



Egyptian program for promoting
Industrial Motor Efficiency
SAVE TODAY ... POWER TOMORROW

Gender Baseline Assessment Report

October 2022

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Abbreviations

BPW: Business and Professional Women's Foundation

CAPMAS: Central Agency for Public Mobilization and Statistics

EBRD: European Bank for Reconstruction and Development

ECO-FEI: Environmental Compliance Office of the Federation of Egyptian Industries

EE: Energy Efficiency

EMDS: Electric Motor Driven Systems

EPAP: Environmental Pollution Ebatement Program

EU: European Union

GEFF: Green Economy Finance Facility

GoE: Government of Egypt

IEE: Industrial Energy Efficiency

MoTI: Ministry of Trade and Industry

MSMEDA: Micro, Small and Medium Enterprises Development Agency

MSO: Motor Systems Optimization

NCW: National Council for Women

OEM: Original equipment manufacturer

SDG : Sustainable Development Goal

SDS: Sustainable Development Strategy

SEFF: Egypt Sustainable Energy Finance Facility

STEM: Science, technology, engineering, and mathematics

UNIDO: United Nations Industrial Development Organization

US: United States

USAID: United States Agency for International Development

Executive Summary

This report comes as part of the baseline report of the “Egyptian Programme for Promoting Industrial Motor Efficiency” by UNIDO focusing on improving the efficiency of Electric Motor Driven Systems (EMDS) and accelerating the market penetration of energy efficient motors in the industrial sector.

The report assesses the level of gender balance and barriers to women inclusion along the value chain, an overview of female participation in the labor market with focus on industrial sector at large based on literature and interviews with the value chain players to shed light on barriers and challenges women could face in the EE motors and EMDS value chain.

As EE motors market is an unlocked market that is a major opportunity to kick off hence the participation of women in the sector is crucial.

The gender analysis in the industry in Egypt suffers a number of shortcomings due to the lack of disaggregated census data by gender on economic activities with focus on engineering and manufacturing sector, thus it was important to conduct baseline assessment to reach the root cause, challenges and barriers facing participation of females in the sector.

Challenges and barriers facing the females within the industry are stated below:

- **Lack of childcare facilities**, particularly relevant amid the COVID-19 pandemic, with schools and child-care entities closed. Family/career balance is a struggling issue the women face during their career from the entry point throughout their career advancement stages.
- **Lack of flexibility in workplace**, like fixed working hours and contract types are perceived as one of the top barriers against women career advancements. The problem faces women specially the ones with young children. Also, full time contracts may not be the best choice for women for their family conditions and child-care responsibilities.
- **Lack of mentorship opportunities**. Mentorship is important to help women advance their careers. Mentors provide guidance on navigating women careers, advice on skill development and support as needed. It was reported that women with less mentoring support get promoted less than men and have less skills needed for career advancement.

Steps of The Government of Egypt towards inclusion of women

The Government of Egypt has taken tangible steps in inclusion of women and addressing the challenges facing their participation in the economic activities. 2030 National Women’s Empowerment Strategy focused on the importance of women participation in different sectors and set measurable impact indicators in political empowerment and leadership promotion pillar and economic empowerment pillar.

Raising the economic status of women across the indicators listed above would greatly benefit women within industry and energy and energy efficiency sector as in other sectors.

The National Council for Women (NCW) is actively working on amending policies which restrict women in the labor force and working on regulating the conditions to pave the road for women participation in different sectors focusing on more value-added participation hence higher economic growth.

Introduction

This report assesses the gender inclusion status in the industry with focus on manufacturing sector and EE sectors. The level of gender balance was assessed taking into account the educational background and participation of females in the STEM education in Egypt. As gender inclusion is an international aspect, literature review was important to show case in other countries with regards to the inclusion of females in the technical and management positions in the manufacturing industry.

Interviews were conducted with 32 interviewees to assess the level of gender balance and barriers to women inclusion along the value chain, an overview of female participation in the labor market with focus on industrial sector. Then, the challenges and barriers were ranked based on the analysis of the interviews.

Section 1: Energy Market Analysis and Efficient Motors

The Potential of Energy Efficiency Market in Egypt

Major opportunity and a market ready to kick off. The market opportunity in energy efficiency in Egypt is highly attractive from an investment and end consumers saving point of views. Estimates of possible energy savings in the industrial sector can be put at 8.6 billion USD with 53% of it in electrical energy and the rest in thermal. This would translate into an annual savings of about 923 million USD in industrial electrical energy spending and about 805 million USD in fuel spending for the Egyptian Industry with clear positive consequences of sustainability and competitiveness¹. The above saving would represent 5.5% and 6.6% of Egypt electrical energy and thermal energy consumptions per year.

Realizing the opportunity above, the Egyptian industry has been moving to invest in EE at a rapid pace. For instance, while Egypt Sustainable Energy Finance Facility (SEFF) EBRD program invested 30 Million Euros from 2012 to 2016, its successor the Green Economy Finance Facility (GEFF) targeted investing 140 Million Euros from 2016 to 2020². This signals the intensification of demand due to increased awareness at a firm-level of the benefits of energy efficiency, accentuated by the removal of energy subsidies. Moreover, the feasibility of adopting energy efficient technologies in Egypt is increasing due to the decreasing capital costs of various EE technologies such as economizers, inverters, etc. This is reinforced by the increase of energy prices and the availability of concessional loans in the market. Such intensification of demand has also been supported by a wealth of knowledge and lessons learnt that can be built upon from previous projects. Yet, the rate of disbursement of funds in GEFF and other facilities such as that of ECO-FEI (Environmental Compliance Office of the Federation of Egyptian Industries) and EPAP also demonstrates that only the surface of the opportunity at hand has been scratched and that the EE market in Egypt is still nascent despite already growing rapidly.

However, what is encouraging is that various elements of a successful energy efficiency market exist and can be catalyzed to accelerate growth. The Government of Egypt (GoE) high-level policies are conducive to energy efficiency.

Unfortunately, the energy sector and the energy efficiency market is still one of the least gender inclusive market in Egypt. Although there is a number of females in distinguished managerial positions in the public sector, it is rare to find them in technical positions, decision making or top management positions within the private sector; particularly the engineering sector and industrial manufacturing sector.

Motors Market Analysis

When considering possible market switch to higher IE motors compared to lower one, it is critical to understand the installed motor base. The installed motor base in the industrial sector is estimated to be at 1.24 million motors. This estimate can be reached through two methods - bottom up and top-down

¹ Details of calculations are in *baseline report*

² Out of the 30 million Euros invested by SEFFI, 18 Million were due the UNIDO IEE project efforts in connecting industrial facilities with banks.

analysis. The bottom-up analysis relies on assess the number of motors in each industrial subsector and aggregating the numbers to create all the motor installed base. The process relies on benchmarks which correlates the yearly electricity consumption in each industrial subsector distributed by each motor rating bracket³. Coupling this with estimates of number of operating hours can lead to number of motors in each rating bracket. This leads to aggregated number of motors in industrial sector in Egypt of 1.24 million motors. The data for energy consumption was mainly managed through Egyptian Electricity Holding Company (EEHC) official report of 2018/2019. It was considered that data from 2018/2019 is more representative of than that of 2019/2020. The number of motors estimated of 1.24 million represents that in stock in 2019. The number could have increased in 2020 but no attempts were made to estimate this value. This is due to difficulties in estimation due to market disturbance associated with COVID-19. The top-down analysis on the other hand relies on aggregating motors entering the Egyptian market as recorded in CAPMAS data which provides information on motors imported/exported by rating bracket⁴. This assessment leads to an estimated 1.15 million motors in Egypt industry. This number doesn't account for motor integrated in production machinery. The difference between the two methods is 7%. The total values were validated with sales data from key manufacturers.

