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ASSESSMENT OF WOMEN'S PARTICIPATION IN THE ENERGY SECTOR IN SOUTHEAST ASIA

USAID/RDMA Enhancing Equality in Energy for Southeast Asia (E4SEA) Activity (Executive Summary and Main Report)

CONTENTS

ACRONYMS AND ABBREVIATIONS

Activity	Enhancing Equality in Energy for Southeast Asia Activity
ACE	ASEAN Centre for Energy
ACCEPT	ASEAN Climate and Clean Energy Project
ACW	ASEAN Committee on Women
ADB	Asian Development Bank
ADS	Automated Directives System
AGEP	ASEAN-German Energy Programme
APAEC	ASEAN Plan of Actions for Energy Cooperation
ASEAN	Association of Southeast Asian Nations
Asia EDGE	Asia Enhancing Development and Growth through Energy
AWEN	ASEAN Women Entrepreneur's Network
BoD	Board of Directors
CATI	Computer-Assisted telephone Interview
CEDAW	Convention on the Elimination of All Forms of Discrimination Against Women
CEO	Chief Executive Officer
CHRP	Commission on Human Rights of the Philippines
CSR	Corporate Social Responsibility
DJSI	Dow Jones Sustainability Indices
DOE	Department of Energy
DV	Domestic Violence
E4SEA	Enhancing Equality in Energy for Southeast Asia
EDGE	Asia Enhancing Development and growth through Energy
ERC	Energy Regulatory Commission
ESG	Environmental, Social, and Governance
EV	Electricity Vehicle

FES	Friedrich Ebert Stiftung
FGDs	Focus Group Discussions
GAD	Gender and Development
GBV	Gender-Based Violence
GDP	Gross Domestic Product
GESI	Gender Equality and Social Inclusion
GIDAP	Gender and Inclusive Development Action Plan
GIZ	Gesellschaft für Internationale Zusammenarbeit
GMSF	Gender Mainstreaming Strategic Framework
GRAISEA	Gender Transformative and Responsible Business Investment if Southeast Asia
GWEC	Global Wind Energy Council
GWNET	Global Women's Network for the Energy Transition
HR	Human Resources
IDIs	In-Depth Interviews
ILO	International Labour Organization
IRENA	International Renewable Energy Agency
IRR	Implementing Rules and Regulations
LGBTQI+	Lesbian, Gay, Bi-sexual, Transgender, Queer, Inter-sex, and Others
LGU	Local Government unit
MCW	Magna Carta of Women
MEMR	Ministry of Energy and Mineral Resources
NEX	New Energy Nexus
OECD	Organisation for Economic Cooperation and Development
OSYC	Out of school youth/child
PCW	Philippine Commission on Women
PRC	People's Republic of China

PII	Institution of Engineers Indonesia
PTC	Philippines Technological Council
RDMA	Regional Development Mission for Asia
RE	Renewable Energy
RECOFTC	Center for People and Forests
SDGs	Sustainable Development Goals
SEA	Southeast Asia
SEAMEO	Southeast Asian Ministers of Education Organization
SEAMEO SEPS	SEAMEO Regional Center for Sufficiency Economy Philosophy for Sustainability
SEAMEO STEM-ED	SEAMEO Science, Technology, Engineering, and Mathematics Center
SOE	State-owned Enterprises
SOGIE	Sexual Orientation, Gender Identity and Expression
SRE	Society of Renewable Energy
STEM	Science, Technology, Engineering and Mathematics
STVETP	Strengthening Technical and Vocational Education
SWE	Society of Women Engineers
TAAP	Transforming Agency, Access, and Power
TPES	Total Primary Energy Supply
TWEA	Thai Women Engineers Alliance
UNDP	United Nations Development Program
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UNESCO	United Nations Educational, Scientific, and Cultural Organization
UNICEF	United Nations Children's Educational Fund
VAWC	Violence Against Women and Children
WAVES	Weaving Leadership for Gender Equality

WEE	Women's Economic Empowerment
WEAFEO	Women Engineers of the ASEAN Federation of Engineering Organizations
WEN	Women Engineers Network
WIEA	Women in Energy, Asia
WIME	Women in Mining and Energy
WING	Women in Geothermal
YSEALI	Young Southeast Asia Leaders Initiative

