

Safety Aspects in Bridge Construction, Extensive use of Migrated Labour and Language Barriers

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Abstract - Indian construction industry is growing on very fast pace particularly in past few Decades. Construction is the second largest economic activity in India after agriculture. Indian construction is one of most unorganized sector which employ 51 million workers and expected to grow in double digits at 10.7 percent in FY22 in rebound from 8.6 percent last year. In 2021 the India construction market size was \$609.6 billion and it is projected to grow more than 6% during the period 2023 to 2026. Growth in the forecast period will be supported by a strong pipeline of infrastructure projects across various sectors. The work accident in Bridge construction projects are Inevitable . So there are always news news about work accidents in the projects whole year. While the construction of bridges is to carried out actively by the government. The Occupational Safety and health administration (OSHA) further show that four different main causes of accidents are fall from Height , Struck by object, Electrocution, Caught in or Between .The poor safety in execution results in fatal accidents at site and leads to lose of life , loss of time and lose of equipment's. The developed Countries has invented Safety measures and technique to minimize or eliminate delays at construction projects. Every year 145 million labours of Indian rural region migrate to cities in search of work. Migrants who move back and forth undertaking the work in construction, manufacturing, services, and farm sector. The list of out-migration regions such as West Bengal Uttar Pradesh, Bihar and Jharkhand have expanded and it include states such Rajasthan, Odisha, Madhya Pradesh. The 2011 Census Show the status of migration in India . India had 45.6 crore migrants in 2011 (38% of the population) compared to 31.5 crore migrants in 2001 (31% of the population). The population grew by 18%, Between 2001 and 2011 in this period the number of migrants increased by 45%. In 2011, 99% of total migration was internal and immigrants comprised 1%. India is full of diversity in land, religion, language, clothes, food, climate etc. All this make India a unique and diverse nation . This diversity can be seen in construction also , In Bridge Construction We have Seen most of the labours Comes from different background in case of culture ,traditions and languages. The language is very important part of human life and all species have their ways of communication, humans are the only ones that have mastered cognitive language communication. We can share our ideas, thoughts, and feelings with others only due to communication . It has the power to build societies and to destroy the society .

Misunderstandings, conflict, frustration, violence, and wasting time, can be caused by language Barriers .The study focuses on construction accident caused due to Language Barriers in workers and analysis the reasons . This study provides a model to identified labours/ Workers with such language barriers problems in initial stage of joining of workers and propose specific training for those labours.

1 INTRODUCTION

In India construction industry is the second largest manpower employing industry after agriculture and its dangerous one. In developing countries high priority is given to completion of work at low cost, to achieve this sometimes safety get Compromised . It provide Job to more than 44 Million people and Contribute Nearly 9% to National GDP. In bridge Construction mostly migrated labours are used and these labours Comes from different background in case of culture ,traditions and languages. Most of Construction Workers Comes from state of Uttar Pradesh , Bengal , Bihar and orisha, majority of these workers belong to backward tribes. These tribes have very different language with respect to Accents, Dialects Pidgin, slang and words choice . Language is a vital part of human connections. Humans are only ones that have mastered cognitive language communication and Communication is an Important part of our lives where we communicate to delivered the massage and ensure that we are able to understand what is being said. Effective communication is vital for successful project in terms of time and cost management It is Necessary at construction sites where majority of the Activities depends on the communication quality. However, the Extensive use of Migrant Labour at the construction site is creating Problem One of the problems is an language barrier, which does not help them to convey their massage effectively . in India most of the migrant workers came from Bengal, Uttar Pradesh, Bihar, Orissa where Hindi/English is not their primary language and they are unable express their ideas or understand the local language of other states ie (Punjab ,Kerala, Tamil Naidu, Maharashtra, Himachal Pradesh etc.) sometimes Due to poor communication skill they are unable to carry out tasks they were assigned .it could slow down the progress of the projects . it could also cause dispute between shareholders. Indian Construction dependency on Migrated labour is cannot be overlooked in any aspect . So here in this study we will try

to find the best ways to mitigate these language barrier among these construction Labours.

MIGRATED LABOUR DEMAND IN INDIA

Indian infrastructure development is not uniform all around the country . There are many reasons behind it and this unevenness in development also leads to migration of labour/ workers . Another reason is Indian States have different literacy rate and sometimes the local are not interested to work in Construction industry .The rapid growth in construction of Metro rails Projects in different Metropolitan cities has also increase the demand of construction labours / workers . Approximately there are 20 Million workers who are working in metro projects all over the country and these numbers of labours/workers are much more higher in Highway and Bridge Constructions .The movement of people away from their Native place of residence is called Migration it could be to across either internal within country or foreign country workers with different languages and culture has to communicate with each other to convey information and share their knowledge . So communication is important part of our daily life and it has so many benefits in different ways One of the advantages is the ability to have the opinions, idea , or knowledge to be delivered and shared effectively. With different Cultures, communication has proved to be challenging and these challenges are called as language barriers .

