

GENDER INEQUALITY IN CONSTRUCTION INDUSTRY

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Abstract : Because of the perceived nature of work and the common notion that it is a large male-dominated industry, the Indian construction industry has inherent gender biases. Females have been under-represented in all the discipline and occupation of construction. Current literature describe the difficulties and issues faced by women working in the construction industry. Women construction workers are caught in a late entry process, are unqualified, earn low wages, and are therefore casualized. The study seeks to describe the broad gender gap in the fields of employment, skill development, upward mobility, and the importance to the family of women's earnings. Although the industry is subject to many labor laws, none of them has been able to guarantee the fundamental right of construction workers to safe working and living conditions. The only way forward seems to be required changes to the Building and Other Building Workers Act, its improved enforcement, and market-based processes where demand for higher skill levels and better services could create conditions for combating gender discrimination and inhuman exploitation in the construction industry.

Index Terms - Gender, Construction, Inequality, RII.

I. INTRODUCTION

The construction industry is a male-dominated industry and a major challenge to women's equal opportunities. Women face many difficulties and barriers while choosing a career in the building and construction industry. Women are victims of unfair treatment, discrimination and disrespect, whether they are part of the professional team or even working on site nowadays. Studies have shown that men and women perform unlikely on tasks.

Because of the distinctive nature of work being a male-ruling sector, the Indian construction sector has an inherent gender-based structure. According to the labour force survey trends (August 2018), the construction sector continues to be a male-dominated sector with an overall 89% average percentage of men employed in the sector compared to just 11% for women. [14] This study analyzes the discrimination faced by female construction workers. The research will highlight the specific gender-oriented areas of skill development, education and the importance to their family of women's income. Although this sector is covered by many labor laws, none of them had been able to ensure the right of the construction worker to live and work in safe conditions. The solution is to act and properly apply the required rules in the construction and other construction workers act.

The graph shown in Figure-1 represents the participation rates for women and men in the work force of various countries,