Based on the above analysis, the highest number of motors being installed in Metals and Machinery sector (48%) followed by Chemicals (16%) and Food and Beverage (13%) – see figure(1) below. This data is important for distributors and suppliers to direct their business development and sales efforts.

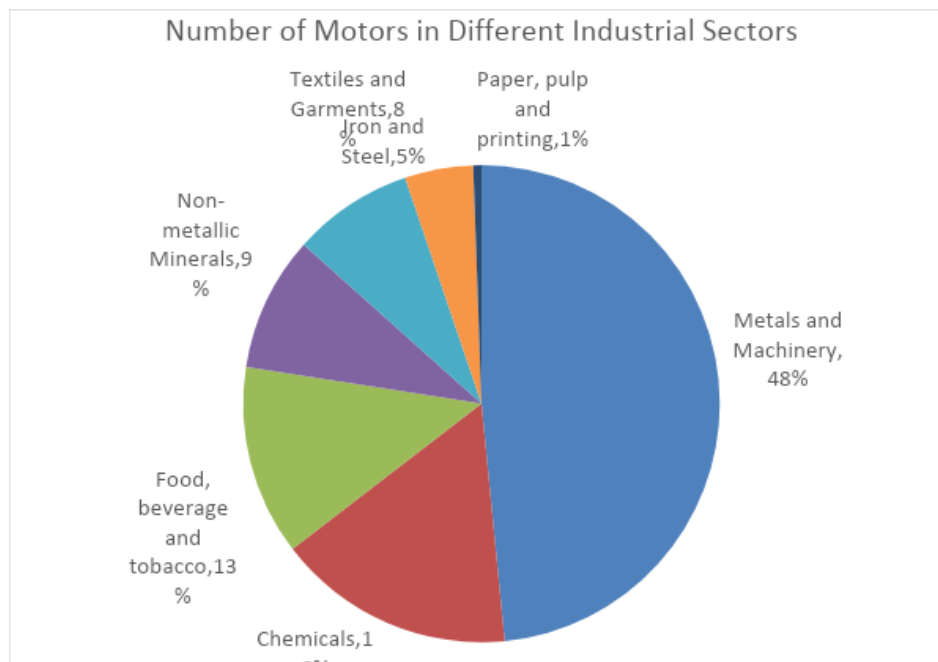


FIGURE 1 NUMBER OF MOTORS IN DIFFERENT INDUSTRIAL SECTORS

³ Percentages by subsector of energy consumption in motors can be found in “Energy Efficiency and CO2 Emissions Reduction Potential in Industrial Motor Systems in Egypt”, 2015, UNIDO and Global Efficiency Intelligence.

⁴ CAPMAS data are also till the year 2019 as well and they can be searched by motors HS code and are mainly of the family 8508 and 8509

Section 2: The Motors Industry, Energy Efficiency and Gender

Employment trends in Egypt

The latest statistics by the World Bank showed that total labor force in Egypt decreased to reach 27.87 Million persons in 2020, while it was 28.25 Million in 2018, this can be justified as the impact of COVID-19 pandemic where number of people lost their jobs. In the second half of 2020 and throughout 2021 both men and women experienced an increase in economic activity.⁵

The gender analysis in the industry in Egypt suffers a number of shortcomings due to the lack of disaggregated census data by gender on economic activities and especially for the sector of engineering, industry and manufacturing, the lack of secondary data on female participation in the industrial and manufacturing sector. Additionally, the available online and offline data about the factories, and related establishments is outdated.

CAPMAS has taken recognized steps in their reports concerned with the education and the industry sectors in aggregating the data by gender. Yet, there is a room for improvement in capturing the female participation in industrial and manufacturing sector, which will provide more data on female contribution to the sectors disciplines, hence gives indicators that studies can be built on.

Gender Economic Participation in Egypt

On average, female economic participation in Egypt is low. According to the 2021 Global Gender Gap Index, Egypt ranks 129 out of 156 countries worldwide. Meanwhile, the gender gap in the managerial positions is 92% which ranks Egypt one of the lowest 20 countries in the World.

Egypt ranks 146th out of 156 countries in gender economic participation and opportunity, while it ranks the 105th in the on educational attainment. Regionally, the 2021 Global Gender Gap Index identified 19 countries in the middle east and North Africa including Egypt as the lowest rates in the World concerning women participation in the labor market with a percentage equal or less than 20%. This low participation in the labor market is an important driver of lack of economic participation. Indicators for females and males in Table 1 illustrate these and other gender disparities. Key gender economic participation indicators are presented in Table 1.

TABLE 1 EGYPT GENDER ECONOMIC PARTICIPATION INDICATORS

INDICATORS	FEMALE	MALE
Labor force participation in %	20	75.2
Estimated earned income (PPP, USD\$)	4100	18800
Legislators, senior officials and managers %	7.4	92.7
Law mandates equal pay	No	
Non-discrimination laws, hiring women	No	
Length of maternity/paternity leave (days)	90	-

Adapted from *Global Gender Gap Index (2021)*⁶

⁵ ILO, *World Employment and Social Outlook | Trends 2022*

⁶ World Economic Forum (2021) *The Global Gender Gap Report*

Female Enrollment in Education and higher education related disciplines

Education is one of the pillars of the country's economic growth increment that leads in increasing the productivity and access to job opportunities. The Egyptian education system is being renovated as part of the sustainable development agenda of the country's vision 2030. As a result, the anticipated impact is a tangible progress in the quality of education, and hence the productivity.

Based on CAPMAS 2021 for the year 2019-2020, half of females attend general secondary school with a percentage of 55% of total attendees which is 2% higher than the percentage of 2017 as reported by USAID⁷, and 42 % percent attend technical secondary school, based on CAPMAS 2021 for the year 2019-2020⁸. This last percentage is the same as of 2017.

Cultural beliefs and norms hinder females since young age from educational attainment as the society and the traditions distinct gender roles.