EXECUTIVE SUMMARY

ENHANCING EQUALITY IN ENERGY FOR SOUTHEAST ASIA (E4SEA)

Enhancing Equality in Energy for Southeast Asia (E4SEA) is a three-year Activity under the Asia Enhancing Development and Growth through Energy (Asia EDGE) initiative overseen by the U.S. Agency for International Development, Regional Development Mission for Asia (USAID/RDMA). Asia EDGE is a key component of the U.S. Government's approach to growing sustainable and secure energy markets throughout the Indo-Pacific Region, and the E4SEA Activity aims to contribute to that effort by improving gender equality and social inclusion (GESI) in Southeast Asia's energy sector to strengthen the region's energy institutions and advance women's economic empowerment. Specifically, the E4SEA Activity is working towards three primary outcomes: 1) increased workplace diversity in Southeast Asia, 2) improved inclusive workplace environment, and 3) expanded equitable promotion opportunities.

CONTEXT

The Biden-Harris Administration established the White House Gender Policy Council, charged with leading the development of the first-ever National Strategy on Gender Equity and Equality. It sets forth an aspirational vision and a comprehensive agenda to advance gender equity and equality in domestic and foreign policy that families, communities, and nations around the world stand to benefit from (the White House, 2021).[1] In line with the whole-of-government approach outlined in the National Strategy, the E4SEA Activity furthers USAID/RDMA's efforts to promote gender equity and equality.

GENDER AND ENERGY

A considerable body of research confirms that the energy sector, a primary driver for economic and social development, continues to be male dominated across the workforce -- from entry-level jobs to positions at the Board of Directors (BoD) level. Both conscious and unconscious biases limit opportunities for girls and women to contribute to a vibrant energy sector leading to growing economies. The E4SEA Activity is designed to address the challenges women continue to face in the energy sector by developing and implementing collaborative interventions with 1) tertiary educational institutions to prepare women students to enter the energy field and 2) energy companies to create more employment opportunities for women at all levels.

ASSESSMENT REPORT

This report, entitled "Assessment of Women's Participation in the Energy Sector in Southeast Asia" ("Assessment Report"), documents deeper analytical findings from the regional and national perspectives on achievements, gaps/challenges, lessons learned, and opportunities for women and girls in the energy sector. The report builds upon the Gender Equality and Social Inclusion (GESI) Analysis and Gender and Inclusive Development Action Plan (GIDAP) developed and submitted earlier under the Activity which were only based on secondary data and analysis from desk research and literature review.

[1] https://www.whitehouse.gov/briefing-room/statements-releases/2021/10/22/fact-sheet-national-strategy-on-gender-equity-and-equality/

The methodology deployed to conduct the assessment included five (5) discrete, yet related, components: 1) desk review of regional gender programs and discussions with regional partners, 2) additional desk research and literature review of other programs and research, 3) In-Depth Interviews (IDIs) with selected stakeholders on gender/energy gaps, 4) Focus Group Discussions (FGDs) with selected participant groups, and 5) Baseline Citizen Surveys in the focus countries. Additional details on the methodology are included in a separate report – "Methodology and Tools". The key findings from the IDIs, FGDs, and the Baseline Citizen Surveys provide information about attitudes, biases, and challenges across the GESI domains in the SEA Region.

While the original scope of E4SEA Activity covers seven (7) counties – Burma, Cambodia, Indonesia, Laos, the Philippines, Thailand, and Vietnam, the initial three (3) countries (Indonesia, the Philippines, and Thailand) were selected in consultation with RDMA and the bilateral missions based on two main criteria: 1) the availability of bilateral energy programs and 2) the country and mission's readiness for engagement. In addition to the Main Report focusing on the regional findings and recommendations, the research and analysis under the Activity also documented gender gaps and challenges and developed country-specific recommendations for the three focus countries that are included in separate stand-alone country chapters for each of the three focus countries -- Indonesia, the Philippines, and Thailand.