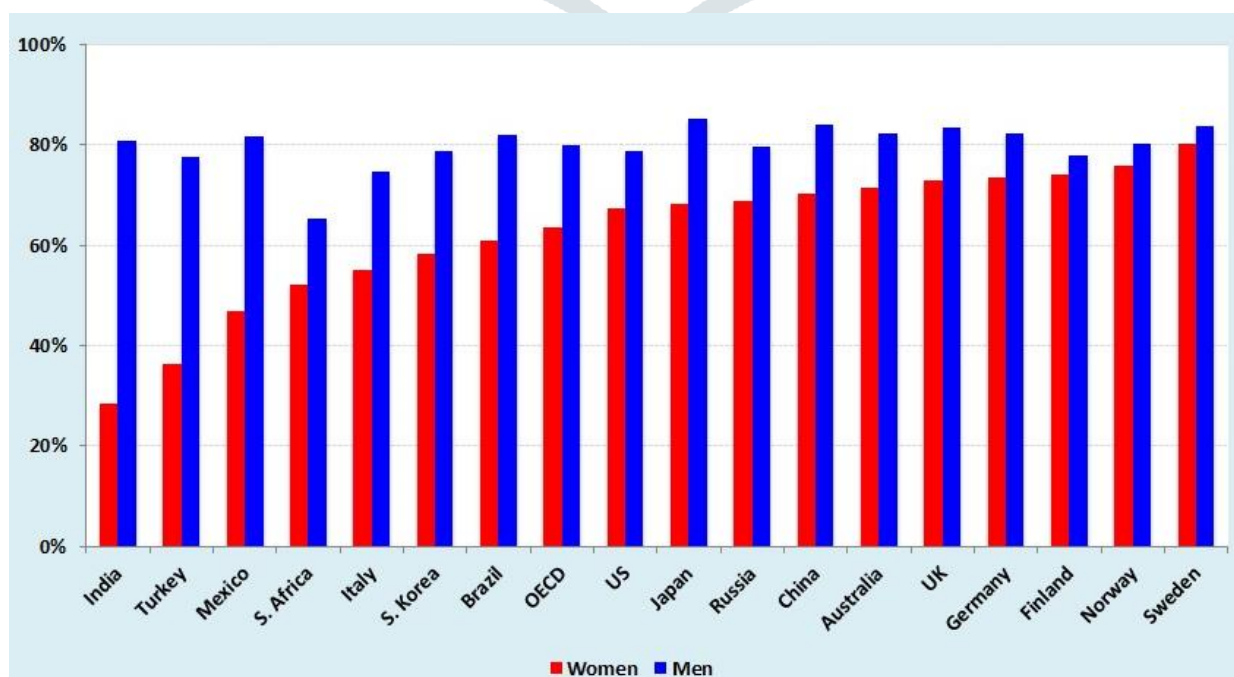


Figure-1 Workforce participation rates (Source - OECD, 2017)

Despite a number of regulations and campaigns on diversity, construction industry remains among the one of the most male-dominated industries. The construction industry training board (2003) reported that, women made up just 9% of the workforce in building. [16] Females are underrepresented in all occupations and careers involved in building. Much of the current literature addresses the challenges faced by women working in this field, including social and systemic obstacles such as harassment and discrimination, limited opportunities for networking, and long and inflexible working hours that often lead to poor career opportunities and high levels of stress for women. However to understand why this condition occurs, further work is needed.

Since the beginning of human history, construction as an operation has always been there around. However, as almost all the historical literature on the role of women in the development of human cultures has been restricted to reproductive labor, it is possible that the role of women in the construction of traditional societies has also been blanked out. But this situation is rapidly changing, as daily feminist work is increasingly looking deeper into the women's role in different activities related to production over time.

II. LITERATURE REVIEW

Following are the literature reviews on the subject of gender inequality in the construction industry from various national, international or online journal articles.

Eagly et al. (1984) presented that gender stereotypes represent the perceptions on what they frequently see in a specific group of persons engaged in particular activity. [2] Das D. K. et al. (1985) carried out a study on gender discrimination against female workers in unorganized sector. Some enemies of women agreements mess with the working atmosphere for them. [8] Girija R. et al. (1989) come up with a study on socio-economic conditions of workers in construction industry. Women suffer from discrimination at sites, irrespective of whatever skills they have. [17] Acker et al. (1990) also said that the structure of the company is not gender-neutral. The concept of gender and organizations is needed for a number of reasons. Gender is not an enhancement to the current processes, it is an essential part of all the processes. [12] Shivakumar M. S. et al. (1991) conducted a survey of employment and hiring practices in the construction sector. [15] Wahl et al. (1992) has developed the gender structure concept, which incorporates three different gender distinctions within the organizations. [5] Kanter et al. (1993) explained through her research that the discrepancies in gender in organizational behavior are due to organizational structure rather than personal characteristics of men and women. [18] Mishra et al. (1997) discussed that women construction workers are certainly just a part of the unqualified worker group in the Indian context. [20] Anand et al. (1998) analyzed the attributes of construction workers to support reaching out to the female workers along with the knowledge of their rights and then use. [21] Dainty et al. (1999) found that women are focusing on office-based, administrative jobs within the construction industry due to the gender stereotypes assumptions. [3] Bagilhole et al. (2000) found that due to the misleading image of the construction industry presented by the current employment programs, women might not stay in the industry after the education. [6] Connell et al. (2005) described it as a male-dominated world with a powerful transformation of awareness. [19] Hakim et al. (2006) discussed the preferential theory, which describes how equal opportunities in the workplace encourage women to make a career options. [7] Rajasekhar D. et al. (2007) conducted a research on job security for unorganized employees in the construction industry. [9] Cettner et al. (2008) discusses the research on gender in the construction industry, which reveals that the traditional male dominated construction sector mostly remains unchanged. [1] Ross-Smith et al. (2010) argue that the construction industry is the masculinize field. [4] Dave Vandana et al. (2012) conducted a study on socio-economical, working and living conditions of female workers in the unorganized sector. [11] Kumar M. D. et al. (2013) conducted a study on inimitable problems of construction workers, such as poor health, difficult working life, harassment, insufficient and unfair wage structure, poor working conditions, lack of housing facilities, violations against female workers, lack of security measures and adequate education for construction workers' kids. [10] Kalpanadevi et al. (2013) states in their research study that, domestic violence, gender discrimination, inequality in wages are the key elements that makes it challenging for women to work in the construction industry. [13] Zacharia et al. (2014) suggested that role models can significantly increase the awareness of engineering professions and the direction amongst the students. [22]