There are two tracks of technical secondary schools in Egypt according to the specialty, technical and commerce tracks. The percentage participation of females in the technical-industry related track is way less than the males with a percentage of 37.7% while females' participation in the commerce track reached 62.3%. It is worth mentioning that the enrollment to the technical and commerce tracks is based on placement results of the ninth-grade exam, correspondingly, this may reveal of gender-bias in the track selection in the technical secondary schools.⁹

Post-secondary education (higher education) witnessed a steady increase in females participation, to reach 53.6% attaining high education degree in 2019.¹⁰

Total graduates of higher education from STEM fields (2020)				
Category	Female	%	Male	%
Natural Sciences, Mathematics & Statistics	14,393	60%	9,789	40%
Communication & Information Technology	13,074	29%	31,636	71%
Engineering, Manufacturing & Construction	15,738	26%	44,126	74%
Health & Wellbeing	58,931	62%	35,829	38%

FIGURE 2 TOTAL GRADUATES OF HIGHER EDUCATION FROM STEM FIELDS BY GENDER AND CATEGORY IN 2020, CAPMASS- EDUCATION 2021. TAKEN FROM, STUDYING FEMALE ENGINEERS' EXPERIENCE IN THE EGYPTIAN LABOR, NADA ABDELHADY 2022

⁷ USAID, Gender Assessment 2020

⁸ CAPMASS, Statistical Yearbook 2021 -Education

⁹ USAID, Gender Assessment 2020, from Economic Research Forum (2019). The Evolution of Labor Supply in Egypt from 1988-2018: A Gendered Analysis. Economic Research Forum, Working Paper No. 1358 (October 2019).

¹⁰ CAPMASS, Statistical Yearbook 2021-Education

According to CAPMAS, the higher education in related to STEM fields in 2020 showed higher percentage of female graduates compared with their colleagues in the same category for natural sciences, mathematics and statistics with percentages of 60% and 40% respectively. While, in the areas of focus of this report: Engineering, manufacturing and construction, the number of females is nearly one third of the males' number with a percentage of 26% while the percentage of male is 74%. Meaning, in this year, for one graduated female engineer, 3 male engineers are graduated. This is reflected on the representation of females in jobs related to these areas.

Studies were conducted to explore the females experience in engineering sector based on gender, the authors found that large number of female students and engineers believe that entering the field needs very hard work and is based on merit. Adding to this the cultural and social norms which add more burden on female engineers to proceed in their education and pursue a decent related job opportunity.

The findings of the studies showed that female engineers unconsciously developed a "gender-blind frame to make sense of their experiences and interactions at work" to adapt with the work environment underlying gender-based hierarchical systems.¹¹

¹¹ Doerr, 2021, *Making Merit Work at the Entrance to the Engineering Workforce: Examining Women's Experiences and Variations by Race/Ethnicity*

Females participation in the labor market

Although females represent nearly half the total working age population, current female labor market participation hovers at 20 percent according to the Global gender gap index 2021 , which raises the question about the challenges faced by the females in having access to jobs opportunities in different markets and sectors.

The consequences of underrepresentation and underemployment of significant percentage of working age group of females will impede the progress towards the inclusive national economic transformation to achieve the country's national goals and objectives as outlined in its Sustainable Development Strategy (SDS)¹²

Moreover, the traditional energy sector Worldwide is still one of the least gender-inclusive sectors to date. According to estimate, women represent only 6 percent of the technical positions, 4 percent in decision making and less than 1 percent of top management positions in the energy sector.¹³

The population available for work, whether they are enrolled or not, represents only one third of the population in Egypt.

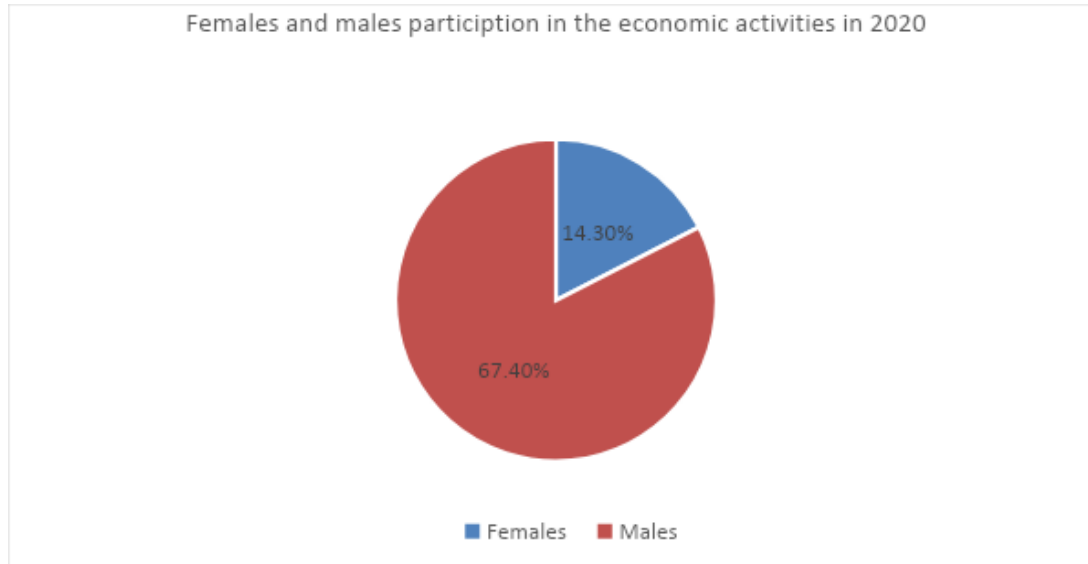
A review of the development of contribution rates shows that the contribution rates to the economic activities in 2020 were 41.5%, which decremented down 0.7% from 2019. The chain's sequence shows that the contribution rates to economic activity peaked in 2010 at about 49.5% against the lowest value recorded in the reviewed series, which appeared in 20-21 and reached 41.5. For the last five years, it is clear that the contribution to economic activity has reached 43.3, down from 46.6 percent in the previous five years.

The analysis of the last 10 years (2011-2020) shows a noticeable decrease in female contribution to the economic activities in the last 5 years (2016-2020) compared with its previous 5 years (2011-2015) from 22.5% to 14.3%. While the economic participation of males increased from 70.5% to 76.4 % for the same periods.

The percentage of participation of females and males in the economic activities are shown in the figure 3. It is worth mentioning that in the age group of (25-29), the male's contribution to the economic activity is 90.5% while female's participation reached 9.5%. The very low participation contribution of females may be caused by females being overwhelmed by marriage, pregnancy and child care in their early years after graduation with three challenge levels:1) risk of acceptance during interview in case of pregnancy, 2) the lack of sufficient supporting labor policies during maternity leaves and 3) uncertainty of her back to work conditions after maternity. The percentage then is stabilized at the age group (40-49)

¹² Egypt Vision 2030

¹³ Business and Professional Women's Foundation (BPWF), 'Moving from red to green: Working women in the green economy', 2009.



Female participation in the private sector market

The labor force (both females and males) in public sector contribute 21.2% from the active labor force over the country. While nearly 78.4% of the labor force work in the private sector.

Despite female participation in the private sector reaches 55.7%, which is higher than that of the public sector, unfortunately these jobs are short term opportunities¹⁴. The males have lower percentage of short term jobs in the private sector with a percentage of 0.8%, while females have much higher percentage of 8.3% which is nearly 10 times the males' percentage. This might reflect the favorability of the private sector for males rather than females in long term jobs for perceived work continuity of males versus females who would get maternity leaves and quit jobs for maternity, child care and family responsibility reasons.

