

Attracting and retaining women in the transport construction sector in South Sulawesi

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I am delighted to share our findings from the Partnership for Australia-Indonesia Research (PAIR) project on young people and skills.

The research focuses on young people, aged 16-30, in the province of South Sulawesi. This is the largest demographic within the province which is undergoing significant economic growth. This research project is designed to assist in ensuring all young people are able to take advantage of its development opportunities.

The research will help identify the skills gaps and capacity building needs of young people across a number of sectors. Having this focus aligns with the Indonesian government's priority on human capital development.

These reports provide the policy community with timely access to the best available evidence. They also respond to the Australian government's Partnership for Recovery strategy which aims to understand and support Indonesia as it deals with and recovers from the COVID-19 pandemic.

Warm regards,



Dr Eugene Sebastian
PAIR Program Director
The Australia-Indonesia Centre

The building of infrastructure such as ports, railway lines, airports and roads presents many exciting opportunities, especially in areas that have not experienced this kind of development before.

This is being seen in the Indonesian province of South Sulawesi, where the building of new infrastructure is creating work and opening up new career pathways. However, our research has found that men are dominant in these industries and women are not capturing their fair share of the opportunities to build skills and knowledge.

This report set out to investigate the current gender situation in the transport construction sector in South Sulawesi, and the drivers of and barriers to women's access to the many roles within it.

It finds that women do want to be a part of the province's transport infrastructure build, and there are two overarching themes on why actual participation is low. A career in the sector is perceived as unattractive, and there are real barriers to progression once in the industry.

The province has a strong traditional Bugis-Makassar culture that values the woman who stays at home with family. Despite this, more young women are enrolling in higher education and seeking professional careers in the transport and construction sectors in South Sulawesi. There has also been a sizeable increase in the number of women enrolling in civil engineering degrees who understand the value of pursuing a career in science, technology, engineering and mathematics (STEM) fields.

Infrastructure jobs are currently dominated by men, with women comprising only four percent of the transport workforce and one percent of the construction workforce. The women in the industry are predominantly working in professional, clerical and sales roles, with very few in production or operational roles.

This research has identified that being able to undertake internships and site visits is critical to gaining further exposure to these industries. Having support and encouragement from mentors is also critical to the success of women in non-traditional occupations. The report finds that women become aware of career opportunities primarily through friends and family networks and more information could be provided through a range of social media and formal channels.

The most compelling reasons for women to join these industries are gratifying and challenging work, high salaries, and opportunities for travel.

Most of the women surveyed say they are not put off by working in a male-dominated environment, and that they are treated fairly and equitably. They also report extremely low incidence rates of sexual discrimination, sexual harassment, or other types of violence towards or discrimination against women in South Sulawesi. The research finds that the construction industry specifically needs to address the expectation that people will work long and inflexible hours even though they may have multiple responsibilities.

This research identifies several recommendations for government and industry to attract, retain and advance the careers of women in the transport and construction sectors:

1. Set up targeted initiatives for young women to learn more about careers in transport and construction, preferably through social media channels that are commonly used by high-school students.
2. Promote greater industry involvement with the higher education sector to offer project site visits, apprenticeships or internships for young women to learn about technical and professional roles.
3. Devise and communicate industry-wide gender equality action plans to encourage young women to consider careers in these sectors, including measures to improve flexibility of work hours, and strategies to help women manage work and caring responsibilities, or their return to work after a period of absence.
4. Establish professional networks to assist women in these industries, by providing training, coaching and support to progress into leadership roles.



Nona Ritayanti supervising construction of new roads and drains in Makassar.

INTRODUCTION

Despite large investments into transport infrastructure in South Sulawesi, women have not captured their fair share of increased employment opportunities either in the construction companies that are building the railway lines, ports, airports and new highways or in the organisations operating the transport infrastructure. Current census data shows that women constitute only four percent and one percent of the transport and construction industries in South Sulawesi, respectively. Young women are often discouraged from working in these sectors on the mistaken assumption that many of these jobs are not suitable for women.

Against this backdrop, enrolments of women in civil engineering degree programs have risen to up to 40 percent in some institutions. So there is a need to understand how to best support women who are interested in a career in construction and transport to promote greater participation.

Young women are often discouraged from working in these sectors on the mistaken assumption that many of these jobs are not suitable for women.

This project aims to:

- characterise the current participation of women in the transport construction sector in higher education, employment and career development
- identify the factors that attract or deter young women from participating in this sector
- assess the challenges that women face in their careers.

The findings from this research support women's equal and meaningful participation in these sectors through increased enrolments in higher education, recruitment activities that promote gender equality or mainstreaming to address this imbalance, and a greater alignment between women's career expectations and opportunities in the sector. Wider participation in these industries will ensure that women benefit equally from recent major investments in transport and transport infrastructure. This project also seeks to identify guidelines to provide relevant career information to young women seeking to enter employment in these industries and guidance for women who are currently in employment to advance in their careers.

The most recent gender report from the Ministry of Women Empowerment and Child Protection¹ indicated several important statistics. Primary and secondary school completion rates by women in Indonesia have achieved parity with men. Women's expected years of schooling, at 13.03 nationally, was slightly above the 12.87 for men in 2019. Similarly, the enrolment of women in higher education was already at par with men.

Despite these improvements, disparity was evident in labour force participation rates where women were at 61.89 percent nationally compared with 83.13 percent for men in 2019. Wage disparity remained high with women earning 77.39 cents to each dollar earned by men. The percentage of women in the civil service exceeded that of men in 2017 and stood at 51.51 percent in 2019. Educational attainment for women in the civil service was significantly higher than men's. However, at the senior management levels, the proportion of women fell sharply to 2.72 percent indicating that gender mainstreaming activities have not permeated up the hierarchy.

The national gender development index (GDI), a direct measure of gender gap defined as the ratio of human development index for females and males, reached 94.0 in 2019 indicative of medium-low equality.² The highest values were observed in the provinces of Yogyakarta (94.77), Special Capital Region of Jakarta (94.71) and North Sulawesi (94.53). The national gender empowerment measure (GEM) climbed to 75.24 in 2019 from 68.15 in 2010. The GEM is a measure of inequalities between men's and women's opportunities and combines inequalities in three areas: political participation and decision making, economic participation and decision making, and power over economic resources. The notable increase in GEM was attributed to the greater number of women representatives in the legislative assembly.

South Sulawesi is Indonesia's largest seaweed-producing province, producing over a third of the nation's seaweed, and more than 20 per cent of the global supply of carrageenan seaweeds. This pilot project seeks to provide insights into the seaweed industry which will support the development and implementation of the SIP.

1. Kementerian Pemberdayaan Perempuan dan Perlindungan Anak (Kemen PPPA), *Pembangunan Manusia Berbasis Gender 2020*, Jakarta, Kemen PPPA, 2020a. 2. United Nations Development Programme (UNDP), *Gender Development Index* [webpage], <https://hdr.undp.org/en/content/gender-development-index-gdi>, (accessed 20 April 2022).

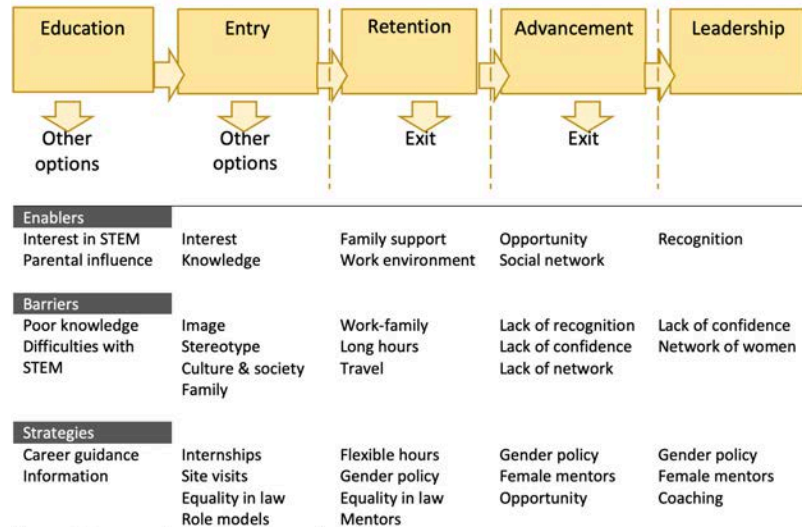
Women in transport and infrastructure

The participation of women in the transport construction industry has been largely impeded by discrimination in the employment or promotion of women, society’s perception of the industry as suitable only for men and the poor image of these careers. This is seen in the general understanding that work is largely confined to operator roles (such as drivers or crane operators) or craft roles (such as carpenters).

Two actions are required to improve women’s participation in the transport construction industry. It needs to be made more attractive and worthy of consideration for young women who are about to start making choices around post-secondary education and training. And women already working in the industry need to have more opportunities for career progression and development.

Women already working in the industry need to have more opportunities for career progression and development.

Figure 1. Framework for attracting and retaining women. Adapted from K.J. Adogbo, A.D. Ibrahim, and Y.M. Ibrahim, ‘Development of a framework for attracting and retaining women in construction practice’, *Journal of Construction in Developing Countries*, vol. 20, no. 1, 2015, pp. 99-115



A framework for a woman’s education, and entry into and progression in a career in these industries is illustrated in Figure 1 where they are faced with many other choices during their education, and options to exit if working conditions do not suit. Women’s careers are often characterised by two phenomena – a glass ceiling that prevents qualified individuals from advancing, and a leaky pipeline that interrupts and impedes the careers of women when they give birth, are caring for children and then try to return to work. This is why a strategy to increase women’s participation in the workforce needs to be two-pronged: to make careers in these construction sectors more attractive, and reduce the barriers to women’s progression. It is important to note that a career in these sectors often refers to professional women and does not apply to skilled or unskilled workers employed as operatives on project sites.

Women should be encouraged to study mathematics, science and technical subjects so they can avail themselves of higher education courses that lead to technical careers. This encouragement could be backed up with career events that showcase opportunities and internships for college students who are considering careers in transport and construction, and provide clear information on the kinds of jobs available.

Research has shown that female role models provide a substantial benefit for women, who must contend with gender biases, institutional barriers and negative stereotypes in these sectors. Women working in transport and construction are confronted with gender stereotypes including that roles are better suited to men (as both these industries are dominated by men), a lack of gender-affirmative policies in human resource management, the allocation of work based on gender, a culture of presenteeism and long working hours, together with the need for frequent relocation due to the project-based nature of construction activities.

In a thematic analysis of previous research on women’s career development, Navarro-Astor et al. identified the following barriers: work-family balance, gender stereotypes, allocation of tasks by gender, promotion, working conditions, culture of sexism, harassment, recruitment practices, lack of recognition, pay discrimination, social networks and other intrinsic barriers.³ These barriers, being multi-level and interdependent, influence women to consider other alternative careers with fewer obstacles and more opportunities. More work is evidently required to design specific interventions and strategies to attract, retain and develop women in the industry.

3. E. Navarro-Astor, M. Román-Onsalo, and M. Infante-Perea, ‘Women’s career development in the construction industry across 15 years: main barriers’, *Journal of Engineering, Design and Technology*, vol. 15, no. 2, 2017, pp. 199-221, doi:<https://doi.org/10.1108/JEDT-07-2016-0046>.

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Role of women in South Sulawesi

The four largest indigenous tribes or ethnic groups in South Sulawesi are the Bugis, Makassar, Toraja and Mandar. The dominant ones are Bugis and Makassar, with the Bugis the largest ethnic group. In *The History of Java*, Raffles (1817)⁴ was impressed by the role of Bugis women in society, where they achieved a position that commanded a certain degree of respect. They were not subjected to any acts of violence, invasion of privacy, or forced labour, in contrast with the conditions experienced by their peers in other regions. However, there have not been enough studies to understand why such characterisation applies to Bugis women. Studies on Bugis women and the gender issues in South Sulawesi have highlighted a cultural theme that identifies Bugis women as the holder of their family's honour. Idrus describes the theme of siri' as the "honour" or "dignity" of the woman's family.⁵ There have been many different articulations of this concept and particularly how it relates to conceptualising women's role in the Bugis culture.