As discussed above, women face a whole range of discrimination while pursuing their career in the construction industry. Table-1 illustrates the career challenges faced by the women in the construction sector by comparing various literature,

Table-1 Career challenges for women in construction industry

Factors ↓ Authors →	Eagly et al. (1984)	Das D. K. et al. (1985)	Girija R. et al. (1989)	Acker et al. (1990)	Shivakumar M. S. et al. (1991)	Wahl et al. (1992)	Kanter et al. (1993)	Mishra et al. (1997)	Anand et al. (1998)	Dainty et al. (1999)	Bagilhole et al. (2000)	Connell et al. (2005)	Hakim et al. (2006)	Rajasekhar D. et al. (2007)	Cettner et al. (2008)	Ross-Smith et al. (2010)	Dave Vandana et al. (2012)	Kumar M. D. et al. (2013)	Kalpanadevi et al. (2013)	Zecharia et al. (2014)
Masculine Culture				✓							✓	✓			✓	✓				
Gender Stereotypes	✓									✓		✓			✓					
Work-Life Balance		✓											✓				✓	✓		
Low wages		✓	✓						✓								✓	✓	✓	
Exploitation			✓					✓										✓		
Nature of work										✓					✓					
Neglect of children													✓					✓		
Unhygienic habits																		✓	✓	
Lack of social security		✓	✓		✓							✓		✓				✓		
Ignorance of laws									✓									✓		
Traditional attitude	✓	✓		✓			✓								✓					
Long working hours																	✓			
Competition in staff												✓		✓						
Autonomy								✓												
Negative perceptions of women capabilities		✓	✓				✓	✓				✓								
Males aggressive behaviour habits																✓				
Mentors unfair assessment of training needs				✓				✓												✓
Work Stress		✓																	✓	
Undervalued		✓	✓	✓															✓	
Institutionalized Discrimination		✓		✓		✓	✓	✓		✓		✓					✓		✓	
Lack of Career Knowledge						✓		✓		✓										✓
Culture and Environment		✓		✓			✓		✓								✓			
Family Commitments													✓							
Male Dominated Training Courses											✓									
Recruitment Practices					✓						✓								✓	

III. METHODOLOGY

Research process includes a set of activities or steps needed to successfully carry out the research and the appropriate sequence of those steps. The well demonstrated research process, which is adopted in this research work is shown in Figure-2.

