

Women as Professional Workers in the Construction Industry: A review of Structural-Cultural Barriers and Their Implication for Sustainable Development

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Abstract. The construction industry is one of the largest and most influential industries globally, requiring a continuous supply of professional human resources to meet increasing technological and development demands. Women professionals represent a significant potential workforce; however, gender inequality remains prevalent in the construction sector, which is traditionally male-dominated. Women are still underrepresented due to persistent structural and cultural barriers, including masculine stereotypes, discriminatory workplace environments, and limited career opportunities. This condition has encouraged researchers to examine the challenges faced by women and explore innovative solutions to attract and retain them in construction professions. This study aims to review existing literature on women in the construction industry, with a particular focus on identifying key structural-cultural barriers and innovative strategies that can enhance women's participation. The findings are expected to contribute to discussions on gender equality and sustainable development in the construction industry.

Keywords: Gender; Construction Industry; Workers; Sustainable Development.

1 Introduction

In global developments, countries in the world have agreed on a global program, namely the Sustainable Development Goals (SDG). In the program, there are 17 goals that must be achieved together for the sake of balance and creating a better world. Some of them are infrastructure development and commitment to gender welfare. Infrastructure development is of course the realm of the construction industry, while women's empowerment can also be carried out in the construction industry as part of fulfilling human resources. The construction industry is one of the largest industries in the world. In addition, the construction industry positions itself as an industry that has the most impact on world development. This is indicated by the large influence of this industry on social and economic development [1]. Global developments including technology have made the construction industry continue to grow and influence. The rapid demand for construction industry products demands a workforce or professional human resources. The need for human resources is increasingly needed. Human resources in the construction industry are basically dominated by men [2]. This is corroborated by statements in

several studies that historically, the construction industry has traditionally been dominated by men [3]. In its development, the construction industry has not maximized in developing the potential of its diverse resources, dominated by men, this limits the industry's competitiveness, growth potential, and performance in responding to these global developments [1]. To meet the industry's need for professional resources, it cannot only be met by relying on men. Women in their work can also contribute positively, which has also been proven in fields other than construction. Basically women are certainly part of the workforce. As workers, women can position themselves as potential workers. Based on several previous studies, the contribution of women workers to the construction industry is very low. Research in 2019 stated that the number of female workers in the Malaysian construction industry was only 9.1% while in Indonesia it was around 2.2%. Even based on Indonesia's statistical data for 2020, the number of female workers in the Indonesian construction industry is only 1.7% [4]. This condition shows that the contribution of women's involvement in the construction industry is still very low. In other words, the gender diversity in this industry is still very poor. Under these conditions, it is necessary to study how the construction industry is viewed from the perspective of women as construction workers. This is seen by understanding the pattern of research development related to women in this industry, so that through this research it can be seen the motive for the minimal contribution of women in this industry apart from the traditional notion that the construction industry is a male area.

2 Methodology

This article employs a non-systematic (narrative) literature review methodology to examine the structural and cultural impediments encountered by women in the construction sector. The review concentrates on combining current theoretical and empirical research concerning gender disparity, workplace culture, and women's involvement in construction in relation to sustainable development.

Relevant material was located via academic databases such as Google Scholar and Scopus, utilizing keywords such women in construction, gender disparity, construction industry, and sustainable development. The chosen studies were qualitatively investigated to discern repeating themes, patterns, and conceptual insights pertaining to cultural and institutional impediments, along with methods to augment women's engagement in the construction sector.

3 Conceptual Background

3.1 Gender Issues in the Dynamics of Sustainable Development Goals (SDGs)

Sustainable development is a worldwide initiative that necessitates the amalgamation of economic, social, and environmental facets to attain enduring prosperity without jeopardizing natural resources and the social welfare of future generations. Despite being a primary concern for numerous nations and international entities, these initiatives frequently prove inadequate in comprehensively addressing the gender aspect.

Within the framework of the Sustainable Development Goals (SDGs), gender issues are highly urgent for several reasons.