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To understand Bugis women's participation in, or their lack of, employment, one cannot overlook the traditional construct of siri'. This concept, which predates the arrival of Islam in the region, understands Bugis women as the holders of their families' honour or as the honour themselves because of their gendered role as bearers of their successors. Alwi argues that this traditional conceptualisation of siri' – regardless of its noble intention to put women in an honourable position in the community – can be problematic in the context of women's participation in the workforce.⁶ In his study, Bugis women are traditionally expected to be responsible for domestic duties, limiting their mobility outside of their places of residence. Even if a woman decidedly agrees to take on the role of a secondary earner in the family or brings in more income than her husband, her participation in the economic sector can hardly be culturally validated as a job because of the dominant role of her husband; her job is often still considered as supplementary to her partner's chief role as the breadwinner.

Other studies have also complicated the causal links between siri' and Bugis women's participation in public activities. Many studies that explore siri' describe how women in the traditional Bugis-Makassar communities in South Sulawesi are expected to devote their time and lives domestically, e.g., to be a mother taking on the parenting role and managing the household,⁷ refraining from any public activities including transport and work (unless with the consent and presence of their husband or male family members), and supporting the roles of male family members. The latter duty of Bugis women as an articulation of siri' is often overlooked but can provide a good explanation for why Bugis women are traditionally perceived as less educated than their male counterparts in the workplace, as framed in Figure 1. For example, Silvey finds that some traditional women give up their chances of pursuing education because of the priority to support the male family members' education or career, regardless of being younger or older.⁸ In this case, their voluntary sacrifice can be seen as a manifestation of their siri' in helping their male family members fulfil their roles as breadwinners and heads of households.

Another explanation of why women were less likely to participate in laborious employment, e.g., industrial and manufacturing, was the stigmatisation of women as 'less-marriage-material' and 'naughty', even though these were not necessarily indecent jobs.⁹ Nevertheless, migratory practices such as the presence of Javanese women helped promote negotiation between the modern perceptions of work and the traditional concept of siri'. Further, traditional restrictions are increasingly difficult to sustain these days since women attend school and work outside their home districts. However, though there has been a significant upturn in women's participation in the South Sulawesi province more recently, this increase is composed of the minority of women with higher education. The unfortunate majority resort to less-accountable jobs e.g., informal economies. As Muin et al. observed, women who participate in such jobs are largely driven by their economic survival needs, lack of vocational skills, perceived weaker fitness and lack of education.¹⁰

4. T.S. Raffles, *The History of Java*, London, John Murray, 1817, cited in A.I. Kesuma and Irwan, 'Perempuan Bugis: Dinamika Aktualisasi Gender Di Sulawesi Selatan', *Prosiding Seminar Nasional LP2M UMN-2019*, 2019, pp. 320-328. 5. N.I. Idrus, 'Siri', gender, and sexuality among the Bugis in South Sulawesi', *Antropologi Indonesia*, vol. 29, no. 1, 2005, pp. 38-54. 6. A.M.S. Alwi, *Wanita karir dalam perspektif pria Bugis – Studi kasus di kota Makassar (Career women in the Buginese male perspective – a case study in Makassar city)*, Ph.D. diss., Makassar, Universitas Hasanuddin, 2015. 7. A. Mustari, 'Perempuan Dalam Struktur Sosial Dan Kultur Hukum Bugis Makassar', *Jurnal Al-Adl*, vol. 9, no. 1, 2016. 8. R. Silvey, 'Diasporic subjects: Gender and mobility in South Sulawesi', *Women's Studies International Forum*, vol. 23, no. 4, 2000, pp. 501-515. 9. Silvey, 'Diasporic subjects', pp. 501-515. 10. A. Muin, A. Thamrin, and U. Kamaruddin, 'BURUH KULI BANGUNAN PEREMPUAN DI KOTA MAKASSAR', *Jurnal Ilmiah Pena: Sains dan Ilmu Pendidikan*, vol. 10, no. 2, 2018, pp. 1-8, <https://ojs.stkippi.ac.id/index.php/jip/article/view/146/122>.

Women in transport

Recent international studies in the civil aviation and maritime sectors indicate severe gender gaps. In 2018, women accounted for 4-13 percent of airline pilots in the United States and Britain¹¹ and only 2.5 percent of aircraft mechanics. In contrast, more than 80 percent of flight attendants were women. As pilots earn considerably more than flight attendants, the gender pay gap can be substantial. Women are often not encouraged to make civil aviation a career choice or to study STEM courses that lead to these career opportunities. The poor retention rate of women in civil aviation was attributed to wage disparities and unequal access to premium wage rates, sexual discrimination and sexual harassment, hazardous working conditions, insufficient attention to health and wellbeing, and limited training opportunities. Shift work and long hours also make it difficult for women to balance work and family commitments.

Traditional restrictions are increasingly difficult to sustain these days since women attend school and work outside their home.

Similarly, in the maritime sector, only one percent of the world's 1.6 million seafarers are women.¹² In 2008, the International Maritime Organization launched the 'Go to Sea!' campaign to promote seafaring as an attractive career for young people and women, and called on governments and industry to take steps to make jobs in the shipping sector more family friendly. Women need equal access to training and education through equal opportunity policies and initiatives to increase the intake of female trainees. The ILO reported that women represented 6.9 percent of officer trainees globally, indicating an upward trend of seafarers, however the enrolment of women varied widely across different training institutes. Some shipping companies were still reluctant to take women onto ships in the belief that they would not stay long in the sector. Barriers that hold women back can be categorised into two areas: the perception of women's roles and capacities, and barriers created by management structures and institutions that do not support the advancement of women.

Infrastructure, especially in transport, can deliver great improvements in travel efficiency when it is planned, prioritised and designed to include women's specific needs and uses. The accessibility and quality of basic infrastructure services such as water, sanitation and electricity are essential for women's and girls' safety and health. In many urban areas, safety and security are identified as important factors in women's decisions to use public transport and a woman's need to feel secure when travelling alone must be prioritised. Against these needs there is a misconception that infrastructure is gender-neutral and that women and men benefit equally from public investments.¹³

Strategies outlining how Asia-Pacific Economic Cooperation (APEC) economies could promote the participation and influence of women as transport workers, entrepreneurs, leaders and travellers was commissioned by USAID.¹⁴ The report also served to illustrate best practices compiled from across the region.

The proposed framework consists of actions including generating awareness of careers in transport, strengthening participation in education and training, establishing more apprenticeships for women, countering stereotypes, recognising equality under law, improving hiring practices, ensuring equal pay for equal work, allowing flexible work conditions, creating workplace conditions that are responsive and compatible with women's needs, investing in women's growth, providing more opportunities for female workers, and recognising women as leaders.

11. D. Seligson, *Women and aviation: Quality jobs, attraction and retention*, Working Paper No. 331, Geneva, International Labor Organization, Sectoral Policies Department, 2019. 12.

B. Wagner and R. Samkange, *Recruitment and retention of seafarers and the promotion of opportunities for women seafarers : report for discussion at the Sectoral Meeting on the Recruitment and Retention of Seafarers and the Promotion of Opportunities for Women Seafarers (Geneva, 25 February - 1 March 2019)*, Geneva, International Labour Office, Sectoral Policies Department, 2019. 13. OECD, 'Women in infrastructure: Selected stocktaking of good practices for inclusion of women in infrastructure', *OECD Public Governance Policy Papers*, No. 7, Paris, OECD, 2021, doi:<https://doi.org/10.1787/9eab66a8-en>. 14. Nathan Associates Inc., *APEC Women in Transportation Data Framework and Best Practices Report*, US-APEC Technical Assistance to Advance Regional Integration (US-ATAARI), United States Agency for International Development (USAID), 2015.

Women in construction

The construction industry in Indonesia engages large numbers of informal workers. It has been estimated that up to seven million workers in the industry are employed informally to work as construction operatives, while one million are formally employed by construction companies. The informal nature of work that leads to precarious employment engages mainly men from rural villages who seek work in the cities during a break from the harvest or planting periods. In recent years, the construction industry has enticed young internal migrants (aged between 15 and 34) to manual jobs.¹⁵

While women work informally as unskilled helpers in the construction sector, carrying building materials in India, Bangladesh and Ethiopia, this is not observed in Indonesia. A recent study on building labourers in Makassar featured several women who had taken on physically demanding roles due to their lack of educational attainment or skills. These women were highly motivated to learn new skills and prove they were as capable as their male counterparts in carrying out these physical tasks.¹⁶ Their primary motivation for engaging in construction work was to supplement their family incomes (for the married women) or to migrate from the village to the city (for the younger unmarried women facing a comparative lack of opportunities in the village). These women work in the same fields as the men, earning equal wage for equal work, from 8am to 5pm, with an hour break for lunch. Their work includes physically demanding tasks such as bricklaying, tiling, painting, foundation works and general labour. They return to their villages to assist in the twice-yearly harvests.

Gender mainstreaming activities in the construction industry were first introduced in 1997 as part of the National Community Empowerment Program (Program Nasional Pemberdayaan Masyarakat or PNPM) at the Ministry of Public Works and Housing, where women's involvement in the planning, implementation and supervision of infrastructure in national development planning was initiated.¹⁷ More recently, women's empowerment formed a key element of the Indonesia Australia Partnership for Infrastructure (Kemitraan Indonesia Australia untuk Infrastruktur or KIAT) initiative, which aims to increase women's capacity to participate in the economy, and support the achievement of economic and equality objectives.¹⁸ The KIAT is Australia's four-year, \$300 million flagship infrastructure investment in Indonesia. An example of KIAT's gender equity and social inclusion initiative is where the Indonesian Women Entrepreneurs Association (Ikatan Wanita Pengusaha Indonesia or IWAPI) focused on promoting women's economic empowerment in Nusa Tenggara Barat by seeking to improve women's access to training and capacity building to participate in the construction industry and establishing a network of women involved in the sector.

Current women's participation rates in transport and construction

Data from the most recent Labour Force Survey (BPS, 2021) indicates that from a total population of 271 million, Indonesia has a working age population of 205 million, with 131 million reported to be working.¹⁹ Unemployment was at 6.26 percent or 8.75 million in February 2021, having risen from the 4.94 percent rate of February 2020, recorded before the onset of the COVID-19 pandemic. The agricultural sector is the largest employer at 29.6 percent, followed by wholesale and retail trade and repair of motor vehicles (19.2 percent), manufacturing (13.6 percent), and accommodation and hospitality (7 percent). Construction is fifth largest at 6.05 percent while transport is eighth at 4.05 percent. The latest survey reported 4,176,800 workers in South Sulawesi and 256,914 unemployed, resulting in an unemployment rate of 5.8 percent; lower than the national unemployment rate of 6.3 percent.

While this study is primarily focused on the transport industry, recent investments in transport infrastructure such as the Makassar-Parepare Railway and the Makassar New Port have involved the active participation of contractors and consultants from the construction industry.

The Indonesian Standard Industrial Classification defines Category-F construction as encompassing the erection of buildings and infrastructure including the construction of roads, expressways, bridges, tunnels, railroads at grade, elevated or underground, seaports and airports.²⁰ Transport and warehousing, defined in Category-H, includes the provision of passenger or goods transport by rail, road, water or air and activities related to transport such as terminal facilities, cargo handling and warehousing.

