# Understanding the barriers to women's career in construction industry: Indonesian perspective

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## ABSTRACT

*Women's involvement in the Indonesian construction industry is considerably low accounting for less than 3% of the total workers. Construction as a male-dominated industry becomes a barrier for women to join the workforce. The increase in the need for workforces is proportional to the growth in construction development. The needs cannot only be provided by male workers. Women's participation in the construction industry will contribute to the shortage of human capital demand. The aim of this research is to find the factors that impede women to pursue their careers in the construction industry. 21 factors are gathered from an extensive literature review. After conducting expert interviews, the factors are developed into a questionnaire and distributed to women who are already in the workforce. The analysis based on the Relative Important Index shows that the most influential barrier to women in construction is the lack of worksite security. The factor analysis found five critical barriers to women's careers in the construction industry. Developing these barriers to a framework gives a broader perspective about the sources of each critical barrier. Internal as well as external elements including worksite, organization, and the industry itself have been the cause that prevents women to pursue their careers in the construction industry.*

**KEYWORDS**: Barrier factors, Critical barrier framework, Construction, Factor analysis.

## INTRODUCTION

The last couple of decades show that there is an increasing number of women working in the construction industry. In the UK at the beginning of this millennium, the percentage of women involved in this sector was less than 4% (Bagilhole, Dainty & Neale, 2002) and increased to almost 10% after less than a decade (Powell, Dainty & Bagilhole, 2010). However, the number of women involved in the construction industry is still very low. This condition occurs in many countries as well. Research by Navarro-Astor, Román-Onsalo, and Infante-Perea (2017) in 28 countries within European Union confirms the condition. Among these countries, only six have more than 10% of women involvement in the construction sector. In the United States, Menches and Abraham (2007) explain that approximately only 4.1% of women are employed in the industry. Across the globe, the percentage of women involved in the South African construction industry is less than 10% (English, Haupt & Smallwood, 2006). In Asian countries as Malaysia and Indonesia, women's contribution to the construction workforce are 9.1% and 2.2% respectively (Abdullah, Arshad & Ariffin, 2013; Statistics Indonesia, 2019a). The percentage of women involved in Indonesia is even lower in 2020 as it is only 1.7% according to recent data (Statistics Indonesia, 2020). This condition demonstrates that women involved in the construction industry are low compared to

their counterparts. Gender diversity is considerably poor with a presumption that the construction industry is a male-dominated sector.

There are many rationales as the percentage of women involvement remains low in the construction industry. Researches describe that gender stereotyping and sexist attitudes become the ground of this condition (Ginige, Amaratunga & Haigh, 2007; Madikizela & Haupt, 2010; Navarro-Astor *et al.*, 2017; Worrall, *et al.*, 2010). Gender stereotyping and sexist attitudes placed barriers for women to play their roles and show their abilities in workplaces.

Barriers experienced by women to pursue their careers certainly need to be addressed. Understanding the barriers for women to pursue careers in their workplaces is important, especially since women have a significant potential to become part of the workforce in the construction industry. Indonesia is currently experiencing growth in the construction sector so the demand for a workforce is quite high. In this context, women can make a considerable contribution to meet the needs of the workforce. The purpose of this study is to explore the barriers faced by women who professionally work in the construction industry. The focus of this study is on women in Indonesia who work in the industry. The study intends to elaborate the purpose into more specific aims, which are: (1) to understand the barriers that mostly affect women's career in the construction industry (2) to find the relationship among the factors in order to understand the main problem and (3) to propose root of the barrier that hinder women from pursuing their career.

In order to accomplish the aim, this paper is organised in the following way. An in-depth literature review was conducted to understand the problems faced by professional women in the construction industry and the barrier for them to pursue their career. The research methods are described later which explained the technique employed to accomplish the main purpose and specific aims. Next, the discussion of the findings is presented along with a macro framework of the fundamental barriers. The conclusion is presented to resolve the topic at the end of this paper.

## LITERATURE REVIEW

### Barriers for Women in Construction Industry

Gender configures individual characteristics and behaviour (Ginige, *et al.*, 2007). Characteristics, role behaviour, occupation and physical appearance are seen as gender differentiation; consequently, there are differences in character between two types of genders. Differences in character lead to stereotyping in types of occupation that are associated with gender. An occupation that is initially carried out or dominated by a particular gender is assumed to be more effective on its implementation to that gender.

The construction industry has always been associated with a male-dominated industry (Bagilhole, Dainty & Neale, 2002; Fielden *et al*., 2000; Gilbert & Walker, 2001; Ginige, et al.,2007; Worrall, Harris, Stewart, Thomas & McDermott, 2010). It becomes a barrier for women to have a career in it (English & Le Jeune, 2012; Fielden, *et al*., 2001; Worrall, Harris, Stewart, Thomas & McDermott, 2010). This stereotyping prevents women from pursuing careers in their counterpart dominated occupations. Competence and possible career

suitability in the construction industry that they may have are often not taken into consideration when women pursue their careers.