First, **equal access and social justice** remain major challenges, as many countries continue to experience gender inequality that restricts the roles of women and minority groups. Integrating a gender perspective into sustainable development is expected to reduce inequality and provide broader access and equal opportunities for all stakeholders to participate in development processes [5]

Second, **economic empowerment and political participation** are critical concerns. Women often have limited access to productive resources, which hinders their economic advancement. Sustainable development must therefore consider comprehensive efforts to create environments that support the active participation of all groups, including women, in both economic and political spheres [5].

Robust gender stereotypes and conventional role expectations often impede gender integration in sustainable development. Cultural traditions linking household responsibilities to women and economic tasks to men might undermine the efficacy of policies and initiatives designed to promote gender equality. Changes in cultural and social attitudes are necessary to enable societies to transition toward more inclusive and gender-equitable conditions [6].

Furthermore, inequalities in access to resources, education, and income between genders persist as a significant concern. In numerous nations, women persistently encounter substantial obstacles in obtaining sufficient healthcare services, excellent education, and employment possibilities comparable to those of males. Sustainable development initiatives must target the reduction of disparities and the establishment of equitable opportunities for all individuals. [7].

3.2 Construction Industry and Sustainability

The construction industry is one of the largest and most important industries in the world. Specifically, it plays a key role in development at local, national, and global levels. This industry has both direct and indirect effects on society in environmental, economic, and social aspects [8]. Many studies show that the construction industry aims to design and deliver infrastructure like buildings, roads, and other facilities [9].

Sustainable development has been a major topic for several decades. Some scholars argue that the construction industry is part of a larger social process [10]. This viewpoint highlights the industry's strong impact on environmental, economic, and social results. As a social process, the construction industry involves workers, clients, local communities, and supply chains, all working to meet the needs of current and future populations [11].

From this perspective, the construction industry cannot rely only on men. With the wide variety of job options available, we should not overlook the participation and professionalism of women. Like men, women should have equal chances to choose their careers, including roles in the construction industry.

4 Discussion

4.1 Gender in the Construction Industry: Perceptions of Masculinity

As noted earlier, the construction industry has long been a male domain. These established traditions have evolved into a "culture" where women's involvement in the industry is often underrepresented or seen as unusual by some groups. This culture has also shaped the belief that construction work requires physical strength and skills typically associated with men. Such beliefs create psychological and social barriers for women wanting to enter the sector. An industry culture that assumes construction work requires physical strength and skills commonly linked to men often makes women feel isolated and unsupported [12]. Being one of the most male-dominated sectors, this culture and view of masculinity have become key aspects of work dynamics on construction sites. These stereotypes support the idea that site-based construction work is more suitable for men, who are thought to have better physical and technical skills. As a result, masculine culture becomes the main standard in hiring, promotion, and organizational practices in many construction companies, leading to the ongoing underrepresentation of women in the industry [12].

Worldwide, women's participation in the construction industry is still low compared to men's. The International Labour Organization (ILO) reported in 2020 that around 10 to 12% of the global construction workforce consists of women. This number shows that, despite some progress, the construction industry remains largely male-dominated [13]. In Indonesia, women's participation in the construction sector mirrors this global trend. Data from Statistics Indonesia (BPS) in 2021 indicate that women make up only about 7% of the total construction workforce. While there have been some changes in perceptions and job opportunities for women, challenges like gender stereotypes and limited access to technical skills training continue to pose major barriers [14].

In the United States, women make up about 10% of the total workforce in the construction sector. Despite efforts from both the government and private companies to increase women's participation through training programs and inclusive policies, this figure has remained mostly unchanged in recent years. In Sweden, there are strong initiatives to support gender equality across various sectors, including construction. About 20% of the total construction workforce in Sweden is made up of women. This reflects the country's strong commitment to gender inclusion in the job market [15].

A work culture that prioritizes masculinity influences both the working atmosphere and the decision-making processes of firms, as well as team dynamics. Norms emphasizing physical strength and male attributes restrict women's ability to express their views and demonstrate their competencies in the sector. Consequently, women face considerable obstacles and impediments when contemplating a career in construction. They often experience unfair and discriminatory treatment [12].