2 .RESEARCH METHOD

The Survey research method was used and questionnaire was developed after the review of literature for research design of this study. Subjective Sampling was used to enquire different site Contractors from different companies. The Questions was asked to participant one on one at site and data collected . This data was analyzed with Quantitative Data Analysis method . Total 240 labours / Workers were involved at initial stage of survey and belongs to different state and the bifurcation as below .

State	Skilled	unskilled	Primary Language
Kashmir	0	25	Kashmiri
Uttar Pradesh	15	42	Hindi
West Bengal	25	60	Bengali
Bihar	15	42	Hindi
Punjab	10	6	Punjabi
Total	65	175	Total 240

Table -1: Statewide Participant

3 RESULT AND DISCUSSION

A total of 170 respondents representing 70.83 % of the survey sample was ready to take part in this research survey after the first stage and 56.47% has said Hindi is not their primary language. There are 15.62 % Labours/Workers who are working first time out of their home town and Hindi is secondary language for them . The demand of migrated labours in India will increase significantly as Indian Infrastructure development is projected of increase 6% by 2023 to 2026 . So it's important to mitigate the language barriers labours/workers faces in construction .

LANGUAGE BARRIER AMONG THE LABOURS

In Indian construction industry language barrier might be fractional and still its threat for the industry . There are various effects which increase risk to the safety of the labours at site .Therefore the following language barrier in Indian construction industry are need to address . the miscommunication causes delay in project ,risk in quality and wastage of materials . Table Show the questions that were asked to participant.

Sr.No	Items
1	Miscommunication Risk Quality of work
2	Miscommunication Risk Safety of labours
3	Miscommunication Delay the Projects
4	Miscommunication Risk Waste of materials
5	Miscommunication do not affect the Work

Table -2 Language Barrier for Labours in Construction

As above Table-2 Questions were asked to the participants 'if Miscommunication Risk Quality of Work and feedback shows 52.08% Participants agree with this statement 37.5% Participants disagree with it and 10.45% people have no opinion on this question . On next item Miscommunication Risk Safety of labours 72.91 % Participants said it has major effect on the safety of the labours and 27.07 % said it does not affect their working . As data Collected for the next item participants strongly agree that miscommunication delay the projects .

Participants were asked is Miscommunication Risk wastage of materials and in response to this question 61.04 % agree with the statement and 38 % disagree with it . majority of respondents said clear instruction help to control wastage . At last we asked Miscommunication do not affect the work and

80.53 % were Disagree with this and 19.47 % said it has less effect on their daily works .

As Indian construction industry is expected to grow at the rate 6% between FY2023 to 2026 .We can understand the demand of migrated labuors ,Hence based on above analysis also we cannot overlooked the issue related to language barriers in construction . So we need to Build a model which will help the company to identify the labours having Problem related to language barrier .

Sr. No	Description	Action to be Taken
L1	Staff/ Workers who has no knowledge of local Language (Come First time to work State / Country)	Staff/Worker Should be Separated from other by providing Different Color Helmet and training for local language Shall be given for min. period of 60 days
L2	Staff/ Workers who has worked 3-6 month before and have very Basic knowledge of Local Language	Staff/Worker Should be Separated from other by providing Different Color Helmet and training for local language Shall be given for min. period of 45 days.
L3	Staff/ Workers who has worked More than One year Before and have The Little Knowledge of Local Language	Staff/Worker Should be Separated from other by providing Different Color Helmet and training for local language Shall be given for min. period of 30 days

Table -3 Model for Language Gap Identification and Proposed Solution

4 CONCLUSION

It has been observed that good communication is required for successful completion of construction project and this communication must be free of language barriers to save the project from unwanted time delays , Cost overrun ,etc. further studies are need to be carried out to look with communication barriers . With above finding we can mitigate these Language Barriers by training the labours for time period as per above recommendation in addition to above the labours having language Barrier issue must be provided with unique color PPE's so that they can be easily identified at site and concern Supervision staff / Engineer can give Clear instruction to them .

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ABBREVIATION

- L1- Lowest One having no Knowledge
L2- Lowest Second having Little Knowledge
L3- Lowest Third having the little Knowledge