The barriers come early before women enter the job within the industry. In many cultural beliefs, women have a traditional role of taking care of families and households (English & Hay, 2015). This belief prevents women to participate in the industry. The barrier arises with the assumption that working in the construction industry will complicate women to balance their role between family and work (Abdullah *et al*., 2013; English & Hay, 2015; Menches & Abraham, 2007; Navarro-Astor, *et al.*, 2017; Worrall, *et al*., 2010;). The assumption that women experience difficulties in balancing their roles on socio-cultural issues and the industrial environment are caused by inflexible and long working hours (Abdullah *et al.*, 2013; Worrall, *et al.*, 2010). Moreover, some cultural perceptions place women as a lower value according to their gender characteristics (Fielden, *et al.*, 2001; Navarro-Astor, *et al.*, 2017). Perceptions influenced by views on the socio-cultural context have become a barrier for women to have careers in the construction sector.

After entering the organization, women face other barriers as including recognition in terms of remuneration and training; career development and promotion; and working environment related to facilities, health, as well as security. Remuneration in terms of payment and bonus is considered as a barrier due to unequal compensation to both genders with comparable competencies or work (English & Le Jeune, 2012; Navarro-Astor *et al.*, 2017). Recognition to develop competency through training is also considered a hindrance (Abdullah, *et.al,* 2013; Fielden, *et al*., 2001; Kehinde & Okoli, 2004; Worral *et al.*, 2010). Women also find themselves discriminated against for the opportunity to participate in training (Amaratunga, *et al.*, 2006; Abdullah, *et al.*, 2013). The opportunity to participate in training is not only to develop hard skills but also soft skills due to the uniqueness of organization construction culture (Worrall, *et al.*, 2010). When this opportunity is not given equally, women face difficulties to develop and have a career in this sector.

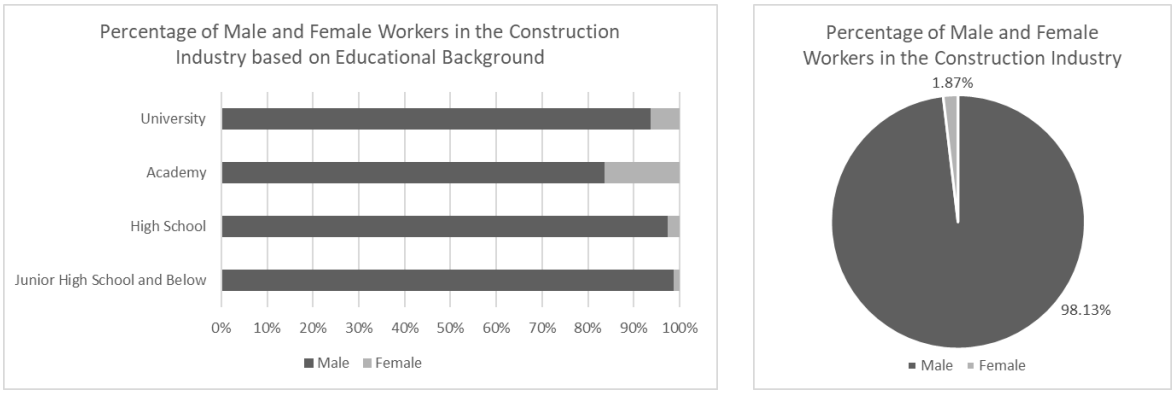
Lack of career development and promotion are envisaged as barriers for women. Although there is a possibility for women to achieve more senior roles, they tend to get the positions under difficult circumstances as to when the organization is not performing optimally (Fernando, Amaratunga & Haigh, 2014). This condition presents barriers for women in addition to the higher risks they face due to closer scrutiny and increased pressure. The competition among workers also is another obstacle for women. The low number of women in male-dominated industries makes it difficult for women to compete for higher positions (Abdullah, *et al.*, 2013; Kehinde & Okoli, 2004).

The construction industry work environment is adapted to male characters. This situation makes it difficult for women to adapt. In term of health and security aspects, the site that is dirty cause women to feel uncomfortable and unhealthy (English & Jeune, 2012). Fielden *et al* (2001) added that the industry is considered dangerous due to its poor record in terms of safety and healthy site. In addition, the non-standard practices that characterize the construction industry and site security create a sense of uncertainty for women (Navarro-Astor *et al*., 2017; Abdullah, *et al.*, 2013).

## Workforce of Indonesian Construction Industry

Indonesian GDP as an important indicator of its economic performance shows that the construction sector becomes one of the three leading sectors contributing to Indonesia's economic growth. This sector contributes 11.11% of Indonesia's GDP with a growth rate of 5.58% (Statistics Indonesia, 2019a). Its contribution to the national GDP is the highest among Southeast Asian countries. The reason behind the positive influence of the construction sector on economic growth is the character of this sector which absorbs a lot of labour (Dlamini, 2012). Dlamini (2012) found that there is a very strong relationship between construction activities and short-term economic growth as a result of investment in this sector. Investments in infrastructure have an impact on economic growth by creating job opportunities for the community. The increase in the community's economy with the availability of job opportunities has a multiplier effect on other sectors.