While the construction sector offers promising career options, several issues make it difficult for women to build long-term careers here. First, there is a notable gender wage gap, with women earning only about 79% of what men earn. For example, if a male earns one dollar, a woman earns only seventy-nine cents. The wage disparity illustrates entrenched inequality in the valuation of women's labor, deterring their participation and retention in the construction sector. Secondly, extended working hours may interfere with women's responsibilities as

caretakers, particularly for those nurturing children. The practice of checkboarding, wherein women are employed primarily to demonstrate a company's dedication to gender equality while being perceived as less skilled than their male counterparts, further marginalizes women within the construction profession. [16].

In general, women encounter various challenges in their careers in the construction industry. These challenges usually fall into five categories [17]: (i) *intense competition*, influenced by limited promotion opportunities, discomfort from differences in appearance, heavy workloads, and a shortage of role models in the field; (ii) *limited personal development*, due to a lack of understanding about career progression, insufficient training or professional development opportunities, and difficulties in managing staff; (iii) *gender discrimination*, marked by wage disparities and fewer incentives compared to men, a lack of mentorship from supervisors, work-life imbalance for women, and inadequate childcare options for working mothers; (iv) *industry stereotypes*, shaped by negative views and unwelcoming work environments; and (v) *poor working conditions*, affected by a lack of safety and comfort in the workplace, as well as long hours. These barriers correspond with findings from other pertinent studies.

The construction sector, frequently perceived as male-dominated, encounters substantial cultural and structural obstacles in integrating women into its workforce. Cultural and institutional constraints significantly affect women's participation and career advancement in the sector.

4.2 Cultural Barriers

Cultural barriers denote impediments stemming from cultural beliefs, social standards, and entrenched societal perceptions. These obstacles are not directly associated with formal frameworks such as legislation or regulations. Rather, they encompass indirect and frequently implicit elements. Numerous obstacles in this category including:

Gender stereotypes. Gender stereotypes are a primary cultural obstacle impeding women's involvement in the construction sector. The industry is frequently linked to physically arduous and hazardous labor, which is typically regarded as more appropriate for men. This view strengthens the conviction that women are unsuitable for construction labor, both physically and technically. [17]. Such misconceptions also affect women's acceptance in the workplace and restrict their career prospects within the business.

Traditional social norms. Traditional social standards perpetuate gender roles by designating women as primarily responsible for home duties, whilst males are perceived as the principal earners. These conventions exacerbate discrimination against women in the workplace, particularly within the construction sector. Numerous countries persist in the belief that women need to engage in professions deemed “feminine,” such as education or healthcare, rather than in the construction industry, which is regarded as predominantly masculine [6].

The lack of successful female role models. The absence of accomplished female role models in the construction sector presents a significant challenge. The scarcity of women in leadership or prominent roles hinders young women and potential employees from feeling inspired or motivated to pursue careers in the sector. This absence engenders a loop wherein women encounter difficulties in both entering and sustaining their presence in the industry. [18].

Confronting gender stereotypes, altering constrictive social norms, and enhancing the visibility of accomplished female role models in the construction sector can foster a more inclusive and supportive workplace for all workers, irrespective of gender. These measures are crucial for advancing gender equality and guaranteeing equitable chances for professional advancement.

The findings indicate that cultural norms perpetuate masculine dominance in construction environments, hence constraining women's long-term career viability and deterring their participation and retention in the sector.

4.3 Structural Barriers

Structural barriers are impediments or limitations that originate from formal systems or established frameworks within society, organizations, or industries. In contrast to cultural obstacles, which are more indirect and tied to social or cultural ideals, structural barriers are typically linked to legislation, policies, or organizational frameworks that directly influence individuals' access, opportunities, and experiences. The barriers encompassed by this category include the following:

Gaps in education and training. Women in the construction sector persistently encounter systemic obstacles that directly restrict their prospects and career advancement. A significant concern is the disparity in access to education and training. A significant number of women lack access to equivalent technical training and skill development opportunities as males, resulting in their underqualification for advanced or higher-paying roles within the business. [7].