15. UNESCO, UNDP, IOM and UN-Habitat, *Overview of Internal Migration in Indonesia* [policy brief], Bangkok, UNESCO, 2018, <https://bangkok.unesco.org/sites/default/files/assets/article/Social%20and%20Human%20Sciences/publications/Policy-brief-internal-migration-indonesia.pdf>. 16. Rahmatiah, 'SELAYANG PANDANG BURUH BANGUNGNA PEREMPUAN DI KOTA MAKASSAR', *Jurnal Sosiologi Dialektika Kontemporer*, vol. 2, no. 1, 2014, pp. 8-16. 17. Kementerian Pekerjaan Umum dan Perumahan Rakyat (PUPR), 'Pengarusutamaan Gender Dalam Pembangunan Infrastruktur Menjadi Perhatian Kementerian PUPR', 16 August 2018, <https://pu.go.id/berita/pengarusutamaan-gender-dalam-pembangunan-infrastruktur-menjadi-perhatian-kementerian-pupr>, (accessed 17 September 2021); 'Gender dalam infrastruktur' [webinar], presentation by I. Indrarini during Perkim webinar, Ministry of Public Works and Housing, 17 July 2020, <https://perkim.id/webinar/webinar-seri-9-gender-dalam-infrastruktur/>. 18. J. Edwards, 'Gender Equality, Social Inclusion and Civil Society Engagement Strategy 2018-2021' [unpublished document], prepared for the Indonesia-Australia Partnership for Infrastructure (KIAT) and the Department of Foreign Affairs and Trade (DFAT), Jakarta, Cardno, 2018, https://www.kiat.or.id/resx/upload/publications/KIAT_GESI_CSE_Strategy_2018_2021.pdf. 9. Badan Pusat Statistik (BPS – Statistics Indonesia), *Labor force situation in Indonesia February 2021*, Jakarta, Badan Pusat Statistik, 2021. 20. Badan Pusat Statistik (BPS – Statistics Indonesia), *Klasifikasi Baku Lapangan Usaha Indonesia 2020*, Jakarta, Badan Pusat Statistik, 2020.


Table 1. Number of workers in construction and transport for Indonesia (IND) and South Sulawesi (SulSel)

Industry	IND 2018	IND 2019	IND 2020	IND 2021	(%)	SulSel-2021	(%)
F-Const All	7,196,235	7,763,292	8,116,426	7,929,651		304,207	
Urban	4,105,280	4,533,969	4,730,565	4,700,301	59.3%	157,208	51.7%
Rural	3,090,955	3,229,323	3,385,861	3,229,350	40.7%	146,999	48.3%
Male	7,038,490	7,606,315	7,977,741	7,830,677	98.8%	301,300	99.0%
Female	157,745	156,977	138,685	98,974	1.2%	2,907	1.0%
H-Trans All	5,181,080	5,290,506	5,509,153	5,307,649		165,340	
Urban	3,712,711	3,904,113	4,059,362	3,974,819	74.9%	110,797	67.0%
Rural		1,386,393	1,449,791	1,332,830	25.1%	54,543	33.0%
Male	4,977,247	5,076,315	5,256,671	5,058,953	95.3%	158,573	95.9%
Female	203,833	214,191	252,482	248,696	4.7%	6,767	4.1%

Source: BPS, 2021 (Data from Satkernas surveys carried out in February each year)

Table 2. Average monthly net wage/salary (IDR) of employees/labourers for 2018-21

Category		2018	2019	2020	2021
Indonesia (IND)	All	2,644,982	2,784,937	2,911,540	2,860,630
Indonesia (IND)	Male	2,899,325	3,045,168	3,177,577	3,101,907
Indonesia (IND)	Female	2,205,375	2,329,895	2,447,147	2,437,727
SulSel	All	2,713,778	2,956,973	3,066,598	3,040,372
SulSel	Male	3,037,838	3,380,552	3,548,389	3,292,406
SulSel	Female	2,216,506	2,267,228	2,336,009	2,619,160
SulSel/IND	(%)	102.6%	106.2%	105.3%	106.3%
Female/Male IND	(%)	76.1%	76.5%	77.0%	78.6%
Female/Male SS	(%)	73.0%	67.1%	65.8%	79.6%

Source: BPS, 2021

There are about 7.9 million workers in the construction industry and 5.3 million workers in the transport and warehousing industry in Indonesia. The number of workers in South Sulawesi for these two sectors is 304,207 and 165,340 respectively. Both industries exhibit very low female participation, with women accounting for only 1.2 percent of the workforce in construction nationally in 2021 (although it was observed to be about 2 percent in earlier years). The ratio of women in transport was similarly low at 4.7 percent. Women's participation in these industries in South Sulawesi reflects the overall ratios for Indonesia as shown in Table 1.

The data from the Labour Force Survey, summarised in Table 2, indicates an unmistakable wage disparity, with women in Indonesia earning only 78.6 percent of the men's wages. There is a marginal increase of about 1 percent each year over the most recent period. Average wages in South Sulawesi are about 6.3 percent higher than the Indonesian average across all sectors of the economy. There is great variation in wage disparity in South Sulawesi, with women earning 66-80 percent of men's wages. In 2021, the average wages for women and men in South Sulawesi were 2.6 million rupiah and 3.3 million rupiah per month, respectively (equivalent to \$260 and \$330).

Table 3: Age profile of men and women in Construction and Transportation in Indonesia

Age	Const.	(%)	Male(%)	Female(%)	Trans	(%)	Male(%)	Female(%)
15 - 19	143,013	2%	98.4%	1.6%	114,866	2%	86.4%	13.6%
20 - 24	542,741	7%	98.1%	1.9%	513,338	10%	87.7%	12.3%
25 - 29	836,266	11%	97.7%	2.3%	715,579	13%	91.8%	8.2%
30 - 34	1,133,527	14%	98.1%	1.9%	720,225	14%	95.1%	4.9%
35 - 39	1,209,454	15%	98.8%	1.2%	742,513	14%	98.1%	1.9%
40 - 44	1,197,873	15%	98.7%	1.3%	786,643	15%	97.2%	2.8%
45 - 49	1,076,219	14%	99.5%	0.5%	608,661	11%	96.6%	3.4%
50 - 54	799,597	10%	99.4%	0.6%	471,503	9%	96.7%	3.3%
55 - 59	539,144	7%	99.7%	0.3%	301,739	6%	99.3%	0.7%
60 +	448,817	6%	99.2%	0.8%	332,582	6%	99.4%	0.6%
Total	7,929,651				5,307,649			

Source: BPS, 2021

Table 4: Educational attainment of men and women in Construction and Transportation in Indonesia

	Const.	(%)	Male(%)	Female(%)	Trans	(%)	Males(%)	Female(%)
No Schooling	24,961	0%	99%	1%	17,706	0%	100.0%	0.0%
Part Primary	570,021	7%	99%	1%	278,670	5%	99.8%	0.2%
Primary	2,722,003	34%	100%	0%	1,048,192	20%	99.2%	0.8%
Intermediate	2,163,863	27%	100%	0%	1,083,190	20%	98.7%	1.3%
High school	1,185,816	15%	98%	2%	1,425,694	27%	94.4%	5.6%
Vocational	886,570	11%	100%	0%	961,551	18%	93.1%	6.9%
Diploma	78,225	1%	89%	11%	118,525	2%	84.1%	15.9%
University	298,192	4%	85%	15%	374,121	7%	83.8%	16.2%
Total	7,929,651				5,307,649			

Source: BPS, 2021

There have been small increases in women’s participation in the 20-34 age range for construction and 15-29 age range in transport, indicating the entry of more women in the past decade, as shown in Table 3. Overall participation rate remains low at 2.3 percent and 12.3 percent for construction and transport, respectively.

The educational attainment of workers in the construction industry, shown in Table 4, is generally very low, with 41 percent of workers completing only primary education or lower. These workers with low educational attainment and vocational training are nearly all men. Workers with post-secondary education account for only 5 percent of the workforce and this is where women’s participation is most evident. By contrast, educational attainment in the transport industry is significantly higher than construction, with 9 percent of the workers reporting post-secondary qualifications. Similarly, women’s participation is unmistakably higher at the higher education levels.

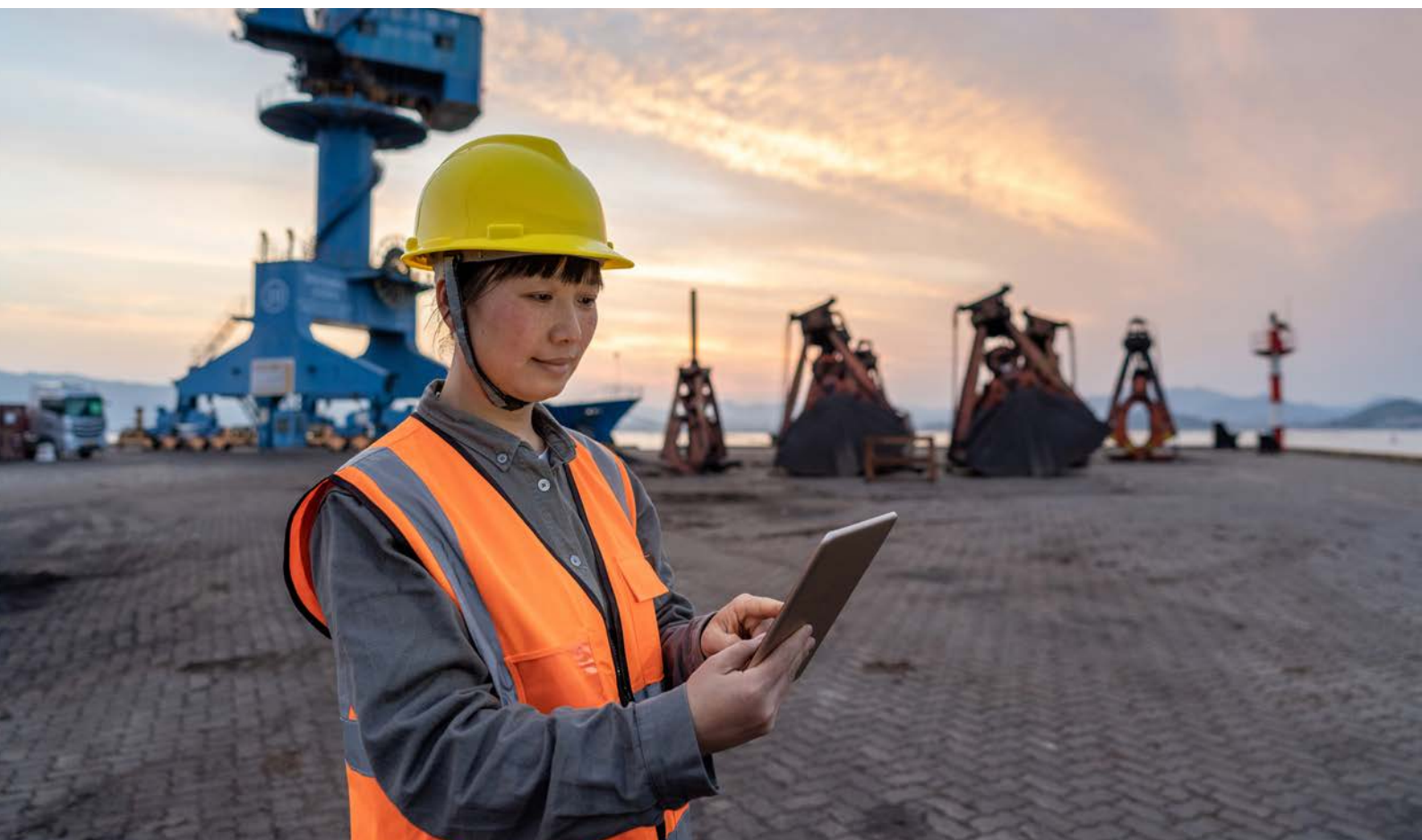


Table 5: Main occupations

	Const.	(%)	Male(%)	Female(%)	Trans	(%)	Male(%)	Female(%)
Prof & Tech	248,234	3%	93.3%	6.7%	143,069	2.7%	88.9%	11.1%
Admin & Mng	216,360	3%	98.6%	1.4%	67,015	1.3%	88.5%	11.5%
Clerical	165,504	2%	70.8%	29.2%	427,358	8.1%	64.9%	35.1%
Sales	32,506	0%	79.3%	20.7%	28,245	0.5%	89.5%	10.5%
Services	57,644	1%	98.0%	2.0%	178,093	3.4%	93.5%	6.5%
Agriculture	0	0%	0.0%	0.0%	0	0.0%	0.0%	0.0%
Production (1)	7,174,534	90%	99.7%	0.3%	4,404,040	83.0%	98.6%	1.4%
Others	34,869	0%	100.0%	0.0%	59,829	1.1%	100.0%	0.0%
Total	7,929,651				5,307,649			

Source: BPS, 2021. Note (1) Production includes Production and Related Workers, Transport Equipment Operators and Laborers

In the construction industry, women account for nearly 30 percent of the clerical occupations, 21 percent of the sales roles and nearly seven percent of the professional and technical occupations. Women's participation in production roles, although accounting for about 23,000 workers nationally, resulted in a very small proportion given the large number of male construction labourers. A comparable picture emerges in the transport industry where women accounted for 35 percent of clerical roles. Women's participation in all occupations in transport was between 6.5 percent and 11.5 percent except for production.