Based on data released by the Ministry of Finance, the allocated budget for 2020 infrastructure development is approximately 29 billion USD. This number increases 5.9% from the previous year's budget. The government of Indonesia plans to reinforce its transportation network through road, airport, and railway development. The execution of the government plan requires to be supported by a sufficient number of workforces. In 2019, the number of professional workforces in the construction sector was around 263,598, which increased by 7.6% from the previous year (Statistics Indonesia, 2019b). The overall number of workers in the construction industry is almost 8 million people (Statistics Indonesia, 2020) and the distribution by gender and level of education can be seen from Figure 1 (a) and (b). Figure 1 (a) shows that the percentage of women with a university background is only 6.4% compares to the one with an academic background which is 16.3%. However, the percentage of women with an academic background is including women who work in the construction industry as an administrative clerk. On the other hand, women only contributed 1.87% of the total workforce in the construction sector. This percentage only describes the involvement of women with educational background.




**(a)** **(b)**

**Figure 1: Workforce distribution by gender and education (Source: Statistic Indonesia, 2020)**

The growth in the development budget certainly indicates the need to increase the number of workforces. Increasing the number of women involvements in the construction workforce becomes one of the solutions to fulfil the demand of the country's development. While the

demand is open equally for both gender, women find it challenging to participate in the development due to barriers encountered in the construction industry.

## STUDY METHODS

A mixed-method approach was employed to find the barriers to women's involvement in the construction industry. In this study, a mixed-method approach combining both qualitative and quantitative research techniques was utilized to obtain the aim of the study, including in-depth literature review, expert interviews, questionnaire development, and survey as well as analysis. The use of this approach is to reduce the disadvantages of each individual approach while gaining their advantages (Fellows & Liu, 2015). Figure 2 below illustrates the methods adopted in this study. An in-depth literature review was conducted to review and obtain all potential barrier factors from the current literature. This produced a list of 21 factors that are seen as barriers for women to build their careers in the construction industry as shown in Table 1.

The identified factors were employed as the basis of expert interviews. The aim of the expert interview is to validate these factors for the next purpose which is questionnaire development. Two experts were selected who meet determined criteria, which are: (a) women professionals working in the construction industry, (2) work as a project manager, site engineering manager, site operational manager, or expert engineering staff in construction projects, and (3) at least ten years of working experience. Experts provide input in the form of changes in respondent profile questions as well as adjustments to barrier-related questions to avoid ambiguity for respondents in answering the questions. Both experts agree that those factors are a barrier for women to pursue their careers in the construction industry.