Discrimination in policies and workplace practices. Discrimination ingrained in workplace policies and practices persists extensively. Women often encounter wage disparity, restricted advancement opportunities, and inequitable treatment from superiors or peers. These conditions impede professional progression and perpetuate enduring gender disparity within the construction business. [13].

Unsafe working environments. Furthermore, the working conditions in the construction sector frequently do not meet the needs of women. Hazardous work environments, lack of childcare services, and extended working hours pose considerable obstacles, especially for women with caregiving duties. In the absence of sufficient childcare help, numerous women find it challenging to sustain employment in the construction sector, as rigorous schedules and adverse working conditions hinder the equilibrium between professional and personal responsibilities. [19].

4.4 Women as Mothers and Wives in the Household versus Workers in the Construction Industry

Beyond the challenges discussed above, women face a unique situation arising from their dual roles in everyday life. In addition to working as professionals particularly in the male-dominated construction industry, which is often characterized by high psychological pressure, women simultaneously fulfill their roles as mothers and wives within the household. The building business is typically viewed as masculine, whereas domestic chores are considered feminine.

A major problem for women is attaining equilibrium between professional obligations and familial duties. The construction sector frequently demands extended working hours and provides less flexibility, hindering women's ability to balance professional and familial responsibilities efficiently. Studies indicate that numerous women encounter difficulties in reconciling professional and familial obligations, resulting in heightened stress and weariness. [20].

The restricted access to childcare services at or near construction sites poses a significant obstacle for working women. In the absence of sufficient childcare help, numerous women are compelled to pursue alternative arrangements that frequently prove to be expensive, unreliable, or inappropriate. The insufficiency of adequate childcare facilities may deter women from persisting in the construction sector or progressing in their careers.[21].

Consequently, supportive organizational policies are crucial for assisting women in navigating these hurdles. Organizations must formulate and execute work–life balance policies, encompassing flexible work arrangements, sufficient maternity leave, and mentorship initiatives for women. Research indicates that organizational strategies fostering work–life balance and gender equality can substantially aid women in surmounting these obstacles and promote increased female involvement in the construction industry. [22].

This pattern demonstrates that the structural impediments encountered by women in the construction sector are not isolated phenomena but are intertwined with organizational practices and policy-level limitations.

4.5 The Glass Ceiling Phenomenon in the Construction Industry

The term "glass ceiling" originated in the 1980s as a metaphor for the unseen and artificial obstacles that hinder women and minorities from progressing to managerial and executive roles within corporations. In 1991, the United States Congress determined that despite a large rise in the participation of women and minorities in the workforce, they continued to be underrepresented in managerial roles. This underrepresentation was ascribed to artificial obstacles that persistently impeded their career progression.

Subsequent research by Lekchiri and Kamm elucidates the glass ceiling idea, characterizing it as a phenomenon wherein women attain a specific career level but are thereafter obstructed from advancing further. This idea underscores the presence of artificial barriers that impede women's access to senior executive roles, especially in male-dominated settings and organizational cultures. [19].

A literature analysis by Rivera et al. (2021) revealed that women's participation in construction-related professions is frequently perceived as an attempt to surmount gender-based obstacles, particularly considering the limited number of women engaging in education and jobs in engineering. Women who enter the profession may face considerable gender segregation inside hierarchical organizational frameworks. [23]

These obstacles typically present as gender discrimination, societal preconceptions, unaccommodating company regulations, and non-inclusive workplace cultures. While there are

no official regulations explicitly excluding women or minorities from attaining senior roles, they are frequently hindered by discriminatory practices and biases in practice.

Women in the construction sector encounter numerous obstacles in their professional advancement, including stringent work–life balance demands, adverse perceptions of women on construction sites, extended working hours, and various issues impacting women at different career stages. A particular issue identified in interviewees is the aggressive conduct of male coworkers, posing a distinct difficulty for women in the industry. Nonetheless, personal attributes such as dedication, resilience, and autonomy are recognized as essential determinants of success in building. Concentrating on personal development to enhance these qualities can significantly contribute to women's professional progression in the sector. [2].

