Department of Roads

Bridge Branch

Second Bridges Improvement and Maintenance Program

INCIDENT DATA AT CONSTRUCTION INDUSTRY

BACKGROUND

The road infrastructure has a significant contribution to the overall socio-economic development of the country. It encompasses a wide range of activities like roads, bridges, tunnels and flyovers.



While the road infrastructure/construction sector is also considered as the most hazardous sector. Construction accidents are concerned with the inherent risks involved in construction activities due to the nature of the working environment. These accidents result in fatalities, major injuries, minor injuries and resulting substantial economic impacts, affecting workers, employers, and the overall projects.

According to the ILO estimates, 2.93 million workers die every year due to work related accidents and diseases. The majority of these 2.6 million work-related deaths are caused by work related diseases while 330,000 deaths are related to work accidents. Globally 6.71% of all death were caused by work related fatalities. The attributable fraction of work related death is estimated to be highest in Africa (7.39%) followed by Asia and the Pacific (7.13%). (International Labour Organization, 2022).

The Labour Act, 2017 section 79 and Labour Rule, 2018 section 50 state about the notification; if any accident occurs or any person is injured or dies in an accident or suffers from any occupational disease in the workplace, the contractor/sub-contractor shall give information to the concerned offices. Whereas if the accidents cause minor injuries (cured by first aid), there is no need to notify the office.

In the context of Nepal, due to lack of formal recording system for work-place related incidents and accidents, it is very challenging to highlight and improve the safety condition, accidents, incident, near misses that are occurring in the construction sites. Due to this gap, it is challenging to track and analyze the safety incidents occurring at construction sites. The prescribed accident/incident recording format was shared at all construction sites and project offices which are supported by BIMP-II. The adoption and practice of recording all major and minor incidents, accidents, and even near misses using our prescribed format is gradually progressing well.

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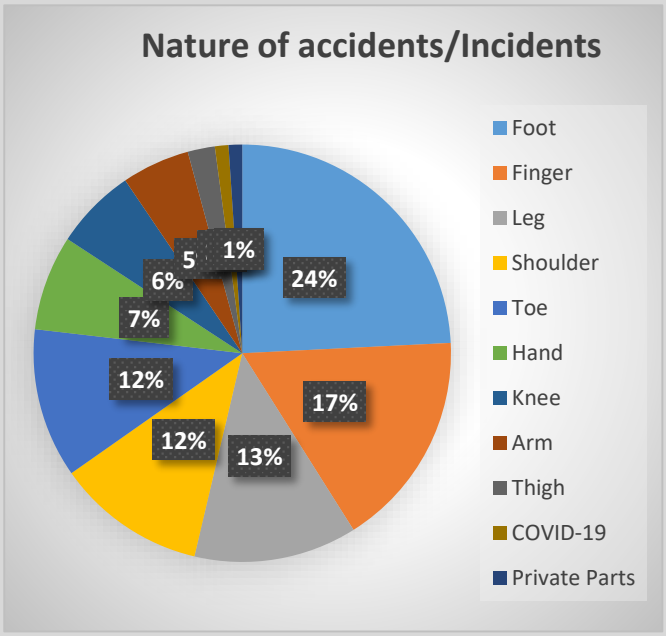
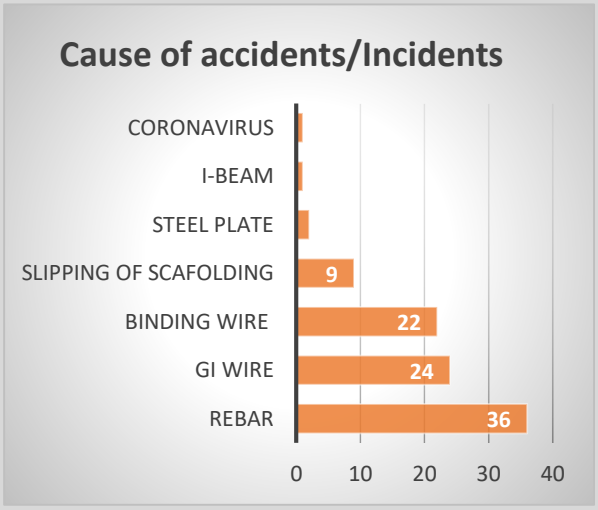
FINDINGS

These data were recorded from September 2020 to May 2022 by the contractor personnel. These recorded data were not from whole program sites but only from Narayanghat-Mugling Highway section where the new construction of bridges were carried out. The recorded data is categorized on following 3 bases:

1. Nature of accident/incident
2. Cause of accident/Incident
3. Frequency of accident/incident (trend analysis)

The first one is presented in the pie chart. There are 11 types of accidents/incidents. The recorded incidents show minor injuries on the body parts, mainly highest on the fingers and least on the thigh. During COVID-19 pandemic, one of COVID-19 infection was recorded. Injuries to private parts were also reported. Minor head injuries may not occur. The reason behind this may be the use of safety helmets during working time.