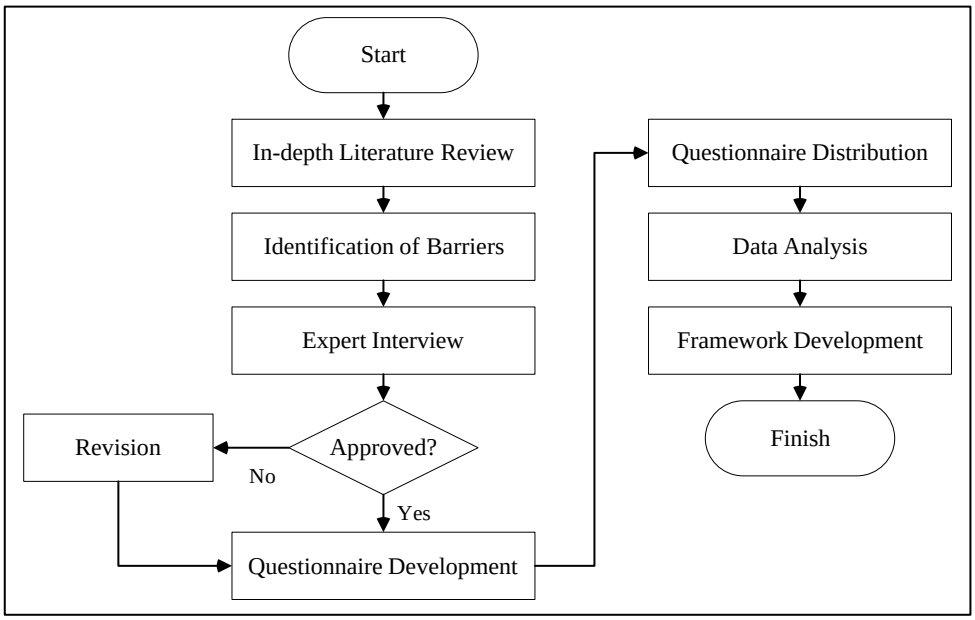



**Figure 2: Research methods adopted in this study**

**Table 1: Barrier factors faced by women to pursue their career in construction industry**

| No. | Barrier Factors | Sources |
|---|---|---|
| **F1** | Poor perception of the construction industry | Barreto *et al*., 2017; English & Jeune, 2012; Kehinde & Okoli, 2004 |
| **F2** | Unavailable childcare facilities | Abdullah *et al*., 2013; English & Hay, 2015; Navarro-Astor *et al*, 2017 |
| **F3** | Work-life balance | Abdullah *et al*., 2013; English & Hay, 2015; Menches & Abraham, 2007; Navarro-Astor *et al*, 2017; Worrall *et al*., 2010 |
| **F4** | Lack of career understanding | English & Jeune, 2012; Kehinde & Okoli, 2004; Powell *et al*, 2009 |
| **F5** | Hostile work environment | Abdullah *et al*., 2013; Amaratunga *et al*., 2007; English & Jeune, 2012; Ginige *et al*., 2007; Worral *et al*., 2010 |
| **F6** | Acceptance to counterpart traits | Barreto, *et al*., 2017 |
| **F7** | Excessive travelling | Abdullah, *et al*.,2013; Adogbo, Ibrahim & Ibrahim, 2015; Amaratunga *et al*., 2007; Navarro-Astor *et al*, 2017 |
| **F8** | Long working hours | Abdullah *et al*., 2013; Barreto, Pellicer, Carri, & Torres-Machí, 2017; Navarro-Astor *et al*., 2017; Worral *et al*, 2010 |
| **F9** | Unhealthy site | Devi & Kiran, 2013; English & Jeune, 2012 |
| **F10** | Lack of worksite security | Abdullah *et al*., 2013; English & Jeune, 2012; Dabke *et al*., 2008; Navarro-Astor *et al*., 2017 |
| **F11** | Insecurity due to appearance differences | English & Jeune, 2012; Wagner, Kim, & Gordon, 2013 |
| **F12** | Heavy workload | Kehinde & Okoli, 2004 |
| **F13** | Lack of professional development training | Abdullah *et al*., 2013; Kehinde & Okoli, 2004; Worral, *et al*., 2010 |
| **F14** | Lack of opportunity to participate in training | Abdullah *et al*., 2013; Amaratunga, *et al*., 2007 |
| **F15** | The absence of role model | Abdullah *et al*., 2013; English & Hay, 2015; English & Jeune, 2012; Navarro-Astor *et al*., 2017; Sommerville, Kennedy & Orr, 1993 |
| **F16** | Lack of promotion opportunities | Abdullah *et al*., 2013; Fernando *et al*., 2014; Kehinde & Okoli, 2004 |
| **F17** | Payment discrimination | Abdullah *et al*., 2013; English & Jeune, 2012; Navarro-Astor *et.al*, 2017 |
| **F18** | Incentive discrimination | English & Hay, 2015; Kehinde & Okoli, 2004 |
| **F19** | Lack of supervision and guidance from superiors | Abdullah *et al*., 2013; Dabke *et al*., 2008; Dainty, Neale, & Bagilhole, 2000; English & Hay, 2015; Gilbert & Walker, 2001; Navarro-Astor *et al*., 2017 |
| **F20** | Difficulty in managing subordinates | Adogbo, *et al*., 2015; Worral *et al*, 2010 |
| **F21** | Glass ceiling phenomena | Abdullah *et al*., 2013; Dainty *et.al*, 2000; English & Hay, 2015); Fernando, *et al*, 2014; Fielden *et al*., 2001 |

The questionnaire was later developed with consideration to the expert's input. The approach employed to develop the questionnaire is a six-point Likert scale. The scale adopted was 1 represents 'Strongly Disagree' and 6 represents 'Strongly Agree.' The questionnaire is prepared for the online distribution and is circulated to the respondents using a web link to reach respondents with two years of working experience. The percentage of women working in the construction industry is very low, namely only 1.87%; thus, based on the population of construction workers, the number of respondents statistically is at least 58 female workers. A total of 66 complete and valid questionnaires were returned. The respondent's profile is presented in Table 2. The table shows that most respondents have bachelor's degrees and come from private companies. The majority of respondents are between 25 and 34 years old.

**Table 2: Questionnaire respondents' profiles**

| Profiles | Total | % | Profiles | Total | % |
|---|---|---|---|---|---|
| **Educational Background** | | | **Company Category** | | |
| Diploma degree | 2 | 3.0 | Private | 60 | 75.8 |
| Bachelor degree | 49 | 74.3 | State-Owned/Ministry | 16 | 24.2 |
| Master degree | 15 | 22.7 | Total | 66 | 100 |
| Total | 66 | 100 | | | |
| **Age (years)** | | | **Job Position** | | |
| 18-24 | 6 | 9.1 | Junior level | 22 | 33.3 |
| 25-34 | 33 | 50.0 | Senior level | 26 | 39.4 |
| 35-44 | 10 | 15.15 | Executive | 10 | 15.2 |
| 45-54 | 15 | 22.73 | Owner | 7 | 10.6 |
| Above 54 | 2 | 3.03 | No response | 1 | 1.5 |
| Total | 66 | 100 | Total | 66 | 100 |

The data collected from respondents was processed using the relative important index or RII approach. RII is a method of ranking the factors based on the respondent's answer. Various studies employed the same method in order to define the relative importance of a set of data (Fernando *et al.*, 2014; Gündüz, Nielsen & Özdemir, 2012). Furthermore, data were analysed with factor analysis to describe the variability among observed variables and to reduce into a smaller number of potential variables (Manly & Alberto, 2017). The intended application of factor analysis is to explain the correlations among the various outcomes in order to explore and detect the underlying relationships. Barreto *et al* (2017) applies the same method to find underlying factors as barriers women in the Peruvian construction industry.