This phenomenon demonstrates that gender inequality in the construction industry extends beyond entry-level participation and systematically limits women's advancement into leadership positions.

4.6 Motivation and Career Development Opportunities for Women in the Construction Industry

In general, a study identified six categories of motivation that influence women to pursue careers in the construction industry [24]. *Initially*, working circumstances encompass acknowledgment of performance, maternity leave provisions, distinct sanitary facilities for men and women, and opportunities for job mobility. Secondly, interpersonal ties encompass support from family and colleagues, recognition of earlier achievements, and favorable interactions with bosses and coworkers. *Third, gender equality*, which encompasses constructive relationships with male team members, recognition of women's work, equal incentives, women's inclusion programs, and work attire that supports women's performance on construction sites. Overall, the implementation of construction projects requires strong collaboration among all team members. *Fourth, management aspects*, including skills development and flexible working hours. *Fifth, work environment*, defined as comfortable working conditions and policies that support women. *Finally, general expectations*, which include performance-based remuneration as well as workplace comfort and safety at project sites.

Numerous studies have identified various efforts that can help overcome these barriers and promote women's career development in the construction industry

Training and Education. One of the key steps in advancing women's careers in the construction industry is providing greater access to technical training and education. Research indicates that extensive technical training and equitable educational opportunities are crucial for empowering women to get the skills necessary for success in the construction industry. Inclusive training programs can increase the number of women qualified for technical and managerial positions [25].

Mentorship. Mentorship is important tools for supporting women's career development in the construction sector. Structured and systematic mentorship and sponsorship programs can enhance women's representation in leadership roles. Mentoring has been found to improve girls' and women's self-confidence, self-esteem and motivation for participation in STEM studies and careers [26].

Inclusive Workplace Policies and Practices. Implementing inclusive workplace policies and practices is essential for fostering a supportive atmosphere for women. Policies including flexible working hours, maternity leave, and access to childcare services assist women in reconciling their professional and personal obligations.. The organizations that adopting inclusive policies are more successful in retaining female employees and enhancing overall job satisfaction [27].

Raising Awareness and Addressing Gender Stereotypes. Raising awareness and addressing gender stereotypes are important steps toward promoting gender equality in the construction industry. The persistent gender stereotypes continue to hinder women's entry into and advancement within the sector. Awareness campaigns and specialized training programs designed to mitigate bias and discrimination can foster the establishment of a more inclusive organizational culture. [21].

Networking and Community Support. Establishing robust professional networks and community support systems is essential for women in the construction sector. Resilient networks offer both social support and avenues for information exchange and professional advancement. The women's organizations and professional associations within the construction sector serve as important platforms for information exchange, training, and professional support [28].

Increasing Women's Representation in Leadership. Augmenting women's representation in leadership roles can act as a significant source of inspiration and motivation for other women within the construction sector. The inclusion of women in leadership positions can dismantle the "glass ceiling" and facilitate opportunities for further women to progress into managerial and executive roles. Consequently, organizations must exhibit a robust commitment to advancing and endorsing women in senior positions to attain enhanced gender equality in the construction industry. [29].

5 Conclusion

Incorporating gender views into sustainable development is essential for fostering a more equitable, inclusive, and sustainable society. By confronting issues such as gender stereotypes, inequitable access to opportunities, and exclusive policies, nations may guarantee that sustainable development benefits not just a singular group but provides advantages to the entire populace. Concrete measures, such as enhanced policy frameworks, inclusive education, and women's economic empowerment, are essential for attaining equitable and sustainable development objectives.

The construction sector possesses considerable potential to enhance inclusivity and equity for all workers, including women. Despite the numerous barriers women encounter in this industry, significant opportunities exist to augment their participation through supporting policies, specialized training, adaptable work arrangements, and mentorship initiatives. These initiatives can render the construction industry more diverse and inclusive, ultimately benefiting all stakeholders.

Cooperation between corporations and governmental entities is crucial to overcome existing obstacles and to foster a more friendly and conducive environment for women in the construction sector.

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