Female Participation within the Industrial Sector in Egypt

According to CAPMASS, manufacturing sector and its related services have low participation of females with the percentage of 8%¹⁵ which is considered one of the lowest in the industrial sector.

Females participation in specialized scientific and technical activities in the economic activity (see figure 3) reached 18% which is considered nearly the average of females' contribution in the labor market. While, in the transformative industries (manufacturing based industries), the contribution of females is 13% which is considered very low given the graduates of STEM disciplines from universities and technical schools.

¹⁴ CAPMASS< Labor Force, June 2021

¹⁵ CAMPAS, Labor force, Calculated, June 2021

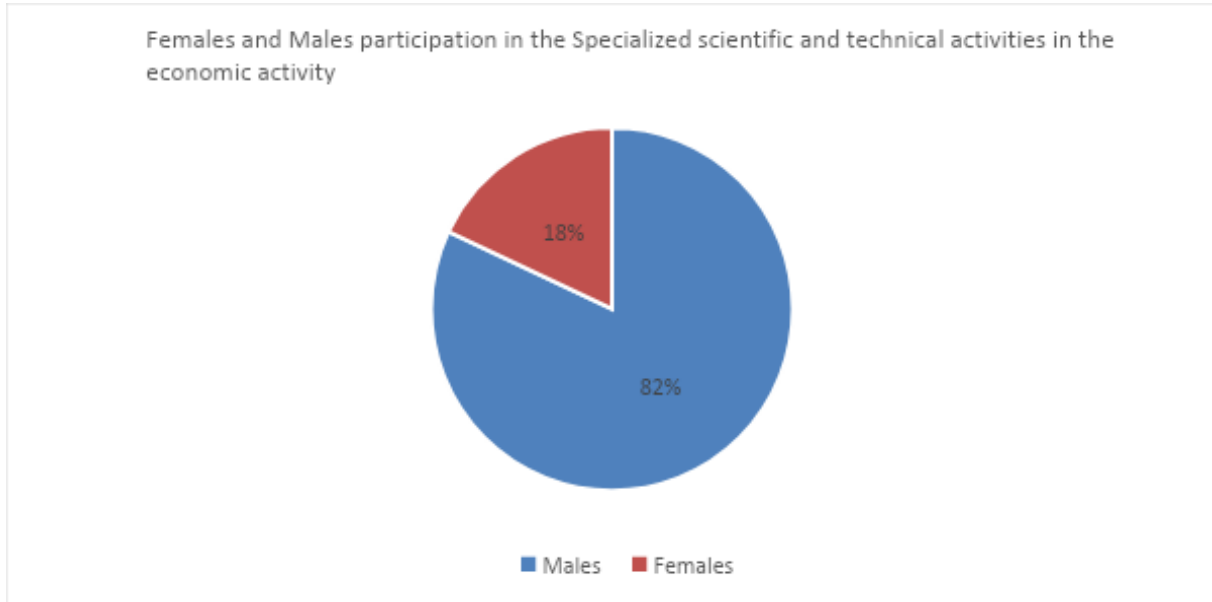


FIGURE 4 FEMALES AND MALES PARTICIPATION IN THE SPECIALIZED SCIENTIFIC AND TECHNICAL ACTIVITIES IN THE ECONOMIC ACTIVITY

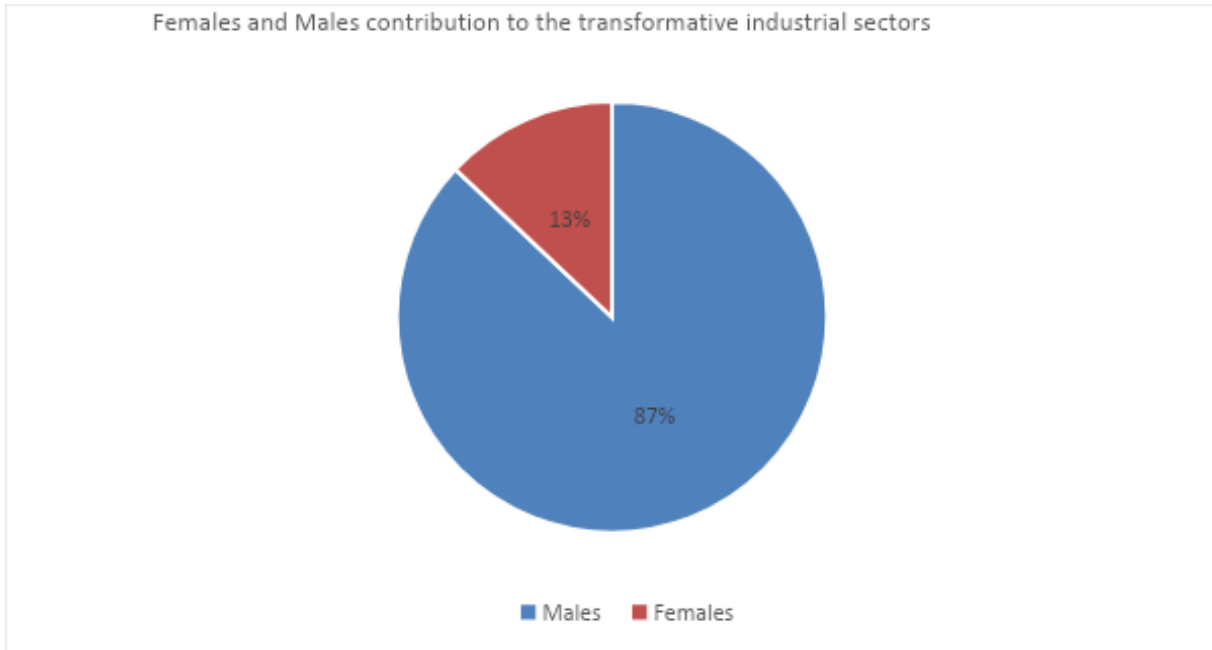


FIGURE 5 FEMALES AND MALES CONTRIBUTION TO THE TRANSFORMATIVE INDUSTRIAL SECTORS

Barriers Faced by Women in Industrial Sector in Egypt

The conducted analysis in the previous sections showed the limited contribution of females in the labor market, precisely in the industry and manufacturing sectors. This doesn't only affect the females but also affects the labor market as a whole and hinders the economic growth of the country due to underrepresentation of a significant segment of the labor force.

Section 3: Interview Analysis -Identifying gaps in gender in motors Industry and EE

Involving all value chain players mapped in the baseline phase of the project was essential to understand the gender mainstreaming issue and to address the perspective of the different stakeholders to address the gender barriers and hence promote the inclusion of women in the industry.