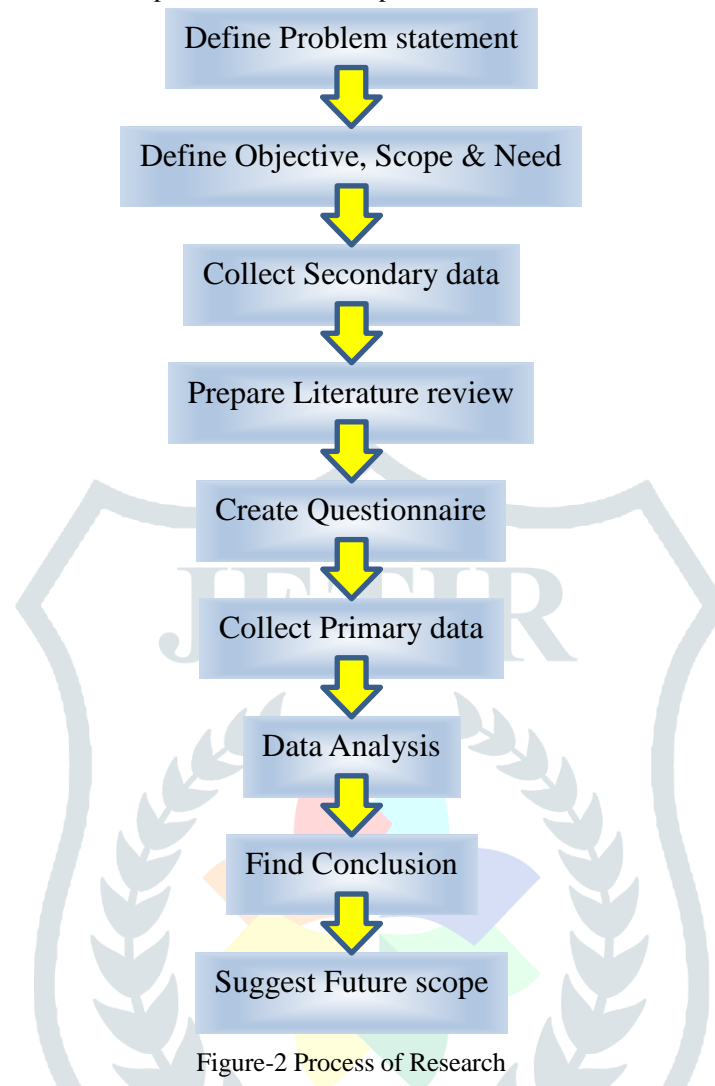


Figure-2 Process of Research

The main aim of this study is to determine and analyze the perceived trends of women in the construction industry with regards to the recruitment practices and placement within the firm on the basis of gender. Collected data and literature review of the construction industry has been studied in order to understand the perceived status of women in the construction industry as a whole. Because of the perceived nature of work and the common notion that it is a large male-dominated industry, the Indian construction industry has inherent gender biases.

The questionnaire is designed based on the fact that it should be simple, clear and understandable and, at the same time, the researcher should be able to analyse them well. The factors derived from the previous researches are used as a base for designing the questionnaire. The questionnaire is mainly divided into 2 parts. Part-I includes the general information about the respondent and Part-II contains the main questionnaire regarding the gender inequality. Part-II is further distributed into 3 parts, which incorporates factors affecting career challenges (30 factors), success factors (20 factors) and career development strategies (10 factors) for women in the construction industry.

Relative Importance Index (RII) method used to determine the relative importance of various factors affecting gender inequality in construction industry. RII method is most suitable for the purpose of this study. It includes the ranking of different factors according to the relative importance indices. In this study, the 5 point Likert's scale is used to determine the level of effect of various factors affecting gender inequality. The result gives the factors that affects the most to gender inequality. For analyzing the data, the RII is calculated for each factor by the following equation,

$$RII = \frac{\sum W}{A * N}$$

where,

W = weighting given to each factor by the respondents

A = highest weight

N = total number of respondents

Spearman's rank correlation test is used to find and compare how well various groups of respondents agree to the factors affecting gender inequality in construction industry, from the ranks derived from the responses given by the respondents. It is a measure of association that is based on the ranks of the observations and not on the numerical value of the data. In order to determine the significant correlation of the ranking of factors affecting gender inequality between various stakeholders, the Spearman's rank correlation coefficient was computed from following equation,

$$R_s = 1 - \frac{6 \sum d^2}{n^3 - n}$$

where,

d = difference between the ranks

n = number of factors being ranked

IV. DATA ANALYSIS

The questionnaire was distributed to various stakeholders by informing them regarding the purpose of the research and from that total 80 respondents provided their response for this research work. Analysis was carried out using Microsoft Excel for interpretation of ratings given by the stakeholders (contractor / project manager, site engineer, site supervisor).

The primary data, which were collected by the questionnaire survey, were analyzed using the RII method for ranking each factor. The study was performed by considering the responses given by the respondents for all the factors affecting gender inequality in construction industry, and their RII was calculated. The factors are ranked based on RII values. From the ranking assigned to each factor, it is possible to identify the most important factor affecting gender inequality in construction industry. Table-2 to Table-4 shows the ranking of overall response by RII method.