The data from Tables 4 and 5 clearly indicates that the inclination is for women to participate in either clerical roles that require a high-school qualification, or professional roles that require either diploma or university degrees. Women tended to avoid the production roles in both these industries.

Table 6: Total work hours per week

Hours Worked	Const.	(%)	Male(%)	Female(%)	Trans	(%)	Male(%)	Female(%)
0	310,648	4%	99.3%	0.7%	213,616	4%	95.9%	4.1%
1-4	1,603	0%	100.0%	0.0%	38,271	1%	64.3%	35.7%
5-9	51,207	1%	97.7%	2.3%	110,627	2%	97.4%	2.6%
10-14	48,949	1%	100.0%	0.0%	127,939	2%	96.3%	3.7%
15-19	137,511	2%	99.0%	1.0%	138,948	3%	98.2%	1.8%
20-24	254,310	3%	96.6%	3.4%	227,216	4%	97.2%	2.8%
25-34	500,950	6%	98.7%	1.3%	558,827	11%	97.4%	2.6%
35-44	1,717,307	22%	97.3%	2.7%	1,168,942	22%	89.0%	11.0%
45-54	3,526,385	44%	99.3%	0.7%	1,142,537	22%	96.0%	4.0%
55-59	858,920	11%	99.0%	1.0%	466,743	9%	98.4%	1.6%
60-74	465,449	6%	99.9%	0.1%	842,352	16%	98.5%	1.5%
75+	56,412	1%	100.0%	0.0%	271,631	5%	99.8%	0.2%
Total	7,929,651				5,307,649			

Source: BPS, 2021

Table 7: Employment status

Category	Const.	(%)	Male(%)	Female(%)	Trans	(%)	Male(%)	Female(%)
Own Account	380,179	5%	98.4%	1.6%	2,649,660	50%	98.5%	1.5%
Employer (1)	69,848	1%	100.0%	0.0%	28,104	1%	97.9%	2.1%
Employer (2)	349,095	4%	99.2%	0.8%	86,722	2%	96.5%	3.5%
Employee	3,306,354	42%	97.8%	2.2%	2,167,247	41%	90.8%	9.2%
Casual Agri								
Casual Worker	3,765,186	47%	99.6%	0.4%	355,419	7%	99.3%	0.7%
Unpaid Family	58,989	1%	95.0%	5.0%	20,497	0%	84.5%	15.5%
Total	7,929,651				5,307,649			

Source: BPS, 2021. Notes (1) Employer Assisted by Temporary Worker/Unpaid Worker, (2) Employer Assisted by Permanent Worker



The data in Table 6 verified the general perception that workers in the construction industry work very long hours. On average, workers in construction work 45-54 hours per week or 10 hours more than workers in transport. Nearly 20 percent of construction workers put in more than 55 hours, reflecting the extremely long hours of work in this industry, which puts tremendous pressure on workers trying to juggle other household and family responsibilities. Nearly half the women in construction reported working 35-44 hours per week or 10 fewer hours per week compared with the men. Similarly, in transport, women were observed to work 10 fewer hours per week compared with men.

The construction industry in Indonesia is characterised by a large number of informal workers, captured as casual workers in Table 7. These workers are invariably men, both skilled and unskilled, who work in labour gangs under the supervision or control of a 'mandor' (foreman). These workers often have familial or village ties with the mandor.²¹ The tradition of joining a labour gang, working as an apprentice and learning the craft skills from a senior worker, does not lend itself to the entry of women. The next largest category of construction workers are employees engaged by construction companies, who make up 42 percent of the workforce. Women comprise 2.2 percent of this category of workers. On the other hand, half of all workers in the transport industry are self-employed (called an 'account worker' in Indonesia, such as an owner-driver) while another 41 percent are regularly employed. Most women in the transport industry are primarily working as employees.

21. B.W. Soemardi, I. Soenaryo, and E. Wahyudi, 'The Role and Function of Mandor in Construction Project Organization in Indonesia', *Procedia Engineering*, vol. 14, 2011, pp. 859-864.

METHODOLOGY

Given that a large body of knowledge on women’s participation in the transport and construction industries already exists, the focus of this study is to examine the extent to which the factors that commonly attract or deter young women from participating in the sector apply to women intending to join or currently employed in these industries in South Sulawesi. The questionnaire survey and interview questions were designed to investigate and explore these issues. Participants were given the opportunity to raise additional issues or provide extended responses to these questions through the text entry fields in the questionnaire survey.

Dr Evi Aprianti from Universitas Hasanuddin (Unhas), who was a partner investigator in this project, had conducted research into the role of women in South Sulawesi previously. Therefore, the Unhas team was able to quickly mobilise and contact the necessary organisations for this study.

The participant cohort consisted of two groups of women: (i) women in training and education, to examine factors pertaining to attraction, recruitment and barriers to entry; and (ii) women in employment, to provide insights into retention, advancement and associated barriers. Sampling of the women in training and education was purposive, with survey enumerators sent to polytechnics and universities in Makassar offering diploma and degree programs in engineering and other degrees associated with employment in these sectors. Women in employment were targeted by inviting the participation of employees from railway, airport and port operators (Kereta Api Sulawesi Selatan, Bandara Toraja and PT Pelabuhan Indonesia), construction and consulting companies designing and constructing transport infrastructure, state-owned enterprises and government agencies. All participants were informed of the aims and objectives of this research, with assurances on the confidentiality and anonymity of the research data.

An initial proposal to conduct semi-structured interviews was cancelled when social restrictions were rapidly changing in response to increasing COVID-19 infections during the data collection period. These interviews were designed to elicit detailed responses about identified barriers and views on the effectiveness of potential strategies. The number of survey respondents was increased to 250 as a substitute for these interviews.

Five prominent successful women in transport and construction were identified and approached to be profiled as role models. Female role models are incredibly effective in encouraging women to take on roles in fields long dominated by men, and helping motivate women to advance their careers. The oft-quoted phrase ‘you can’t be what you can’t see’ applies to promoting the participation of young women in these industries.

One obvious limitation of the data collection is the sample of women in employment consists of those who chose to enter and remain in these industries. The views of the women who have opted for other courses of study and exited these industries were not sought. By targeting post-secondary school educated women, the study implicitly excluded women working as construction operatives, labourers, casual or informal workers. This group was excluded from the study due to the challenges of administering these questionnaire surveys under COVID-19 social restrictions. This is potentially a subject for a future study on female operatives in the transport and construction industries.

A total of 277 valid responses were recorded at the end of the survey period, as shown in Table 8. These include 147 women in education and training, 102 in employment, 20 concurrently studying and working, and eight seeking employment. Most of the women in education were studying for their bachelor’s degrees while the majority of women in employment have obtained their diplomas, degrees or post-graduate qualifications.

Table 8. Category, age and educational attainment of survey respondents

Category	No.	Av Age	SMA/K	D1-4	S1	S2	S3
Students	147	22	137	1	7	1	0
Work & study	20	25	7	1	11	0	0
Working	102	31	0	5	78	16	3
Seeking employment	8	29	0	1	3	4	0
Total	277	25	144	9	99	21	3

Notes: SMA/K-General or vocational high school, D1-4 Diploma, S1-Bachelor, S2-Master, S3-Doctorate

All the women working in transport and construction reported a minimum of diploma level, as shown in Table 9. A comparison of women’s educational attainment with that of their parents indicates that out of the 102 women in employment, 42 attained an education higher than, 22 equivalent to and only seven lower than that of their mothers. Similarly, 50 attained an education level higher than, 24 equivalent to and 10 lower than their fathers’. In general, the majority of women in employment have attained an educational level either equal to or higher than that of their parents.

Table 9. Highest educational attainment of women in employment and their parents

Level	Mother						Father					
	Self	SMA/K	D1-4	S1	S2	S3	SMA/K	D1-4	S1	S2	S3	
SD	0	0	0	0	0	0	0	0	0	0	0	
SMA/SMK	0	0	0	0	0	0	0	0	0	0	0	
D1-4	5	1	1	2	0	0	3	0	1	0	0	
S1	76	23	3	19	5	0	29	6	21	6	0	
S2	15	7	0	4	2	0	5	2	3	1	2	
S3	3	1	1	0	0	0	0	0	2	0	0	
Total	99	32	5	25	7	0	37	8	27	7	2	

Notes: Higher (orange), Equivalent (yellow), Lower (red)





Figure 2 shows that the age profile of the women in education was mostly in the 21-25 age group while those in employment were predominantly in the 21-35 age group, with 17 aged above 35.

Figure 2. Age profile of female students and workers

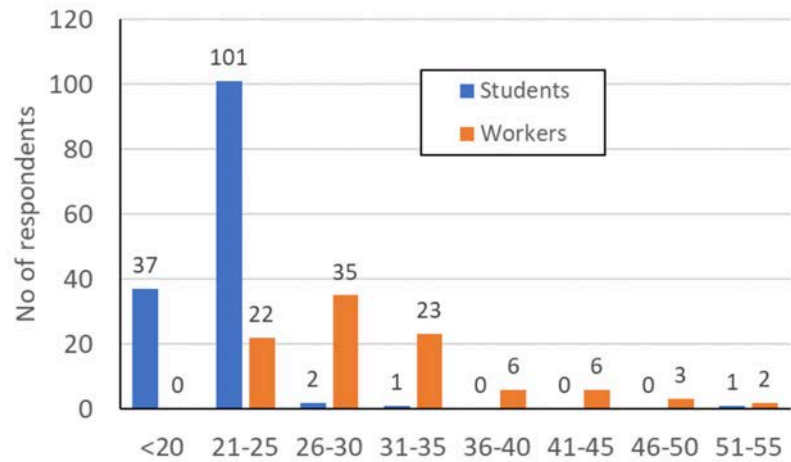
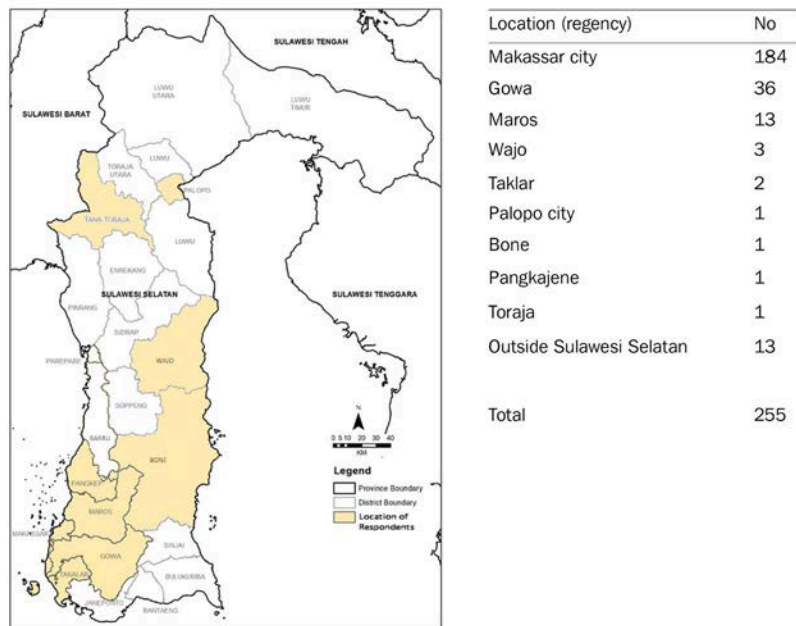


Figure 3. Map of South Sulawesi and the reported location of respondents



Results of survey on women in education and employment

The survey results are divided into three sections to focus on: (i) women in education, (ii) women in employment, and (iii) their career progression.