To understand this, interviews were conducted with 32 entities representing the value chain of the efficient motors, namely: component manufacturers, efficient motors' manufacturers, OEMs, technology providers and end users. Factories and entities vary in scale, type of activity, location, and number of employees and workers. Results from the interviews are presented below. List of interviewee is in Annex (1) and the interview questions are in Annex (2)

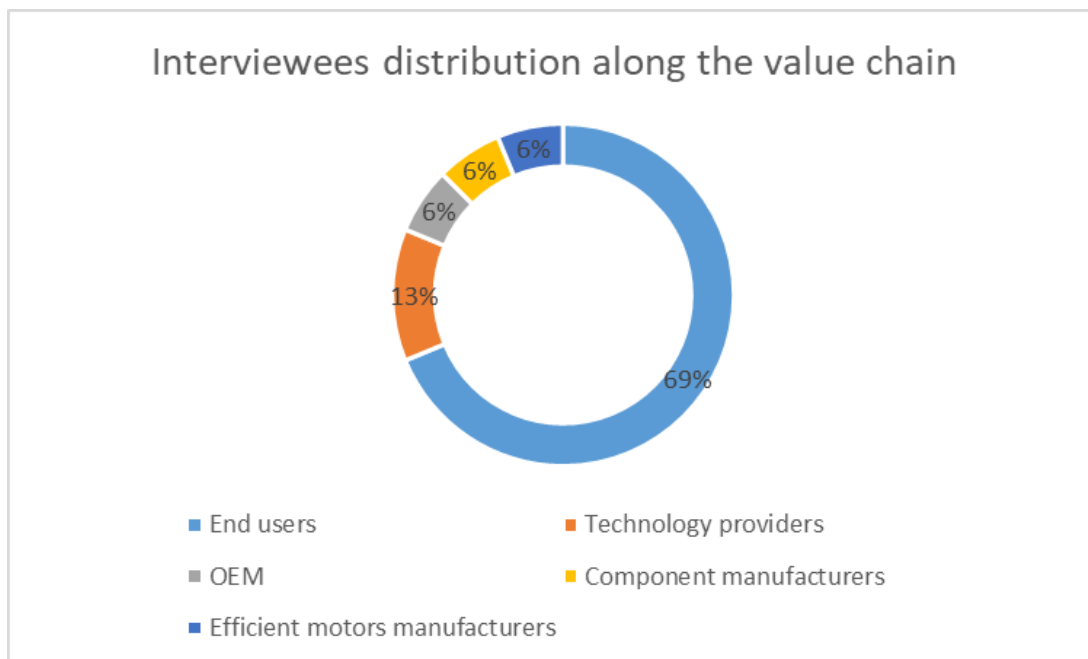


FIGURE 6 INTERVIEWEES DISTRIBUTION ALONG THE VALUE CHAIN

Profile of factories' activities and workforce

The interviews highlighted the lack of focus on the gender parity by industrial facilities and related service providing entities. The numbers and percentages of participation of males/females were not clear, rather than having a complete vision on the distribution of women in the different departments of the entity.

Percentage of male/female employees in technical positions (Engineering, Energy Committee, Procurement, etc.). Surveying female participation across technical positions revealed female participation varied between 5% to 40%, depending on the industrial facility scope of work and subsector of which it operates.

In the case of the **construction sector**, the interviewee reported the least percentage of female participation (5%) within technical positions in his facility. When asked to elaborate, the interviewee explained that given the sector, working conditions are, in his opinion, quite harsh for women.

Other facilities from various subsectors revealed **20% female participation**, although women mostly occupy **administrative-related positions** rather than industry related.

Interestingly, OEM and technology providers tend to have higher percentages of female participation; which could be attributed to various reasons. Interviews with OEM representatives revealed that OEM facilities have gender inclusion policies and as a result promote female participation in both technical and managerial positions. Interviews with technology providers revealed that, in their opinion, since they are less manufacturing focused and are more business oriented, they are considered “female-friendly businesses” and hence conditions are more conducive for female participation.

Average percentage of female participation in technical positions in the efficient motors value chain is **24.25%**

Overall, interviews revealed that average female participation within technical positions along the value chain of efficient motors is 24.25%, whilst average male participation is 75.75% (see Figure 6).

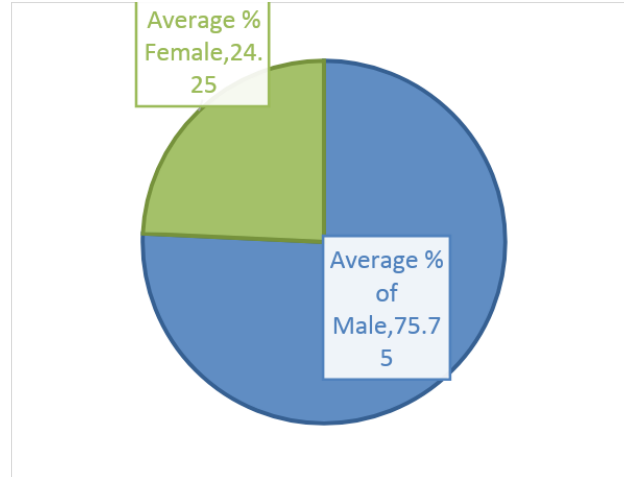


Figure 7 Percentage of Females and males employees in the technical positions, interviews results
Percentage of male/female employees in the managerial positions. Surveying female participation across management positions revealed female participation varied between 5% and 75%.

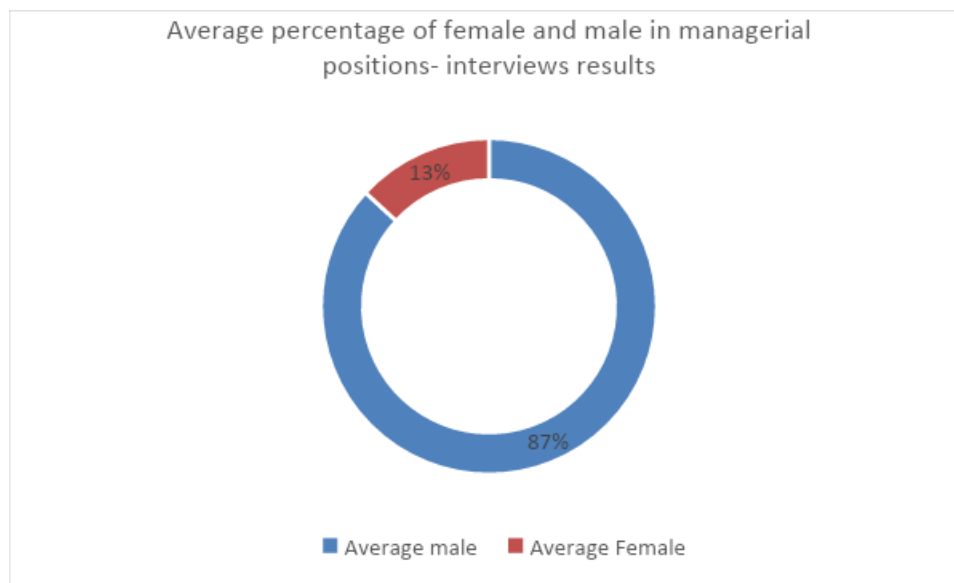


FIGURE SEQ FIGURE * ARABIC 8 :AVERAGE PERCENTAGE OF MALE/FEMALE PARTICIPATION IN MANAGEMENT POSITIONS, INTERVIEWS RESULTS

Results mirror global statistics within this sector. Interview results are different from the results of the conducted study about women in the workplace in the US¹⁶, the study is being conducted on annual basis and the results of participation of female engineers in the managerial positions were 40% for 4 consecutive years, which reflected that there was no substantial progress in diversity representation in Corporate America. While the interviews in this present study showed that only 13% of the management

¹⁶ LeanIn.Org and McKinsey & Company released Women in the Workplace 2018, the fourth annual study of women in corporate America

positions are occupied by female, which is very much less the study conducted in US, showing the case for limited participation of women in the managerial positions in the EE and energy sector.