## FINDINGS & DISCUSSION

The purpose of this study is threefold. The analysis conducted systematically fulfils the set of aims. The first discussion elaborates the result of the RII method employed to find the significant factors considered as barriers. Later, the abstraction of variables is described to understand the fundamental barrier. The last sub-section illustrates the critical barriers in a barrier framework model.

### Ranking of Barrier Factors

Before ranking the factors using RII, reliability testing was carried out using the Cronbach's Alpha test. Later, the result is compared with Cronbach's Alpha table and should be above 0.7 and close to 1.0 (Cronk, 2008; Pallant, 2005). The reliability test of the respondent's data is 0.905 which indicates that the data was consistent. Testing the validity of each factor is also carried out by comparing the results against the r-table according to the number of respondents (Sugiyono, 2015).

**Table 3: RII analysis**

| No. | Barrier factors | Likert Scale | | | | | | Total | RII |
|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | | |
| **F10** | Lack of worksite security | 2 | 6 | 10 | 20 | 16 | 12 | 66 | 0.70 |
| **F8** | Long working hours | 5 | 4 | 12 | 18 | 17 | 10 | 66 | 0.67 |
| **F13** | Lack of professional development training | 3 | 4 | 16 | 20 | 16 | 7 | 66 | 0.66 |
| **F17** | Payment discrimination | 2 | 12 | 13 | 14 | 14 | 11 | 66 | 0.65 |
| **F18** | Incentive discrimination | 5 | 11 | 7 | 16 | 18 | 9 | 66 | 0.65 |
| **F5** | Hostile work environment | 6 | 12 | 10 | 9 | 16 | 13 | 66 | 0.64 |
| **F2** | Unavailable child care facilities | 7 | 7 | 13 | 17 | 10 | 12 | 66 | 0.63 |
| **F9** | Unhealthy site | 8 | 6 | 13 | 15 | 15 | 9 | 66 | 0.63 |
| **F7** | Excessive travelling | 3 | 15 | 16 | 9 | 13 | 10 | 66 | 0.61 |
| **F19** | Lack of supervision and guidance from superiors | 6 | 12 | 11 | 18 | 13 | 6 | 66 | 0.60 |
| **F3** | Work-life balance | 9 | 13 | 11 | 9 | 13 | 11 | 66 | 0.59 |
| **F4** | Lack of career understanding | 7 | 9 | 16 | 13 | 17 | 4 | 66 | 0.59 |
| **F20** | Difficulty in managing subordinates | 7 | 14 | 9 | 17 | 16 | 3 | 66 | 0.58 |
| **F14** | Lack of opportunity to participate in training | 7 | 15 | 15 | 16 | 7 | 6 | 66 | 0.55 |
| **F16** | Lack of promotion opportunities | 8 | 15 | 15 | 12 | 12 | 4 | 66 | 0.54 |
| **F21** | Glass ceiling phenomena | 14 | 9 | 15 | 13 | 11 | 4 | 66 | 0.53 |
| **F12** | Heavy workload | 8 | 18 | 14 | 15 | 7 | 4 | 66 | 0.52 |
| **F6** | Acceptance to counterpart traits | 14 | 19 | 10 | 11 | 8 | 4 | 66 | 0.48 |
| **F15** | The absence of role model | 12 | 17 | 17 | 10 | 7 | 3 | 66 | 0.48 |
| **F11** | Insecurity due to appearance differences | 16 | 24 | 8 | 6 | 8 | 4 | 66 | 0.44 |
| **F1** | Poor perception of the construction industry | 19 | 19 | 13 | 8 | 3 | 4 | 66 | 0.42 |

The results of the validity test to each factor from the questionnaire respondent data have shown that each factor has a value above the r-table, which is above 0.2423.

After the tests, data is analysed using RII. The application of the Relative importance index (RII) to all barrier factors replied by respondents gives insight into the rank of barrier that affected women in pursuing their career. The result presented in Table 3. Lack of worksite security becomes a barrier found by women in the industry. This factor has the largest RII value of 0.697. Then followed by long working hours that are seen as barriers for women with an RII value of 0.672. The 3rd highest ranking is lacking professional development training with an RII value of 0.659.