Women in education

Students from universities and polytechnics offering courses in civil engineering, transport and maritime studies were recruited for this study. Table 10 lists the affiliations of these students, with the largest cohort attending Universitas Hasanuddin, followed by Universitas Negeri Makassar, Politeknik Negeri Ujung Pandang, Universitas Muslim Indonesia and Universitas Muhammadiyah Makassar, all located in the city of Makassar.

Most of these students were studying for diplomas or degrees in civil engineering, which are the most relevant degrees for professional careers in transport and construction.

Table 10. Educational institution and programs of study for women currently in higher education

Institution	No	Civil Eng	Transport	Post-grad
Universitas Hasanuddin (UNHAS)	58	53	2	1
Politeknik Negeri Ujung Pandang (PNUP)	27	20	0	0
Universitas Muslim Indonesia (UMI)	24	24	0	0
Universitas Muhammadiyah Makassar	13	11	0	0
Universitas Negeri Makassar (UNM)	36	27	0	0
Universitas Fajar	7	7	0	0
Universitas Bosowa	6	5	0	0
Universitas Muhammadiyah Parepare	1	1	0	0
Universitas Atma Jaya Makassar	1	1	0	0
Universitas Kristen Indonesia Paulus (UKIP)	1	1	0	0
Total	174	150	2	1

Female enrolment in higher education in Indonesia has been marginally higher than male, resulting in 9.71 percent of Indonesian women now reporting having a bachelor’s degree compared with only 8.97 percent of men.²² However, the women in the survey noted that female students accounted for only 31-40 percent of the enrolments in their respective courses, which were mostly in the field of engineering. In contrast, the most frequently reported female academic proportion is lower at 21-30 percent.

Figure 4 shows that enrolments at these institutions were reportedly 30-40 percent female, indicating a significant shift in gender balance compared with the gender proportions currently found in these industries. However, the data indicates that wide variations exist, with educational programs recording proportions from as low as 11-20 percent to more than 50 percent women. Conversely, the numbers of women academic staff at these institutions were comparably lower at 20-30 percent, indicating that female participation is still lacking in the academic programs that support the transport and construction sectors.

Figure 4. Proportion of female students enrolled and female teaching staff

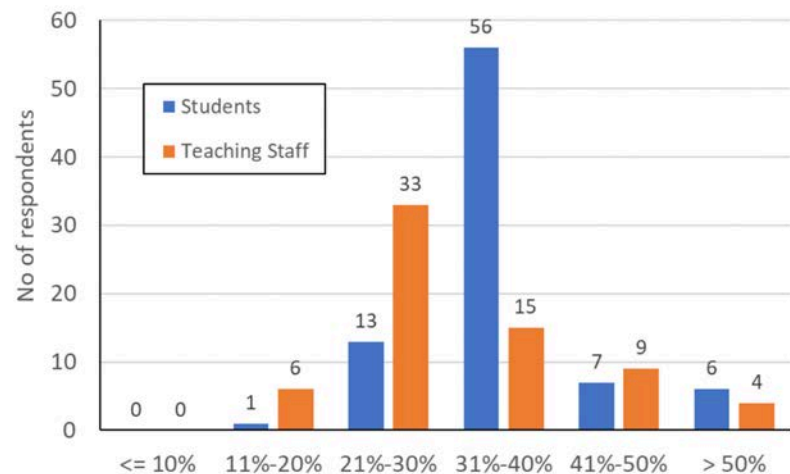
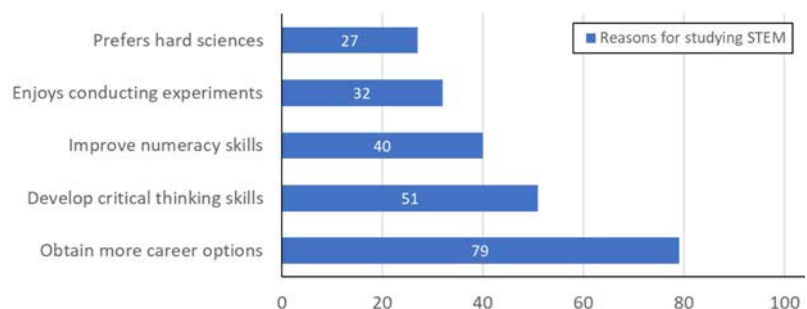


Figure 5. Reasons for studying STEM subjects

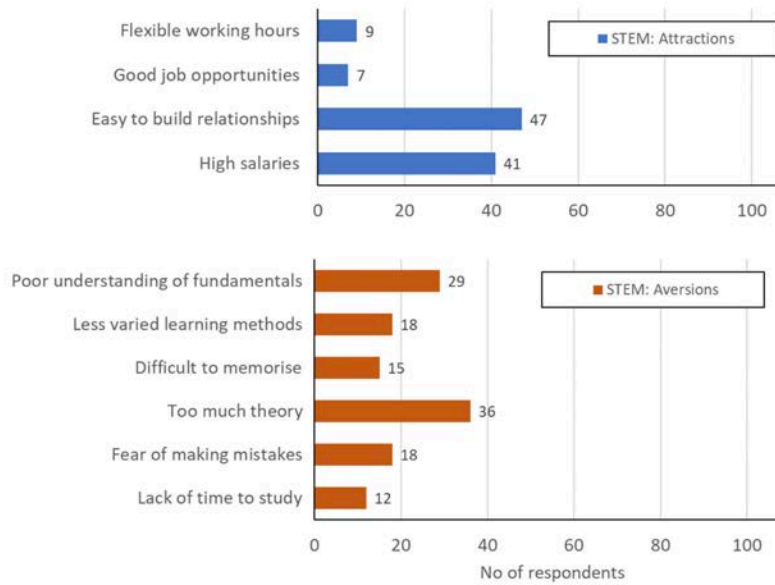


22. Kementerian Pemberdayaan Perempuan dan Perlindungan Anak (Kemen PPPA), Profil Perempuan Indonesia 2020, Jakarta, Kemen PPPA, 2020b.



The findings infer that women in employment continue to rely on their family and friends to provide career information.

Figure 6. Attraction and aversion to STEM subjects



Previous studies have reported that women are generally averse to studying STEM subjects. Out of the 110 students who responded about their preferences for STEM subjects, more than half said STEM courses gave them many more career options. Other reasons given by the students are shown in Figure 5. These students associated the study of STEM subjects with both high salaries and ease of building relationships. By contrast, they revealed their reasons for aversion to STEM subjects included learning too much theory and their poor understanding of fundamentals, as illustrated in Figure 6.

The next theme examined was the attraction of careers in these industries, how women in education obtained information and from whom they acquired it. A total 56 out of 157 respondents said they had family or close friends who were working in the construction or transport industries, as shown in Table 11. The strongest influence was from their immediate family, with more than half reporting either parents or siblings were already working in these sectors. Fifteen had friends in these industries and a further two were influenced by their lecturers. Their family and friend networks included people in relatively senior or professional positions in the sectors, leading to 42 percent of these respondents saying they were influenced to seek a career in these industries.

Table 11. Influence of family and friends

Relationship	No	Designation of family and friends	No	Qualification of family and friends	No
Parents	17	Consulting engineer	16	SMA/K	2
Siblings	12	Construction manager	7	D1-4	0
Other family	10	Department head	7	S1	31
Friend	15	Project manager	5	S2	21
Lecturer	2	Director	5	S3	4
		Quality controller	3		
		Administration	3		
		Quantity surveyor	3		
		Others	10		
Total	54	Total	59	Total	58
Gender of family and friends	No	Influenced by family and friends	No		
Female	19	Yes	25		
Male	41	No	34		
Total	60		59		

The research found that the most highly rated factor drawing respondents to be involved in the industry was the challenge of the work.

Table 12 shows nearly 80 percent of the women described a desire to travel inter-province or overseas to further their education. It followed that these respondents said their parents were supportive of their decision, indicating that many no longer subscribed to the traditional view that a woman's role should be restricted to domestic duties.

Table 12. Overseas studies

Desire for overseas studies	No	Parent's response	No
Yes	47	Supportive	42
No	12	Neutral	5
		Not supportive	1
Total	59		48

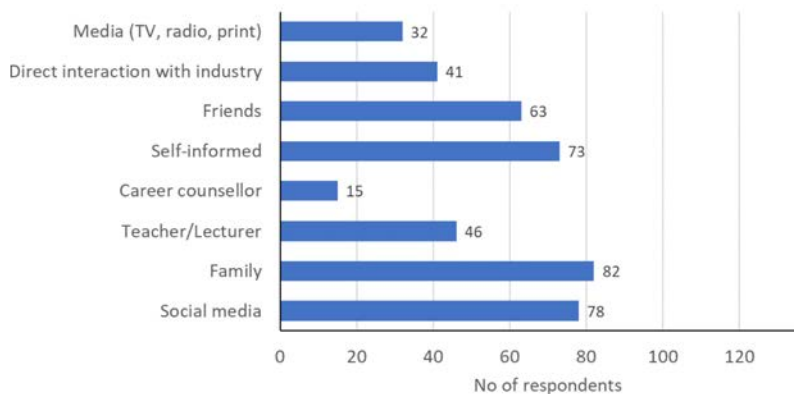
As shown in Table 13, attending site visits and participating in internships are the students' preferred ways of sourcing information on the transport and construction sectors. Career counselling is possibly not prevalent in the Indonesian context, with only 35 out of 155 respondents being aware of it. From this sample, only 11 attend career counselling sessions and all found these sessions useful. This result points to the efficacy of career counselling sessions, which could be a means to provide more information on career choices in the future. Career counsellors must be provided with gender equality and social inclusion skills to correctly guide students.

Table 13. Information about the industry and career counseling

Activity	No
Site visit	130
Internships	129
Industry seminar	41
Career counselling	
Aware	35
Attended	11
Influenced	11

A total of 137 women responded to the question on their source of career information with multiple answers. More than half these respondents selected family, social media and self-informing as their primary sources of career information followed closely by their friends (see Figure 7). More traditional sources of career information – such as TV, radio or print media, teachers and lecturers, direct interactions with industry and career counsellors – received fewer mentions, indicating that this generation of women prefer to rely on their immediate family and their own efforts to learn more about careers in these sectors. Future gender equality strategies should consider these preferences for family and social media as the primary means of communication when targeting young women.