In the study, the female engineers in seniors and technical roles were called” Onlys”, which is defined as women who are often the only one on their team and unfortunately the percentage of female representation in the senior and technical roles don’t represent the percentage of female participation in the organization. According to this study, women who reached this position are usually more ambitious and face more challenges than other women.

This was reported by the interviewees, that not all female engineers can reach a senior management position, even if she is a caliber as they see that women may be afraid or hesitant to face more challenges or biases from colleagues or organization.

Barriers Facing Women within the Industry

Barriers against women participation in technical and management positions in the industry were asked to the interviewees to map these barriers and rank them by criticality. The barriers that were ranked are:

Barriers facing women to participate within industry:

- Lack of Specialized technical background
- Lack of non-technical background
- Lack of awareness of opportunities
- Others

The highest barrier was found to be “lack of awareness of opportunities”. Over 50% of participants rated this as the highest barrier for female participation within technical positions and management positions

Lack of non-technical background was ranked second with 26%. Interviewees mentioned that women are promoted to manager at far lower rates than men, and women tend to receive much less non-technical support and capacity building than men. This limits women’s opportunities to develop their non-technical skills and limits their management skills. One of the raised reasons was that it is less likely for women in the field of the industry to be a team leader and then promoted to be a leader.

Lack of specialized technical background came last with 22%. Unconsciously, the women’s area of technical expertise is questioned as they need to prove the evidence of competence to others and they are perceived to have lower specialized technical background than men. This is because people of industry tend to overestimate the men’s performance and underestimate the women’s. This is applicable in all career stages even at the beginning when women and men tend to have the same level of the specialized technical and non-technical background.

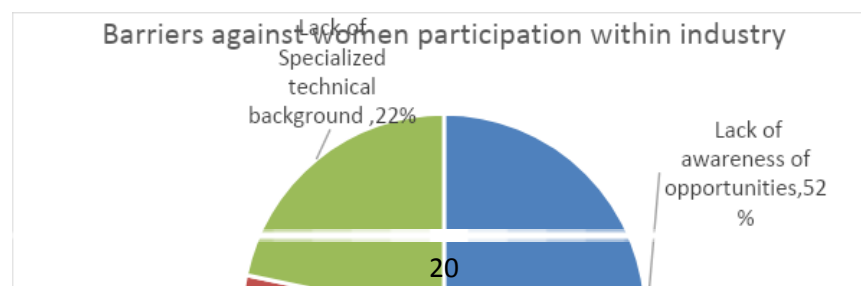
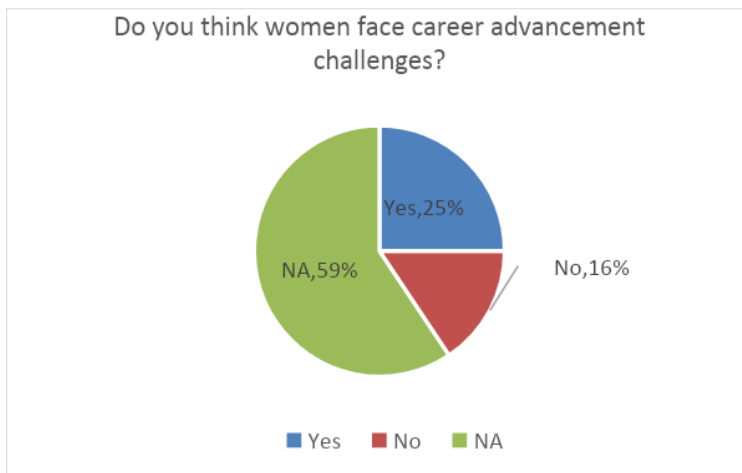


FIGURE SEQ FIGURE * ARABIC 9 BARRIERS AGAINST WOMEN PARTICIPATION IN WITHIN INDUSTRY WITH FOCUS ON THE EE , SURVEY RESULTS

When asked to elaborate, interviewees explained that job opportunities of management positions for engineers are generally advertised on closed industrial network or by word of mouth. Hence, if the organization does not post publically, it is very unlikely the post can be spotted by women. Also, perception of gender roles, along with cultural and social barriers translate into a lack of access to career information and relevant networks for women. This in turn impacts hiring practices, as well as the extent to which women have access to such employment entry points, such as internships and apprenticeships.

Challenges facing Women in the EE sector

More than half of the interviewees did not respond to the question if they think women face challenges in the EE sector or in the motors and local manufacturing sector. They mentioned that they have not thought of the case before, and they have no clear opinion if women really face challenges or not and added that may be it is the time to start thinking more about this.



Almost 60% of the interviewees didn't have a clear opinion about whether women face challenges in the EE sector

16 % of the interviewees stated that they think that women don't face challenges in the EE and EE motor sectors. These interviewees are large end users' organizations which have policy supporting gender

inclusion in the organization. One of the respondents is a technology provider which did not perceive any challenges and added that she has seen many women actively participating the sector.

25% of the interviewees pointed out that women in this sector face challenges and added that the sector and profession is dominated by males that is reflected on the workplace culture.

Barriers women face to career advancements

Entities were asked to rank the barriers which they believe women face in terms of career advancements. Respondents were asked to select from a list of nine barriers to entry. They are:

1. Glass ceiling¹⁷
2. Lack of required skills and qualifications
3. Lack of training opportunities
4. Lack of mentorship opportunities
5. Lack of flexibility in workplace
6. Lack of childcare facilities
7. Cultural and social norms
8. Limited mobility (e.g., due to family support expectations)
9. Lack of gender diversity targets, Discouraging workplace practices
10. Other

Barriers women face to career advancement

Lack of childcare facilities, lack of flexibility in workplace and lack of mentorship opportunities are the top ranked barriers women face to career advancements perceived by the interviewees

The top 3 ranked barriers women face to career advancement are:

- **Lack of childcare facilities**, particularly relevant amid the COVID-19 pandemic, with schools and child-care entities closed. Family/career balance is a struggling issue the women face during their career from the entry point throughout their career advancement stages.
- **Lack of flexibility in workplace**, like fixed working hours and contract types are perceived as one of the top barriers against women career advancements. The problem faces women specially the ones with young children. Also, full time contracts may not be the best choice for women for their family conditions and child-care responsibilities.
- **Lack of mentorship opportunities**. Mentorship is important to help women advance their careers. Mentors provide guidance on navigating women careers, advice on skill development and support as needed. It was reported that women with less mentoring support get promoted less than men and have less skills needed for career advancement and promotion.