The second one is bar diagram. There are 9 different causes of accidents/incidents recorded during bridge construction. The data show that most of the incidents happened due to the rebar while the least incident were attributed to the I-beam.

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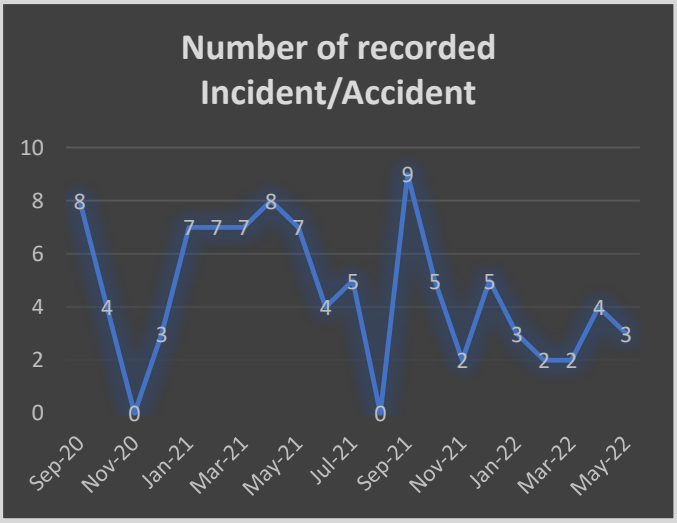
Department of Roads
Bridge Branch
Babarmahal, Kathmandu



The third is trend analysis. The data show the rate of accidents/incidents per month over 21 month. This trend reveals significant variations in the frequency of incidents, with the highest number recorded in September 2021 and the lowest in November 2020 and August 2021. The highest recorded number of accidents/incidents could be attributed to increased construction activity or specific project phase during that period and the lowest or decline might be related to the festive season and monsoon, which typically slow down construction activities.

RECOMMENDATION

1. **Improved Safety Procedures**: Since the handling of rebar was the leading cause of incidents, implement strict safety protocols and provide specific training. Ensure mandatory and proper use of personal protective equipment (PPE) such as specified gloves, safety boots etc.
2. **Comprehensive Incident Reporting System:** Establish a formal and standardized recording system for all incidents including near misses, across all construction sites. Analyze incident data on a regular basis to spot trends, root causes and times when there is high risk**.**
3. **Seasonal and Project Phase Planning:** Understanding the impact of seasonal variations and specific project phases on incident rates can aid in better planning and resource allocation to ensure safety during high construction periods.
4. **Regular Safety Audits:** Perform regular safety audits and inspections to identify and mitigate potential hazards promptly.
5. **Awareness/Training:** Conduction of safety awareness program to educate workers about the importance of safety practices and procedures.
6. **Health Monitoring:** Implement regular health monitoring and medical check-ups for workers to prevent work-related diseases and treat health issues early.

CONCLUSION

The analysis of the incident data in the construction industry, specifically focusing on the Narayanghat-Mugling Highway bridge construction, provides crucial insights into the nature, causes, and frequency of accidents/incidents over a 21-month period from September 2020 to May 2022. This analysis highlights the need for enhanced safety measures and protocols,

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particularly in handling rebar, to reduce the frequency of accidents in future bridge construction projects.

By addressing these areas, the construction industry can significantly enhance its safety practices, reducing the incidence of accidents and ensuring a safer working environment for all involved.



Wear Your Personal Protective Equipment (PPE): Protect Yourself from Harm

REFERENCE

International Labour Organization. (2022). A call for safer and healthier working environments. *Https://Www.Ilo.Org/Global/Topics/Safety-and-Health-At-Work/Areasofwork/Fundamental-Principle/Lang--En/Index.Htm*.

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