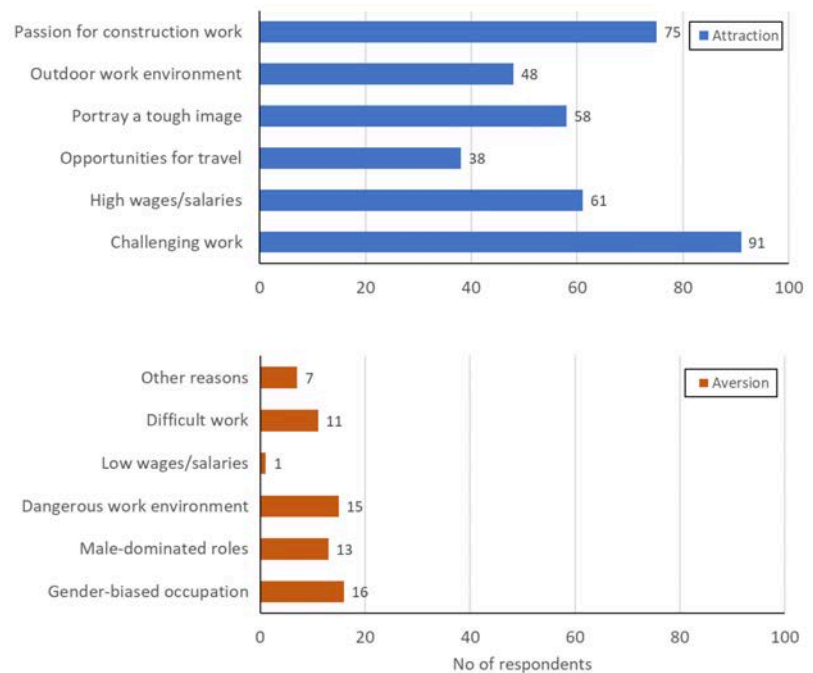
Figure 7. Sources of career information





Colleges and training centres can play an important role in encouraging women into transport construction work.

Figure 8. Attraction and aversion to the transport and construction industries



Given that these women are already enrolled in courses leading to careers in the transport or construction industries, they have intuitively reported more attraction factors than aversions (Figure 8). The research found that the most highly rated factor drawing respondents to be involved in the industry was the challenge of the work, followed by passion and high wages. Very few mentioned aversions to these industries. Aversive factors such as a dangerous work environment, a male-dominated field and difficult work have always been acknowledged as negative features of these industries, but recent occupational health and safety practices have reduced the level of risk and brought marked improvements in the sectors. While gender balance remains an industry-wide problem, only 16 respondents mentioned it.

Women in employment

A total of 120 respondents reported they were currently working in the transport and construction industries. Table 14 shows the areas of employment, with the most common roles in construction companies followed by consultants and construction management companies. Other roles included working for the government, or as academics at universities or polytechnics. Seven women worked in the transport sector, mainly for the railway, airport and port operators.

A total of 70 respondents were employed by contractors, construction management firms and consultants – core companies delivering on the construction of transport infrastructure in South Sulawesi. Of these respondents, 61 were office based, seven were based on project sites while the remaining 48 worked at both locations. These respondents were generally younger women so their employment durations in these roles were short, between three and five years, compared with the longer durations of employment reported by teaching staff at universities and polytechnics, and government officers.

Table 14. Category of employers

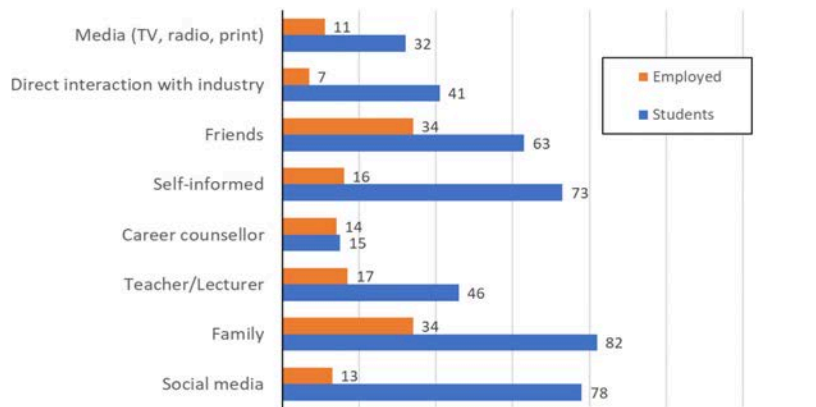
Employer	No	Experience with current employer (yrs)
Government	11	7.09
Contractor	33	3.38
Transportation/Railway/Freight	7	4.71
Construction management	18	3.44
University/Polytechnic	15	8.07
Consultant	19	3.68
Others	17	3.69
Total	120	5.01

The survey findings indicate that the women in employment obtained career information primarily from family and friends, as shown in Figure 9.

This is similar to the finding for students in higher education who also relied on their close network for information, however they had a stronger preference for learning more about career opportunities and job roles through social media.

The findings infer that women in employment continue to rely on their family and friends to provide career information and don't use or have access to a strong network of industry professionals, while social media and public channels are vital to engaging with students and the future workforce of the transport construction industry.

Figure 9. Source of career information reported by women in employment



Figures 10, 11 and 12 illustrate the responses of women on a five-point Likert scale to several statements relating to their attraction to and work conditions in these industries. Responses that agree with these statements are shown in green while responses that disagree are shown in red and neutral responses are in grey. The most compelling reason for women to join the industry was gratifying work, followed by challenging work, high salary and travel opportunities, as shown in Figure 10. Other factors such as outdoor environment and social status were viewed as generally positive.

On the theme of work conditions in these industries, most women stated that the male-dominated environment did not pose a problem and that they were more than willing to be a part of it, despite the gender imbalance (Figure 11). This result is encouraging and contrasts sharply with findings from studies²³ conducted in other countries where women consistently conveyed a reticence to join a male-dominated industry.

More than 50 percent of our respondents did not welcome the long working hours required in the construction industry. There was an equal proportion of family members reportedly being supportive and not supportive of these long working hours, as illustrated in Figure 12. The construction industry has long tended towards presenteeism where men who are less burdened with childcare or family responsibilities can spend long hours at project sites. The industry clearly has to address the requirement for more flexibility if it is to attract and retain women. The respondents were to some extent positive about the opportunity to relocate, indicating that the frequent relocations and travel required were acceptable to them.

23. L. Worrall et al., 'Barriers to women in the UK construction industry', *Engineering, Construction and Architectural Management*, vol. 17, no. 3, 2010, p. 268; B.L. Oo, X. Liu, and B.T.H. Lim, 'The experiences of tradeswomen in the Australian construction industry', *International Journal of Construction Management*, 2020, p. 1; M.F. Regis et al., 'Women in construction: shortcomings, difficulties, and good practices', *Engineering, Construction and Architectural Management*, vol. 26, no. 11, 2019, p. 2536; A.R. Dainty and H. Lingard, 'Indirect discrimination in construction organizations and the impact on women's careers', *Journal of Management in Engineering*, vol. 22, no. 3, 2006, p. 108.



Career counsellors must be provided with gender equality and social inclusion skills to correctly guide students.

Figure 10. Attraction to the industry

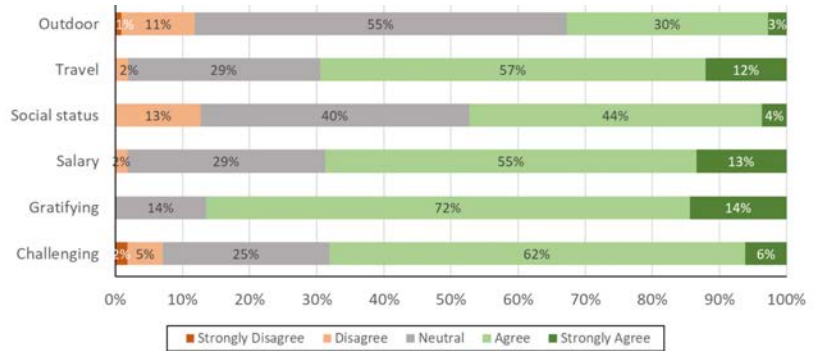


Figure 11. Work conditions in the industry

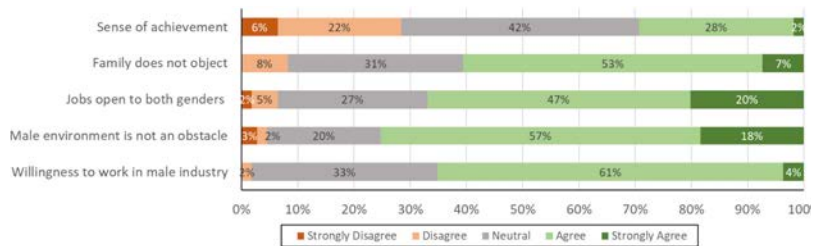


Figure 12. Response to the generally long working hours

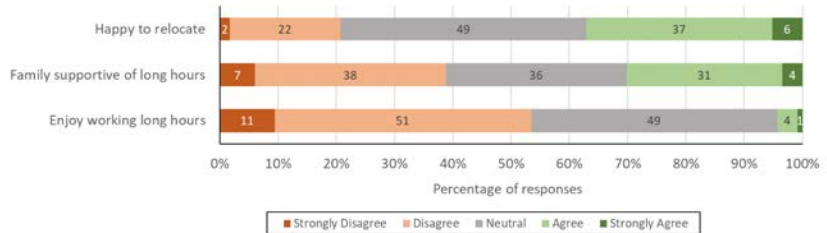


Figure 13 shows that even though most women favoured a gender-equitable recruitment policy, there were some who were either neutral or disagreed with this statement. From a recruitment or human resources perspective, women believe that their marital status and number of children have no bearing on their job application and should not be raised during job interviews or be considered a criterion for employment.

Despite public perception that the transport and construction industries are dirty, difficult and often dangerous and challenging work environments, Figure 14 shows that most respondents were neutral about this sector's image in comparison with other sectors. Only a small percentage of those working said the industry's image was a problem or that their families disapproved of their employment in these industries.

Nonetheless, more than 20 percent of respondents believed the image of the construction and transport industry was better than other sectors, which means that a strategy capitalising on this image could be used to attract more women.

Figure 13. Women-friendly recruitment processes

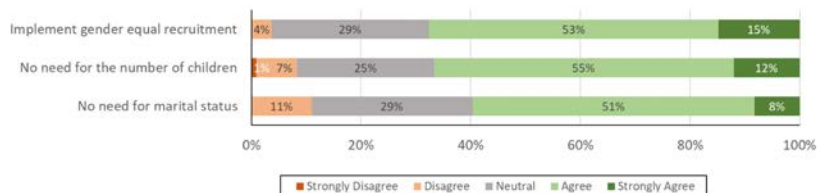
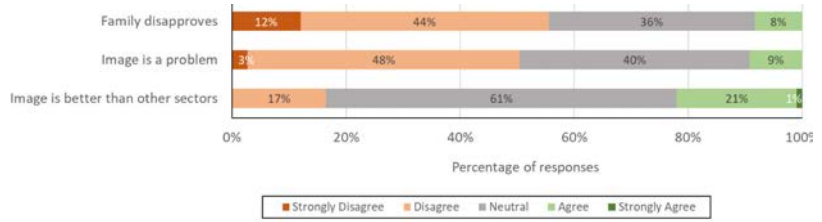


Figure 14. Image of the industry



Women’s career advancement

This section focuses on employment conditions and how these circumstances influence women’s career progression. Table 15 shows that most of the women employees were either in permanent employment or working as contract employees. As anticipated, the permanent employees were about four years older than the contract employees, which suggests that women progressed from contract employment to permanent roles within these companies. There were no daily workers in the sample.