¹⁷ Glass Ceiling :an unacknowledged barrier to advancement in a profession, especially affecting women and members of minorities.

Section 4: Gender Inclusion - Policy Interventions in Egypt

This section presents the interventions within Egypt on the policy level, including the “2030 National Women’s Empowerment Strategy” and articles within the Labor Code which specifically address female employment.

2030 National Women’s Empowerment Strategy. Egypt’s President Abdel Fatah Al-Sisi, announced 2017 as the ‘Year of the Egyptian Woman’ following which the “2030 National Women’s Empowerment Strategy”¹⁸ was developed in partnership with the National Council for Women (NCW). This commitment to promote women’s empowerment is in line with Sustainable Development Goal 5 (SDG) Gender Equality. The strategy includes four pillars, including:

Pillar 1: Political empowerment and leadership promotion

Pillar 2: Economic empowerment

Pillar 3: Social empowerment

Pillar 4: Protection

In this study, we will shed light on Pillar 2 : economic empowerment as it focuses on increasing women’s participation in the labor force, by securing equal opportunities for women in all sectors—including in the engineering, power and energy sector with a focus on the private sector, as well as combating discriminatory practices against women in the world of work.

2030 strategy refers specifically to the importance of women participation in the energy efficiency, sustainable energy and relevant emerging industries to contribute to the improvement of the pace of macroeconomic growth. It also included the criticality of setting the social protection and interventions for the protection of Egyptian women including strengthening women’s ability to cope with environmental risks, climate change and unsustainable consumption in addition to the environmentally friendly industries such as waste recycling, organic agriculture and biofuel and alternative energy production

The 2030 Strategy includes impact indicators targets for each of the four pillars, some of them can be applied to the industry and energy sector, the below are the impact indicators of both the political empowerment and leadership promotion pillar related to the women participation in public sector and senior management posts as well as the impact indicators of the economic empowerment pillar

¹⁸ NCW (2017) *The National Strategy for the Empowerment of Egyptian Women 2030*.
[final-version-national-strategy-for-the-empowerment-of-egyptian-women-2030.pdf \(ncw.gov.eg\)](http://www.ncw.gov.eg/final-version-national-strategy-for-the-empowerment-of-egyptian-women-2030.pdf)

The most relevant impact indicators of the political and *economic empowerment pillars* and applicable to the industry, engineering, energy and energy efficiency sector are:

The targets of impact indicators in 2030 as per the 2030 National Strategy versus the impact indicators as stated in 2016

- o 17% (5% in 2016) for percentage of women in public sector posts
- o 27% (19% in 2016) for percentage of women in senior management posts
- o 9% (26.3% in 2015) for percentage of breadwinning women below poverty line
- o 35% (24.2% in 2016) for percentage of female participation in the workforce
- o 16% (24% in 2015) for unemployment rate among women
- o 12% (6% in 2016) for percentage of women in administrative jobs
- o 48% (38% in 2016) for percentage of women in professional jobs
- o 58% (29% in 2016) for ratio of female estimated earned income to males estimated earned income
- o 50% (22.5% in 2015) for percentage of small enterprises managed/owned by women
- o 53% (45% in 2015) for percentage of microfinance targeting women
- o 18% (9% in 2015) for percentage of women with bank accounts

Raising the economic status of women across the indicators listed above would greatly benefit women within industry and energy and energy efficiency sector as in other sectors. The 2030 National Women's Empowerment Strategy provides a mandate and targets that can be adapted and built on.

The list of interventions covers development investment and financing policies; protecting the rights of working women and providing support services; empowering women in the household sector; and training and skills development across sectors. Details of each intervention are presented in Table 3 below:

TABLE 3 PROPOSED INTERVENTIONS FOR PILLAR 2 ECONOMIC EMPOWERMENT OF THE EGYPTIAN WOMEN EMPOWERMENT STRATEGY

<i>Developing investment policies, management systems and financing</i>
<ul style="list-style-type: none"> ● Develop policies to ensure that the private sector is committed to the proper representation of women on their boards of directors
<ul style="list-style-type: none"> ● Pay attention to the diversity of economic sectors established in different governorates, and attract industries that can create direct and indirect job opportunities for women's employment within their value chains
<ul style="list-style-type: none"> ● Activate policies and procedures that encourage women to set up their own private businesses
<ul style="list-style-type: none"> ● Expand business development services targeting women and establishing gender responsive one-stop shops

- Scale up the implementation of establishing economic activity cooperatives that target women, and provide financial services for initiatives encouraging group savings and loans that serve women

- Develop banking and non-banking financial services targeting women, including loans to small and medium-sized enterprises, and increasing women's knowledge of and facilitating their access to these services, particularly through simple electronic channels

- Develop public purchasing and procurement policies to ensure a larger share of products from female-owned small enterprises and cooperatives

Protecting the rights of working women and providing support services

- Enforce the laws that protect working women and guarantee their rights with regard to working hours, maternity leave and equal wages, particularly in the private sector

- Take measures to ensure compliance with human resources policies and incorporate gender equality aspects in work related processes, including hiring, training, promotion, wages, access to benefits and service termination. These policies should also take into consideration maternity entitlements, grievance mechanisms and procedures to combat harassment in workplaces

- Provide support services for working women, pursuant to Article 11 of the Constitution, like childcare services (time for breastfeeding and day care) and providing protection both in the work environment and beyond ¹⁹

Empowering women in the household and informal sector

- Issue laws and policies that safeguard the rights of working women in the informal sector

- Conduct studies on the economic contribution of women's unpaid household work as the basis for promoting a culture of respect for this type of work

- Apply flexi-time and work-from-home systems to give women the option of combining and balancing their careers and family roles

- Protect the rights of domestic workers and regularize their situation

Developing training and skills enhancement programs across sectors

¹⁹ Article 11: The State shall guarantee equality between women and men in all civil, political, economic, social and cultural rights in accordance with the provisions of the Constitution. The State is committed to take measures to ensure that women are adequately represented in parliamentary assemblies, as prescribed by law, women are also guaranteed their right in the assumption of public and senior management positions in the State and appointment in the bodies and judicial bodies, without discrimination against them. The State is committed to protect women against all forms of violence and ensure the empowerment of women of reconciling family duties with work requirements. It is also committed to provide care and protection for motherhood and childhood, breadwinners, elderly women and women in greatest need.

