4. Provide tangible rewards to motivate the youth who perform better in the work field. Tangible rewards such as a secured job offer and salary increments should be given, rather than personal recognition and public admiration. Also, experiential rewards can be initiated to those dedicated employees in the

form of paid vacations, sports, group outings, or even training sessions that focus on career growth. Provide opportunities to attend off-site training events where team members can get a break from the work site for a day or two while allowing them a platform to learn the skills they need.

5. Some future preventive measures during the pandemic to curb the spread of the virus:
 - Develop emergency plans (re-analyze, control and optimize cost)/ Cost-benefit analysis for disaster reduction.
 - Online meetings, develop strict SOP and strengthen site supervision.
 - Intelligent site access control and digitalized systems.

Conclusion

The shortage of labour within the Bhutanese construction industry during COVID-19 pandemic was primarily due to lack of skilled Bhutanese workers and absence of foreign labour (Indians). The industry mostly faced the scarcity of head mason and rod-binder followed by tile-worker, asphalt-worker and shuttering-carpenter. The local construction firms succumbed to financial losses and ineligibility to participate in new works which accelerated the impact on the industry. The only strategy adopted by the firms to counteract labour shortage was by offering attractive wages to the new willing workers eventually cutting down their profit margin to a minimal. Through this study, it can be understood that scarcity of human labour could not only

affect the construction projects, but also the Gross Domestic Product of the country. Therefore, such issues need to be given immediate attention and solutions to tackle the problem must be prioritized.

To mitigate similar adversity, the construction industry must work on its profile to be an appealing option for the youth, with introduction of certain necessary facilities (job security, health facilities, etc.). Most notably education on dignity of labour must be initiated to break the stereotypical view of construction industry as an un-aesthetical and high-risk industry. The industry should invest in training of people to build the required manpower base within the country. Contractor associations (such as CAB) should build a connection with high schools, technical training institution and colleges to offer internships, training to the aspiring youth. A labour center system should be established whereby the construction firms and jobseekers could interact directly, accelerating the recruitment procedures. In the past Bhutanese construction industry solely depended on foreign labour (Indians) but COVID-19 pandemic has exposed the vulnerability of this method. With preference given to the foreign labour by the firms, the Bhutanese workforce rarely had an opportunity to develop skills required for large projects. This pandemic has shed some light on an alarming problem to address and it is important that adequate response to the problem is devised.

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