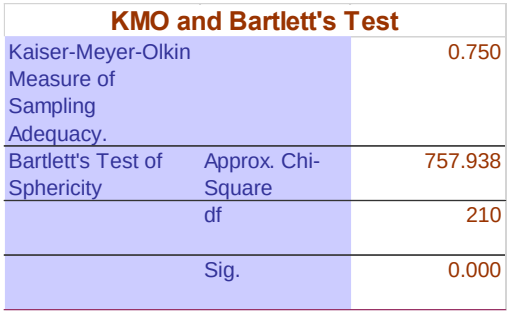
The result shows that being in a male-dominated environment makes women feel uncomfortable. Research by Abdullah *et al* (2013) in Malaysia reinforces this finding, although it is not the first barrier factor face by Malaysian women in the industry. The small proportion of women in the worksite means that they have to share the facilities with their counterparts while the need might be dissimilar. English *et al* (2006) added that based on their research in South Africa and Tanzania the construction industry has a bad image on the unavailability of adequate welfare facilities. It is also cited by English and Hay (2015) that the presence of women in a certain proportion in the workplace makes the environment considered normal without the need to comply with different needs.

The long working hours is also making women uneasy. The need to stay working after hours or to have social events cause women uncomfortable (Navaro-Astor *et al.*, 2017). It becomes a dilemma for women to decide between fulfilling their responsibility as a worker and their traditional role of taking care of families and households. English and Hay (2015) also emphasise the occurrence of this problem in their study in South Africa. Cultural beliefs prevent women to stay away from their families longer than necessary. The responsibility of raising children and keeping the households fulfilled is on their shoulders.

Like their counterpart, women feel necessary to develop their skill through training. Training on soft skills and hard skills are perceived as a way to develop their competency. Research by Worall *et al* (2010) finds that training aims for women to understand the unique organisational culture of a male-dominated industry. Thus, soft skill training related to communication and leadership is viewed as a way to understand the organisation they join in. This finding is similar with research by Abdullah *et al* (2013) in Malaysia that training for career enhancement is considered important.

## Underlaying factors of barrier to women

Before conducted factor analysis, data were checked in order to know the suitability of the data. The test includes KMO and Bartlett's test using SPSS software. The Kaiser Meyer Olkin Measure of Sampling Adequacy is a statistical number that shows the proportion of variance in a variable. The result in Figure 3 shows that the KMO value is 0.750 or greater than 0.5. Bartlett's Test of Sphericity is a test to evaluate the observed correlation matrix to the identity matrix for further analysis. Both tests conclude that factor analysis can be run.



| KMO and Bartlett's Test | | |
|---|---|---|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | 0.750 |
| Bartlett's Test of Sphericity | Approx. Chi-Square | 757.938 |
| | df | 210 |
| | Sig. | 0.000 |

**Figure 3: KMO and Bartlett's test for data suitability**

Table 4 is the result of factor analysis which shows there are 5 new components that can be formed. Those components have an eigenvalue of more than 1. Only components with an eigenvalue of more than 1 become new components (Manly & Alberto, 2017). The total of the five new components can explain 66.44 percent of the total barrier factors. Table 5 shows the new factors of barrier faced by women in pursuing their career.

**Table 4: Total variance**

| Component | Initial Eigen | | |
|---|---|---|---|
| | Total | % of Variance | Cumulative % |
| **1** | 7,523 | 35,824 | 35,824 |
| **2** | 2,396 | 11,408 | 47,232 |
| **3** | 1,510 | 7,191 | 54,424 |
| **4** | 1,416 | 6,744 | 61,168 |
| **5** | 1,109 | 5,281 | 66,448 |
| **6** | 0,967 | 4,603 | 71,051 |
| **7** | 0,911 | 4,337 | 75,388 |
| **8** | 0,787 | 3,749 | 79,137 |
| **9** | 0,671 | 3,195 | 82,332 |
| **10** | 0,595 | 2,832 | 85,164 |
| **11** | 0,550 | 2,618 | 87,781 |
| **12** | 0,449 | 2,138 | 89,920 |
| **13** | 0,428 | 2,040 | 91,960 |
| **14** | 0,384 | 1,826 | 93,787 |
| **15** | 0,331 | 1,578 | 95,364 |
| **16** | 0,246 | 1,171 | 96,535 |
| **17** | 0,238 | 1,131 | 97,667 |
| **18** | 0,189 | 0,898 | 98,565 |
| **19** | 0,116 | 0,551 | 99,116 |
| **20** | 0,094 | 0,449 | 99,565 |
| **21** | 0,091 | 0,435 | 100,000 |

**Table 5: Five groups of barrier factors**

| No. | Group | Barrier factors |
|---|---|---|
| **1** | Harsh competition | • Acceptance to counterpart traits<br>• Insecurity due to appearance differences<br>• Heavy workload<br>• The absence of role model<br>• Lack of promotion opportunities<br>• Glass ceiling phenomena |
| **2** | Insufficient personal development | • Lack of career understanding<br>• Lack of professional development training<br>• Lack of opportunity to participate in training<br>• Difficulty in managing subordinates |
| **3** | Gender discrimination | • Unavailable childcare facilities<br>• Work-life balance<br>• Payment discrimination<br>• Incentive discrimination<br>• Lack of supervision and guidance from superiors |
| **4** | Stereotyping the industry | • Poor perception of the construction industry<br>• Hostile work environment |
| **5** | Uncomfortable working environment | • Excessive travelling<br>• Long working hours<br>• Unhealthy site<br>• Lack of worksite security |