- Expand digital technology programs for women and integrate it into vocational training and capacity-building programs
- Provide different types of technical education that reflect the needs of Egyptian society and the market
- Expand programs targeting female headed households that help them find work and earn a sustainable income
- Provide training opportunities and develop the skills of women with lower levels of education to qualify them for work
- Ensure women's access to information and communication technology
- Develop mechanisms to expand financial inclusion and women's access to various financial services
- Develop training programs for women who work in the agricultural sector in order to improve their productivity and provide them with new market opportunities

Adapted from The National Strategy for the Empowerment of Egyptian Women 2030 (2017)

Egyptian Labor Law 12/2003. Within the 2003 Egyptian Labor Law, there are a few Articles which specifically address female employment. Strong knowledge of women's rights within the labor force is important, as this will inform future policy dialogue. Key items to note which are either critical to address and/or enforce are:

Women are prohibited from certain areas of work. Several ministerial decrees impact female participation, as they prohibit women from working in certain sectors, including construction²⁰, mining²¹, and factories.²² Moreover, as shown .Article 89 states that women are prohibited from working night shifts. In April 2021 the Ministry of Manpower lifted these restrictions on women working night shifts and in heavy industrial fields;²³. The National Council for Women (NCW) is actively working on amending policies which restrict women in the labor force.

²⁰ Construction: Labor Law of 2003, Art. 90; Decree of Minister of Manpower and Immigration No. 183 of 2003, Art. 2 (B)

²¹ Mining: Decree of Minister of Manpower and Immigration No. 155 of 2003, Art. 1(3)

²² Factories: Decree of Minister of Manpower and Immigration No. 155 of 2003, Art. 1

²³ [Egypt lifts restrictions on women labor on night hours, heavy industrial fields - Egypt Today](#)

Section 5: Conclusion

Stereotypes of females and males' roles and responsibility and suitability of different kinds jobs is a main barrier to females' participation in the industry and manufacturing STEM related jobs. This is due cultural perceptions of roles of the women and men in the society that led to unconscious biases.

This perception of roles starts since the choosing the education fields in technical secondary schools and in choosing university fields, in employment and in career advancement steps. The gender blindness puts a burden on the females in the hiring and promotion regardless their performance and level of expertise.

The challenges facing females' participation in the labor market and economic activities in the STEM fields is well qualitatively recorded and analyzed despite the shortage of sex desegregated data available for quantitative analysis to understand the short falls that would be more effective in addressing the challenges hence reach attainable and effective solutions.

The underrepresentation of females in the labor force affects noticeably the economic growth hence the country's development.

Female participation across the value chain shows higher participation in the business focused entities (OEM, suppliers, technology providers) than the manufacturing industrial facilities which have limited female participation in both technical and management positions, which matches the international studies regarding limited female participation in the manufacturing and construction sectors.

Barriers facing the female participation in the EE and EE Motor industry were ranked and the interviewees agreed that the highest barrier is lack of awareness of opportunities as new opportunities are not publicly published and are advertised on close networks. Only, the misleading perception of low technical and managerial skills of the females within the industrial sector limits female hiring and career advancement within the industry.

Challenges and barriers facing the females within the industry are stated below:

- **Lack of childcare facilities**, particularly relevant amid the COVID-19 pandemic, with schools and child-care entities closed. Family/career balance is a struggling issue the women face during their career from the entry point throughout their career advancement stages.
- **Lack of flexibility in workplace**, like fixed working hours and contract types are perceived as one of the top barriers against women career advancements. The problem faces women specially the ones with young children. Also, full time contracts may not be the best choice for women for their family conditions and child-care responsibilities.
- **Lack of mentorship opportunities**. Mentorship is important to help women advance their careers. Mentors provide guidance on navigating women careers, advice on skill development and support as needed. It was reported that women with less mentoring support get promoted less than men and have less skills needed for career advancement.

The Government of Egypt has taken tangible steps in inclusion of women and addressing the challenges facing their participation in the economic activities. 2030 National Women's Empowerment Strategy focused on the importance of women participation in different sectors and set measurable impact indicators in political empowerment and leadership promotion pillar and economic empowerment pillar.

Raising the economic status of women across the indicators listed above would greatly benefit women within industry and energy and energy efficiency sector as in other sectors.

The National Council for Women (NCW) is actively working on amending policies which restrict women in the labor force and working on regulating the conditions to pave the road for women participation in different sectors focusing on more value-added participation hence higher economic growth.

Annex (1) List of Interviewees

Entity Name	Name
Oriental weavers	Rabab Manaa
Anuqir fertilizers	Ashraf Sabry
MAC Carpet	Mohamed Nouh
Chipsy	Ramy Elmasry
Al-Masria for Paper Industries	
Alaraby Group	Kareem Hassan
Egyptian Plastic & Electrical Industries 1 (Nisir for batteries recycling)	Ahmed el Bosily
Ghabour Auto	Jan Hanna
Swiss Egyptian company for oral care products (SESIC)	Moneim Sultan
Fresh	Eng. Bahaa Dimitry
ABCO Group	Omar El Sharkawy
Mars	Mohamed Ghoneim
El-Batal El-Romani	Samy Kamel Lobos
El-Ahram for Plastic	Hany Mohamed
Sara Plast	Adel Abd El-Basset
Al Bader Import and Export Supplies	Mahmoud Badr
Beshay Steel	Girgis emanuel
Elwadi foods	Mohamed Lasheen
Smart pack	Ahmed Fekry
Promoteon for Tyres	Hassan Elsaied
Sakr for food industries	ayman rizk
Arab French company for dairy products	Eman Ossman
Arozan for import and export of wood	Mohamed El Boghdady
Arabian Cement	M. Medhat

Abu Qir Fertilizers	Mohamed Zoair
Royal Ceramica	Samir Abdelsalam
Ideal standard	M. Ehab
Techno Pyramids	Ahmed Naguib
Nassera company	Osama Ishak
El-Marwa	Amr Fatthi
ACG company	Sameh Attia

Annex (2) Interview questions

Assess level of gender balance and barriers to women inclusion along the value chain

Female Participation in the Sector		
Can you specify the percentage of male employees in each of in the Technical Related positions? (Energy Committee, Electrical Engineering, Procurement,etc)		
Can you specify the percentage of male employees in management positions?		
Can you specify which barrier (re women) is most significant for Technical related positions	1. Lack of Specialized technical background 2. Lack of non-technical background 3. Lack of awareness of opportunities 4. Others	Please score each (1 to 3) 1 is lowest , 3 is highest:
Can you specify which barrier (re women) is most significant for management positions	1. Lack of Specialized technical background 2. Lack of non-technical background 3. Lack of awareness of opportunities 4. Others	Please score each (1 to 3) 1 is lowest , 3 is highest:
Challenges and Barriers in the Sector		
Do you think women face challenges in the EE sector? a. If yes, what type of challenges do you think they face? b. If no, please elaborate why you don't think so.		
Do you think women face career advancement challenges? a. If yes, what type of challenges/limitations do you think they face? b. If no, please elaborate why you don't think so		

<p>Can you rank the following barriers women face to career advancements?</p> <ol style="list-style-type: none"> 1. Lack of required skills and qualifications 2. Lack of training opportunities 3. Lack of mentorship opportunities 4. Lack of flexibility in workplace 5. Lack of childcare facilities 6. Cultural and social norms 7. Limited mobility (e.g., due to family support expectations) 8. Lack of gender diversity targets Discouraging workplace practices 9. Other 		
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