Table-2 Ranking of Career Challenges by RII method

Sr. No.	Factors	RII	Rank
15	Non-autonomy (Dependency)	0.94	1
23	Ignorance of laws	0.87	2
29	Lack of career knowledge	0.83	3
4	Long working hours	0.81	4
3	Gender stereotypes	0.79	5
13	Work-Life balance	0.75	6
5	Lack of social security	0.70	7
11	Mentors unfair assessment of training needs	0.66	8
1	Recruitment practices	0.64	9
9	Traditional attitude	0.60	10

Table-3 Ranking of Success Factors by RII method

Sr. No.	Factors	RII	Rank
18	Flexibility	0.75	1
17	Self-Efficacy	0.74	2
6	Dedication	0.74	3
3	Ability to network	0.72	4
19	Responsible	0.72	4
5	Practicality	0.69	6
10	Influence to others	0.68	7
7	Conscientiousness	0.67	8
9	Kind	0.67	9
16	Adaptability	0.67	10

Table-4 Ranking of Career Development Strategies by RII method

Sr. No.	Factors	RII	Rank
1	Provide role model	0.98	1
10	Support career development	0.91	2
2	Offer genuine training / mentor	0.9	3
6	Reporting dissimilarities	0.69	4
3	Invest in early attraction	0.66	5

The Spearman's rank correlation coefficient was used to find out the correlation between the rankings given by contractors / project managers, engineers and supervisors. These correlation coefficient values show the amount of correlation between these stakeholders in ranking the factors affecting gender inequality in construction industry. Table-5 to Table-7 shows Spearman's rank correlation coefficient between the stakeholders.

Table-5 Spearman's Rank Correlation Coefficient for Career Challenges

Sr. No.	Stakeholders		Rs
1	Contractor	Engineer	0.77
2	Engineer	Supervisor	0.82
3	Supervisor	Contractor	0.64

Table-6 Spearman's Rank Correlation Coefficient for Success Factors

Sr. No.	Stakeholders		Rs
1	Contractor	Engineer	0.71
2	Engineer	Supervisor	0.57
3	Supervisor	Contractor	0.31

Table-7 Spearman's Rank Correlation Coefficient for Career Development Strategies

Sr. No.	Stakeholders		Rs
1	Contractor	Engineer	0.90
2	Engineer	Supervisor	0.62
3	Supervisor	Contractor	0.70

V. CONCLUSION

This research is intended to identify the factors affecting gender inequality in construction industry. This study investigates all possible factors affecting the gender inequality through a structured questionnaire distributed in Ahmedabad, Gujarat. The survey results are subjected to analysis, and the ranking of factors is calculated using the Relative Important Index (RII) method. The results of the questionnaire survey and analysis are presented in the previous section.

Sixty factors were considered for the study, which were categorized in three main groups as Career challenges, Positive factors and Career development strategies. Total 80 responses were collected. Because the contractors, project managers, engineers and supervisors have vast experience in the construction field, their adequate experiences give the proper suggestion to study about the factors affecting gender inequality in construction industry.

The results from the calculation of the RII method from different stakeholder's point of view, indicate that the most important career challenges faced by women are; non-autonomy (dependency), ignorance of laws, lack of career knowledge, long working hours, gender stereotypes, etc. At the same time, the positive factors of female workers are; flexibility, self-efficacy, dedication, ability to network, responsibility, etc. The important career development strategies to bring the gender equality are; provide role model, support career development, offer genuine training / mentor, etc.

In addition, the agreement or disagreement among respondents was checked using the Spearman's rank correlation coefficient, which states that there is strong agreement among respondents regarding ranking of factors affecting gender inequality in construction industry.

VI. FUTURE SCOPE

In this study, only residential and commercial types of projects are considered for the research purpose. So work can be extended for other types of construction projects like infrastructural project, industrial project etc.

Here, the factors affecting gender inequality in construction industry are identified and analyzed, but for the further research, it can also be studied by taking the case study of any construction site and then compare it with different types of construction project.

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