Group 1 namely 'harsh competition' consists of six barrier factors and all factors have the same characteristic as competition between both genders. Competition is unavoidable but in certain conditions, it became a disadvantage for women to be able to perform in this situation. Although various career opportunities in the construction industry are open to both men and women, as a minority group, women must perform better to be able to compete with their counterparts (Kehinde & Okoli, 2004). Abdullah *et al* (2013) stated that the number of professional women aged more than 36 years is less than men because the competition is getting fierce for a certain position. In one state-owned construction company in Indonesia, there are only two women who become general managers while there are 12 men in that position (Pangaribuan, 2018). Interestingly, research by Barreto *et al* (2017) finds the same result regarding competitiveness in Peruvian construction industry.

Group 2 is named as 'insufficient personal development.' Training for workers is an important aspect in the construction industry, especially to get professional certification. The number of women who are certified in Indonesia is low compared to men (Heryanto, 2016). Amaratunga *et al* (2006) stated that general courses and training provided by universities and training organizations contributed to the image that the construction industry was becoming a male-dominated environment. The study by Fielden *et al* (2001) shows that the percentage of women involved in government training is only 1 percent. Fernando et.al (2014) concluded

that one of the factors for the success of women in the construction industry is the development of soft skills to advance their career ladder. It is organised through active involvement in training. Providing training opportunities would help retain more women in the construction industry.

Group 3 is related to 'gender discrimination.' Discrimination starts from the cultural belief that women hold responsibility for their family and household. Balancing between work and family becomes a burden because both are their priority. One of the expertise made a comment related to this problem:

*"Women in construction experience anxiety when getting married. The stress continues in their marriage. Lengthy working hours and frequent changing work locations become the source of the problem. Some of the marriages have not happy endings."*

Gender discrimination leads to other problems related to remuneration. The perception that women work less causing payment and incentive discrimination. With the same performance as men, women do not get the same reward because men are considered to have better performance than women (Kehinde & Okoli, 2004). It is also the case in Africa that female workers always earn up to 60 percent less than male workers (English & Jeune, 2012). Navaro-Astor *et al* (2017) adds that discrimination in payment occurs in other countries in Asia, United States of America and Europe. Women also experience discrimination in getting a promotion. Navaro-Astor *et al* (2017) suggests that the lack of formal development procedures, use of informal networks, preference for male employees, and lack of recognition discriminate against women for promotion.

Stereotyping the industry is apt to the related factors in Group 4. Two factors are within the group, which are the poor perception of the construction industry and hostile work environment. As a male-dominated industry, the character of the construction industry is closely related to masculinity. Aggressiveness, intimidation, harsh working condition are among characters determined the industry (English & Hay, 2015; English & Jeune, 2012; Menches & Abraham, 2007; Navarro-Astor *et al.*, 2017). This study confirms the occurrence of discrimination and sexist attitude. Table 3 shows that the number of respondents who choose scale 6 is the highest among factors. From the profile, respondents who feel this attitude toward them are in their early career and young women. Sexist attitude is also experienced by women in their early career (Worall *et al.*, 2010).

The last group consists of four factors which have one thing in common, namely an uncomfortable working environment. Dirty site conditions and popular belief that male power is more required at the worksite make women feel unsuitable for site work (English & Jeune, 2012). According to Pangaribuan (2018), some women are uncomfortable being exposed to heat, dust, and other dirty condition. These circumstances lead women to think that the harsh project environment is not suitable for women. Not only the conditions in the field, but onsite women also have to endure verbal disturbance in the form of harsh words, high tone of voice, or harassment (Pangaribuan 2018; Navaro-Astor, 2017).

## Critical Barrier Framework to Women in Construction Industry

Studies with respect to barriers to women in the construction industry show that most women all over the world find difficulties in pursuing their careers. Those studies find different points

of view to understand the barrier in regard to resolving this problematic issue. This study aims to see the problem by finding the critical barrier and put it into perspective by proposing a framework. The framework in Figure 4 shows that the scope of the barrier is broader from left to right.

The obstacles come in two forms related to internal and external elements. In this context, the internal element relates to personal needs to achieve a better condition or position. Women face obstacles in fulfilling their internal development needs in order to maintain their careers in the construction industry. On the other hand, the second barrier element comes from their surroundings. Barriers are faced starting from the smallest scale within the project site or team to the organizations where they work and later in the construction industry itself.

Group 2, 'insufficient personal development,' describes the lack of opportunity to develop affects women to be valued equally. In essence, pursuing a career in construction is wide open. However, a lack of understanding of the sector often causes a barrier for women to pursue their careers. Moreover, women often face a lack of opportunities to take part in training making their professional development becomes limited. In fact, training, especially those related to soft skills, can overcome women's difficulties in managing subordinates.