Table 15. Employment status of women

Employment status	No	Avg Age
Permanent employee	59	32.6
Contract employee	30	27.8
Casual worker	4	27.3
Total	93	

Table 16. Work hours

Work hours per week	No	Overtime per week	No
Less than 40 hours	19	Less than 10 hours	57
40 - 45 hours	48	10-14 hours	21
45 - 50 hours	14	14-18 hours	4
More than 50 hours	8	More than 18 hours	3
Total	89		85

The results on the working hours shown in Table 16 indicate that slightly more than half the women work a regular 40-45 hours per week with a quarter working less than 40 and another quarter exceeding 45 hours. Women do not usually work more than 10 hours of overtime. This result lends credence to the earlier statement that women were opposed to long working hours and that these industries need to be more flexible with working hours to accommodate the multiple roles women are required to perform.

Figure 15. Basic monthly salary

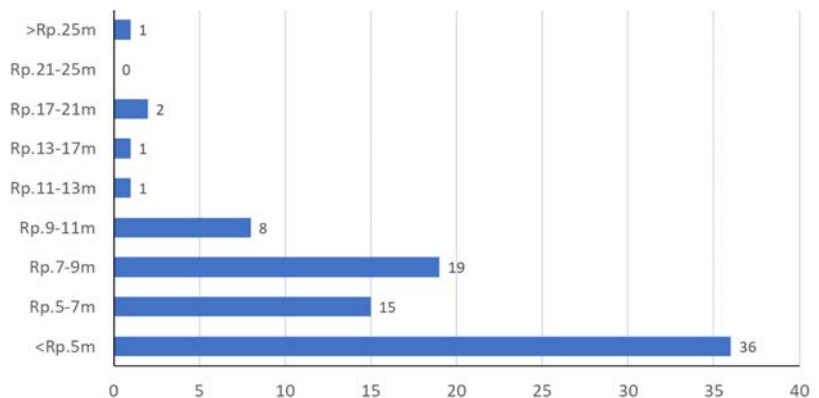


Figure 15 shows that about half the women employees earn a basic salary of less than 5 million rupiah per month (equivalent to \$500).

Thirty-two earn between 5 million and 11 million rupiah, while a select few earn up to 25 million rupiah per month. Most respondents reported receiving allowances of up to 30 percent of their basic wage. Nearly all the women perceived that their remuneration was equitable in relation to the men’s. No direct comparisons between the wages of women and men were made as the survey did not include men.

Table 17. Career interruptions

Opportunities	Yes	No
Gave birth	30	61
Interruptions that hindered career	10	81
Equal opportunity	88	3

Table 17 shows that 30 out of 91 respondents reported career interruptions to give birth while employed. Another 10 noted other interruptions that had hindered their careers. Surprisingly, nearly all the women attested that they had been given equal opportunities in their careers despite these interruptions that may have impeded their progression.

Table 18. Women’s role in households

Role women in household and income	No
Head of household	2
Wife	43
Daughter	43
Independent	1
Income generation	
Primary income	5
Secondary income	63
Receiving income	17

Table 19. Household duties

Household duties	Woman	Partner
< 10 hours	14	12
10 - 15 hours	19	13
15 - 20 hours	11	10
20 - 25 hours	10	10
> 25 hours	15	23
0 hours	10	9

Table 18 shows that only two women were heads of households while five were the primary breadwinner. Most women were either married and contributing to the household income or were daughters living with their families. Table 19 shows that married women generally spend more time on household duties compared with their partners, confirming the evidence in literature that women bear more household responsibilities than their partners.

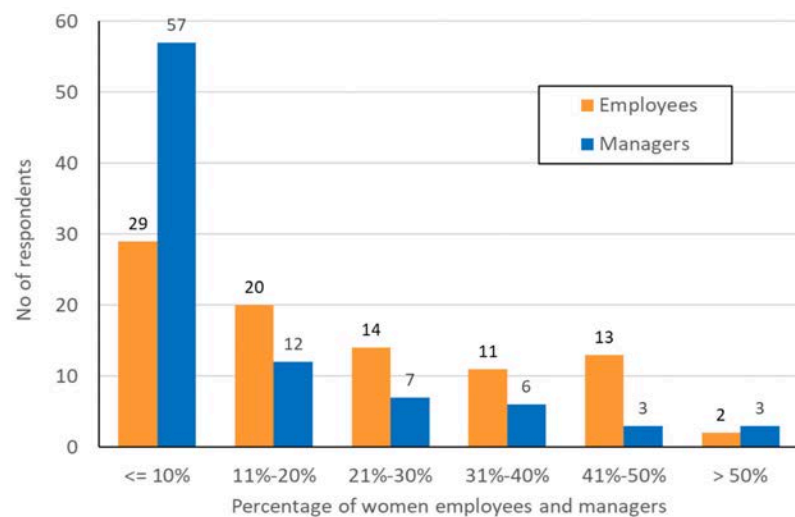


Figure 16 shows that women are still under-represented in many construction and transport enterprises. Twenty-nine respondents recorded a proportion of less than 10 percent women employees at their organisation, with another 20 reporting between 11 per cent and 20 percent women employees, reflecting the slow entry of women into these sectors. On the other hand, it was encouraging to note that 15 respondents reported proportions of more than 40 percent women employees. The gender imbalance was much more obvious in management where the respondents stated that women accounted for less than 10 percent of that cohort.



Women are seeking new opportunities in a sector traditionally dominated by men.

Nearly all the women reported that they were afforded equal opportunities in their careers despite taking time off to give birth.

More than 80 percent of the respondents agreed with the statement that women should receive equal pay for the same role and responsibilities, indicating a general understanding of equality among women employees (Figure 17). Only a very small percentage of women perceived working in a male-dominated environment as a barrier. Nonetheless, these respondents did not all agree that women employees were treated equitably alongside male employees. More respondents disagreed with the statement, suggesting that gender equality has not been achieved.

Figure 17. Perception of gender equality

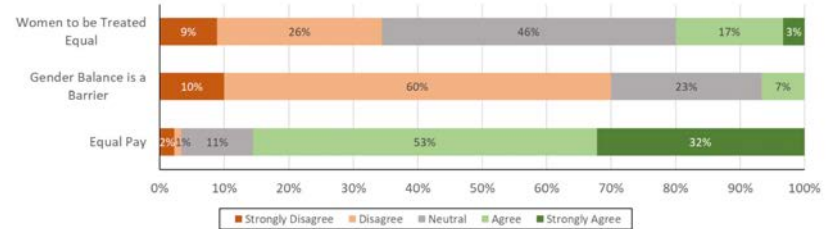


Figure 18 shows that women generally did not agree that the barriers identified in previous research influenced their career development. Most respondents had not experienced or perceived any bias in their career development. The only discernible barrier was tasks being allocated based on gender.

Figure 18. Perception of career advancement

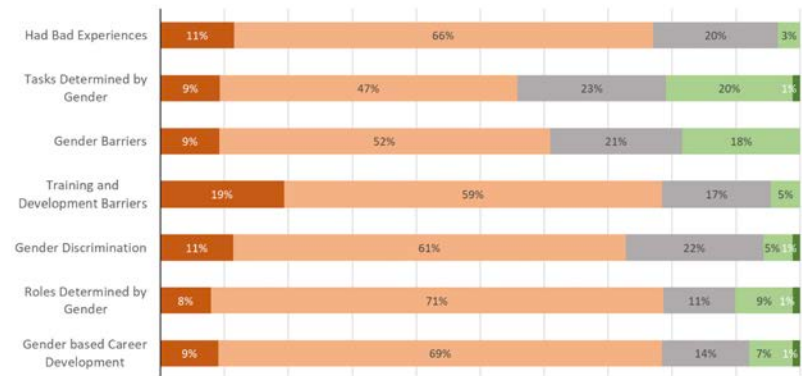


Table 20 shows that the respondents reported a very low incidence of sexual harassment and sexual discrimination in South Sulawesi. While there were responses about other forms of discrimination, these were not explored further in the survey. On the topic of discrimination and violence against women, only one respondent reported experiencing any physical violence in the workplace while a total of three disclosed that this had occurred to other women (Figure 19). In fact, the total number of reported cases of violence towards women in Indonesia was very low with only 7,984 incidents reported in 2019.²⁴

Table 20. Discrimination

Discrimination	Yes	No
Sexual discrimination	2	89
Sexual harassment	1	90
Other discriminations	18	73
Observed discrimination on others	13	78

The responses to the survey indicated extremely low incidence rates of sexual discrimination, sexual harassment or other types of violence or discrimination against women.

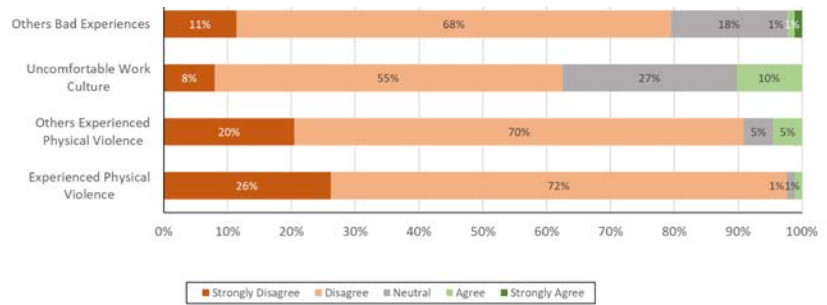
24. Kementerian Pemberdayaan Perempuan dan Perlindungan Anak (Kemen PPPA), Profil Perempuan Indonesia 2020, Jakarta, Kemen PPPA, 2020b.



Using surveys to gather data on experiences and attitudes.

More than 60 percent of the women surveyed were influenced by family members who already worked in these industries.

Figure 19. Perception of physical violence against women

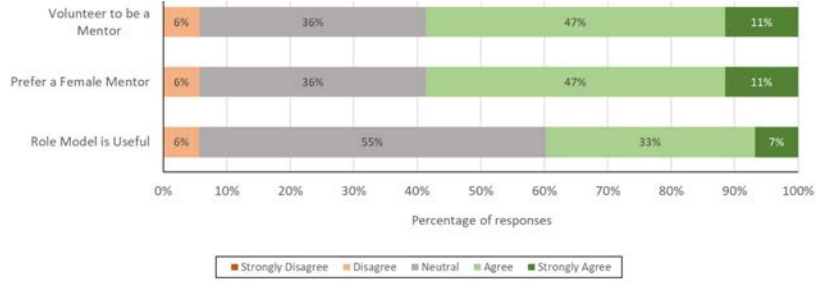


The questions on the theme of mentoring and role models were answered by 84 women out of the 97 in employment. Forty percent of the participants agreed that women role models would be useful and more than half preferred to have female mentors (Figure 20). Encouragingly, 58 percent of the respondents volunteered to act as mentors to younger women. Previous studies have indicated that women aspire to roles where they see a successful woman or identify with a person in a role. Studies have shown that mentoring can improve performance through the sharing of knowledge by experienced professionals. A study conducted by the International Labor Organization indicated that mentoring could improve retention of female professionals and boost their wellbeing.²⁵

25. Seligson, D., Women and aviation: Quality jobs, attraction and retention, Working Paper No. 331, Geneva, International Labor Organization, Sectoral Policies Department, 2019.