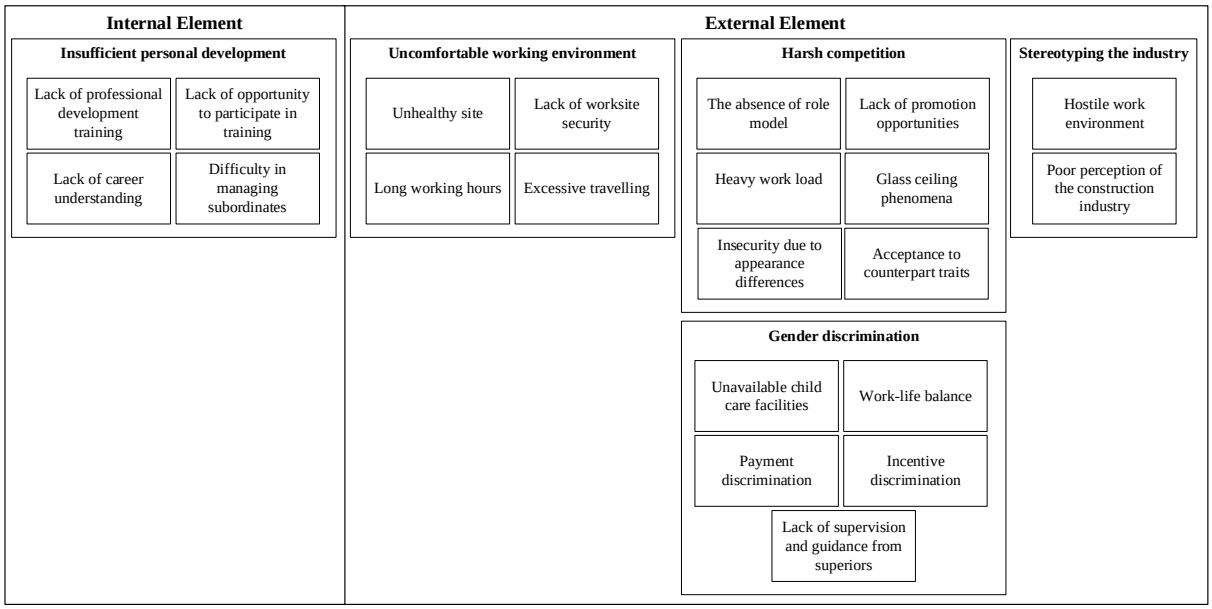



**Figure 4: Framework of element and critical barrier to women to work in the construction industry**

An uncomfortable working environment becomes a barrier for women in the construction industry. Women find that unhealthy sites and the lack of worksite security hinder their careers in the industry. Navaro-Astor *et al* (2017) also find that the working condition of the construction industry that masculine character-oriented where the male is not fully responsible for housework discourages women because the responsibility rests with women. At the same time, women are expected to perform as their counterparts in their work, such as working for long hours and willing to travel long distances. This harsh working condition is also found in the research by Barreto *et al* (2017) in Peruvian construction industry.

Harsh competition and gender discrimination are faced by women in pursuing their careers. In their organization, they find that the construction industry is competitive by nature (Barreto *et*

*al.*, 2017). Women tend to be considered to have a lower status than their counterparts. Differences in opportunities for promotion, discrimination in remuneration, and incentives are some of the forms that describe women's barriers to pursue their careers due to the status attached to them.

The current construction industry is more toward the male character. This stereotype has not changed much, although women have been actively participating in it. Rasheed, Yu, Hale and Booth (2020) suggest that changing stereotypes can be started from the government and the family. The government develops programs and policies that open up opportunities for women to participate more in this sector. On the other hand, improvement to parents' perceptions of the construction industry will eventually shift the existing paradigm.

## CONCLUSION

The key barriers of the women in pursuing their careers in the construction industry are lack of worksite security; long working hours and lacking professional development training. The uncomfortable working environment is exacerbated by the status of women as a minority. This uncomfortable working environment not only occurs in Indonesia but also in many countries such as Malaysia and South Africa where the percentage of female workers is considered low. Thus, it is concluded that as a minority, women tend to find barriers to their careers in a male-dominated industry.

The study also shows that barriers can come from the external elements and within. The developed framework is simple yet comprehensive to understand the critical barriers that prevent women from their career ladder. This framework illustrates critical thinking to understand the barrier to women from multiple perspectives. From a human perspective which is the internal element, the absence of opportunities to develop their skills becomes a barrier for women to pursue their careers. From a broader perspective, barriers arise from the worksite. An uncomfortable working environment plays an important role to prevent women to enter the construction industry. The barrier to women becomes more intense in the organizational scope. It is necessary for organization to develop policies to retain women. The right policies can reduce barriers that later have an impact on the women's empowerment process. Promotion, equal remuneration, and training are among the policies that can be taken into consideration. At a broader level, the construction industry plays an important role in reducing the barriers faced by women. The government needs to actively open opportunities for women to develop their careers through related programs and policies. Thus, the availability of a workforce meets the demand for country’s development program.

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