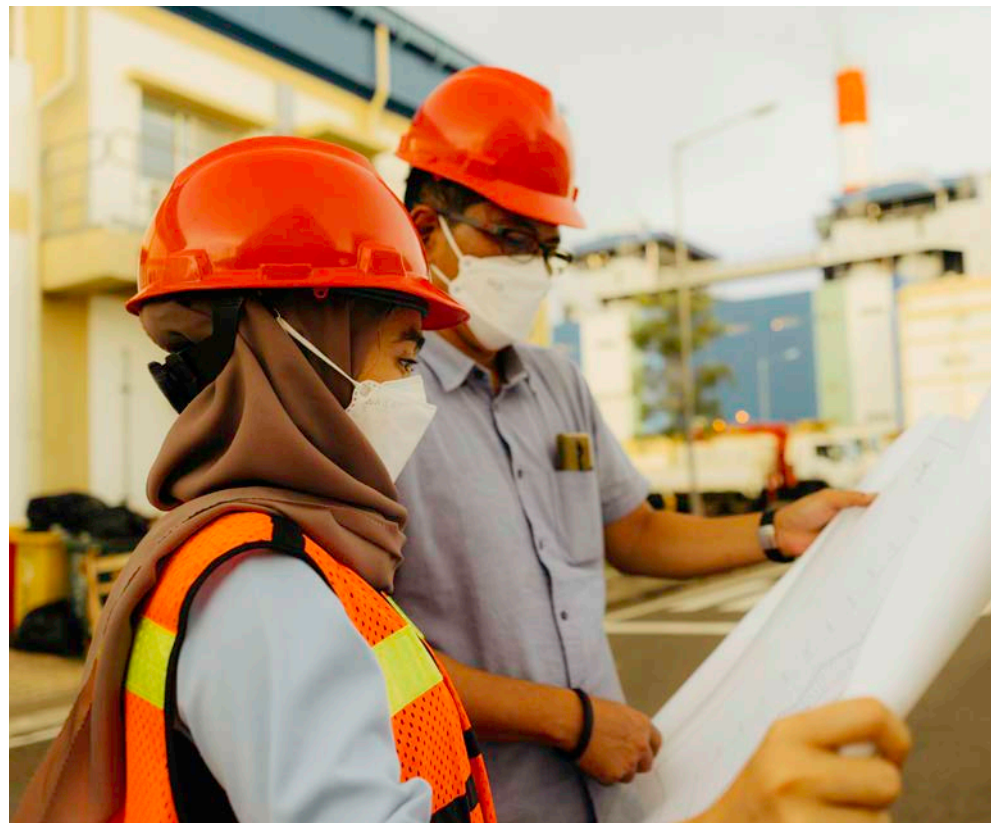
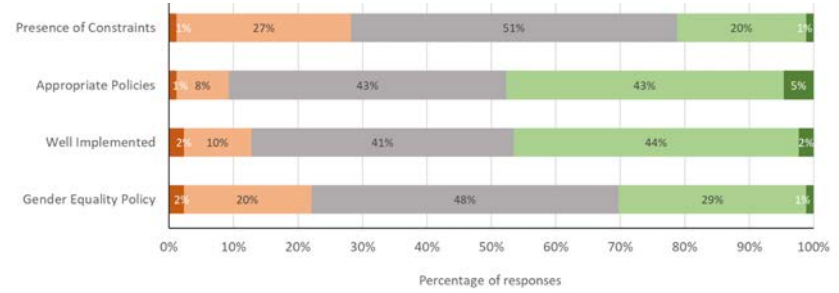


Figure 20. Female role models and mentors



The final theme in the questionnaire survey focused on gender equality policies and adoption in transport and construction enterprises. Figure 21 shows that only 30 percent of respondents agreed that gender equality policy existed at their organisation. Oddly, nearly half the women agreed that the gender equality policy was appropriate and was well implemented while another 21 percent affirmed that there were constraints or barriers to these policies. We have doubts that the respondents adequately understood these statements about gender equality.

Figure 21. Gender equality policies



SUMMARY OF SURVEY FINDINGS

Enrolments in the courses that lead to professional careers in the transport and construction industries are now at 30-40 percent female, which should lead to a continued increase in women's participation into the future. As the survey was aimed at women in engineering courses, the respondents reported very little aversion to STEM courses and said these courses led to rewarding and fulfilling careers. They were not discouraged by the gender imbalance in the sectors nor the male-dominated nature of the roles, as the women were more inclined towards the professional positions in the industries. The difficult and dangerous work is usually carried out by male operatives and women seldom aspire to these vocations unless driven by economic survival and lack of skills.

Women in training and education obtained information about their future careers from their immediate family and friends and sought information via social media. More than 60 percent of the women surveyed were influenced by family members who already worked in these industries. The challenge is therefore to replicate such career advice and influence young women by providing similar advice and guidance.

Women in employment who responded to the survey were aged between 21 and 35 and reported generally three to five years' work experience in construction or transport enterprises. These women did not perceive the gender imbalance or male-dominated environments as a problem and were attracted to these industries by the challenging and gratifying work, high salaries and opportunities for travel. Again, we believe these views pertain to the professional careers where roles and tasks are not segregated based on gender stereotypes.

More than half the women employees opposed the long working hours in the construction industry. A more flexible work arrangement to accommodate family or domestic responsibilities would alleviate some of these pressures. We did not find evidence of long working hours in the transport industry.

While no direct comparisons were made between the salaries of women and men in these sectors, the women remarked that their remuneration was equitable to that of men.

Nearly all the women reported that they were afforded equal opportunities in their careers despite taking time off to give birth. The survey also found that respondents reported extremely low incidence rates of sexual discrimination, sexual harassment or other types of violence or discrimination against women in South Sulawesi.

Several women agreed that female role models would encourage other women to aspire to roles that they could identify with. These women also agreed to volunteer as role models or mentors for younger women.

Women role models

Women professionals who have opted for a career in the transport or construction industries are often faced with challenges such as limited mobility outside their homes, lack of support, and negative perceptions about their ability to compete in these male-dominated industries. Identifying and understanding the challenges faced is vital to support women's career development. It is also crucial to foster the belief in young women that they have the ability, aptitude and responsibility to seek careers in these industries, to be equally represented in the national development agenda, which would lead to more inclusive and sustainable policies that benefit everyone.

Six women were profiled as role models in these sectors. These women were selected to represent a cross-section of the transport and construction industries; from public agencies to the private sector, from consultants and contractors, and from young recent graduates to highly experienced senior professionals and leaders.



Researchers outside the Politeknik Negeri Ujung Pandang.



Ir. Wahida Abbas is managing director of PT Aneka Reka, a consulting firm in South Sulawesi. Commencing her undergraduate degree in civil engineering in a cohort with few women, she strived to adapt and adjust to the male-dominated environment. Although her family's perception was that engineering was not suitable for women, she wanted to prove to them she could succeed in her chosen profession. She has never regretted the decision to pursue a career in engineering and is grateful for the independence and freedom it has given her. She is keen to beat the gender stereotype that women are more emotional and therefore less rational by encouraging women to take up STEM (science, technology, engineering and mathematics) subjects and consider professional careers in these fields. Wahida's advice for women engineers is: "Follow through with what you promise and understand the impact of your work on others. Gain respect by delivering on your commitments. Be confident in your ideas and thoughts; and believe in yourself. Be brave and keep going."



Ir. Hj. Hasnawati is section head in the road materials and post-disaster recovery unit at the Public Works Agency in the province of South Sulawesi. She has both bachelor's and master's degrees in civil engineering specialising in transport. She says she found the academic programs demanding, with difficult assignments and tasks that took many hours to complete. She greatly appreciates her family and friends who have supported her during her studies and career. Having spent 27 years in the field as a professional in bridge and road construction, she has had a rewarding career. She feels there is no difference in the role of women either in the office or at project sites. However, as a measure to provide additional security or protection when they are assigned to go out in the field for surveys, women are accompanied by male assistants. The development of new technologies and modern equipment means jobs that were previously considered heavy or 'masculine' are no longer limited to men. Both men and women can play crucial roles in these industries. Her partner is also trained as a civil engineer and they have four children.



Nona Ritayanti (Rita) is division head of the implementation unit of national roads at the Directorate-General of Highways, Ministry of Public Works and Housing in South Sulawesi. Rita was motivated to enrol in a civil engineering program by her father who worked in the construction industry. She is proud to work in the profession, especially out on project sites supervising road construction. She says that while her department is still heavily male-dominated with 27 men and only six women, gender equality is achieved in equal pay for equal work and men and women are assigned work based on their abilities. Rita is married with one child.



Eka Yuliana completed a civil engineering degree at Universitas Hasanuddin in 2019. She learnt about civil engineering from a close friend and decided to enrol based on the immense job prospects as infrastructure investments in Indonesia rose. She feels women were treated equally at her university, with the outcomes solely dependent on effort.

She now works as a technical staff member in PT PP, a state-owned construction company responsible for preparing cost estimates, tender documents and bid analyses. Even though the industry is male-dominated, and she is the only woman in the project tender team, she says there is no bias towards women. The team works long hours, especially during the preparation of tenders, with no difference between male and female employees. Salaries for women and men are the same for the same work and position, and the only criteria for advancement are ability and performance.



Anastasia Mani Sarungallo (Anastasia) is a supervisor on the transport network. She works as part of a team on site and prefers to be outdoors instead of in an office. She says the main challenges faced by women pursuing a career in the construction industry are the small number of vacancies, the small proportion of women engaged, long working hours and health problems. It is a target-oriented industry that requires workers to be prepared to complete work on time. Anastasia says these demands can be challenging for female workers if not accompanied by appropriate time and health management.



Dr Hasrawati Rahim is head of program and planning at the Balai Pelaksana Pemilihan Jasa Konstruksi (BP2JK). She says women are more inclined to join the male-dominated transport sector as professionals than as operators or production workers. Not many women are willing to work under the difficult and laborious conditions found on project sites.

In summary, all six women role models have either built successful careers in their chosen profession or gained full-time employment with respected companies after a period of internship. All these women said that having a mentor who could help them both professionally and personally was invaluable. They also found time to pursue their other passions such as yoga, running or floral arranging. They were keen to advise young women as they embarked on their careers and hoped to inspire others.

The recruitment of women into such roles must be clearly guided by gender equality and social inclusion policies to ensure that these processes do not discriminate against or disadvantage women.

CONCLUSIONS AND RECOMMENDATIONS

This study has provided a representation of the state of gender equality in the transport and construction industries in South Sulawesi. Despite greater representation of women at higher education levels and a rise in women's educational attainments, gender parity has not been achieved in traditional male-dominated industries such as transport and construction.

While women are joining these industries in growing numbers, more initiatives and information will need to be provided to young women when they are making their decisions on academic programs and careers. Women in higher education must be presented with information and career opportunities through industry visits, promotions and workshops. They need to see that women can succeed in these industries. To this end, more experienced women from these sectors should run career workshops and information sessions. Career guidance counsellors should be trained and placed at high schools to provide advice to young women on the availability and suitability of vocational and professional

roles in these fields. The transport and construction industries should be encouraged to offer internships for women to learn more about the roles that are available.

The recruitment of women into such roles must be clearly guided by gender equality and social inclusion policies to ensure that these processes do not discriminate against or disadvantage women.

Working conditions should be adjusted to allow both women and men to take on childcare and domestic duties without disruptions to their career progression. The culture of presenteeism and long working hours should be discouraged and replaced with flexible working hours. The current mode of working from home (WFH) supported by internet and teleconferencing facilities, which has been found to be highly effective during the COVID-19 pandemic restrictions, could also help reduce presenteeism and allow women to work while attending to domestic responsibilities. Further, WFH options could be promoted as another strategy for improving women's participation in these industries.

Networking opportunities for women in these professions, when implemented in other countries, have been regarded as a valuable initiative. Given that the women in this survey continue to rely on family and friends for their career advice, networking opportunities would be a valuable resource. Additionally, networking may help trainees or junior staff gain exposure to more senior women.

Women should be supported with training and coaching programs to advance into leadership roles. Mentoring should be provided so that women can meet with and seek advice from role models. Research²⁶ has demonstrated that women fare better in their careers if they have knowledge of and access to female leaders in their industry.

We propose that enterprises in the transport and construction industries immediately develop a gender equality action plan (GEAP) to encourage young women to consider careers in these sectors and to support women in employment with greater flexibility, training, coaching and networking initiatives to promote retention and help them progress into leadership roles.

26. V. Singh et al., 'Constructing a professional identity: how young female managers use role models', *Women in Management Review*, vol. 21, no. 1, 2006, p. 67.



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