REGIONAL FINDINGS

HIGH-LEVEL INSIGHTFUL FINDINGS

The following are some of the most insightful and overarching findings related to gender gaps and challenges in the SEA Region:

1. In 2021, ASEAN Member States strengthened their commitments toward gender equality and the advancement of women's rights by adapting the Association of Southeast Asian Nations (ASEAN) Gender Mainstreaming Strategic Framework (GMSF) 2021-2025.[2] According to the World Economic Forum's 2021 Global Gender Gap Report, many countries are likely to see an increase in gender gaps in labor participation and income due to the COVID-19 crisis. Nevertheless, ASEAN countries and other countries in the Asia Pacific Region have made significant advancements compared to other regions. As of 2021, 68.9 percent of the overall gender gap has been closed in the East Asia and the Pacific Region. However, considerable gender gaps exist in the energy sector. Among the SEA countries, the Philippines has already achieved its ambitious goal of closing the gender gap and has reached the highest rank in SEA Region, followed by Laos, Singapore, Thailand, Vietnam, and Indonesia.[3]

2. There are fewer female students who choose to study Science, Technology, Engineering, and Mathematics (STEM) compared to social sciences, but the share of female students in STEM is growing. Some of the reasons for the lower participation of female students in STEM academic

[2] ASEAN Gender Mainstreaming Strategic Framework 2021-2025. September 2021. https://asean.org/wp-content/uploads/2022/01/ASEAN-Gender-Mainstreaming-Strategic-Framework-endorsed-by-AMMW.pdf

[3] Southeast Asia (SEA) region, (ranking 1st: SEA & ranking 17th: Global), followed by Lao PDR (ranking 2nd: SEA & ranking 37th: Global), Singapore (ranking 3rd: SEA & ranking 58th: Global), Thailand (ranking 4th: SEA & ranking 80th: Global), Vietnam (ranking 5th: SEA & ranking 87th: Global) and Indonesia (ranking 6th: SEA and ranking 99th: Global).

and internship programs are a lack of financial resources, scarcity of scholarships, and cultural biases that favor boys over girls to pursue engineering education.

3. Gender equality challenges continue to exist despite numerous laws and policies to enhance gender equality and inclusion. The educational institutions encourage students to pursue education based on employment demand in various sectors. Employment opportunities in the energy sector still favor males over females with some exceptions. Therefore, educational institutions tend to guide males, rather than females, towards STEM education.

4. Another key finding is that girls and women would benefit from training that helps boost women's confidence in their ability to pursue STEM studies and work in the energy sector. Programs for young girls that increase access to women role models are needed.

5. Other factors that may impact one's attitudes towards gender equality in the region are age, marital status, and whether the individual lives in an urban or rural environment. For example, those living in urban areas generally have more opportunities to interact with people from different backgrounds and tend to endorse the idea of equal treatment more.[4]

6. Overall, discriminatory social practices in the region remain high. The Southeast Asian Region's score – denoting its level of discrimination in social institutions – is 35, in line with the score for Asia as a whole (36). It remains significantly higher than the level of discrimination encountered in Europe (17), Northern America (18), and Latin America and the Caribbean (27). Within Asia as a whole, Southeast Asia scores better than West Asia (41) and South Asia (48), but it trails behind East Asia, which has a score of 22. The cost of discriminatory social institutions for Southeast Asia amounts to around USD 200 billion annually, accounting for 7.5 percent of the regional gross domestic product (GDP).[5]

7. Violence against women has deep long-term psychological and health consequences for women and limits their ability to seek education or employment. The United Development Program (UNDP) has documented that, in Southeast Asia, on average, 25 percent of women have suffered physical and/or sexual violence from an intimate partner at least once in the nine countries in Asia where such data are available. Violence, or the fear of it, can prevent women from pursuing education, working, earning an income, making decisions about their health or their children's education, and exercising their political rights and voice.[6]

8. Generally, public sector entities, specifically state-owned enterprises (SOEs), offer welfare benefits to all employees and provide specific support and facilities for women. In addition, these entities usually provide scholarships, internships, job placement, and career advancement opportunities for students. Often attractive benefits packages and special support for female employees are better in the public sector than the private sector.

9. The International Labour Organization (ILO) conducted an enterprise survey that found that women and men in the private sector are concentrated in different middle and senior

[4] Kohei, Yoshida. 2011. Gender perceptions in Southeast Asian countries: Findings from JICA-RI value surveys. World Bank. https://openknowledge.worldbank.org/bitstream/handle/10986/9119/WDR2012-0001.pdf?sequence=1&isAllowed=y
[5] https://www.oecd-ilibrary.org/sites/b01a4f2f-en/index.html?itemId=/content/component/b01a4f2f-en
[6] https://hdr.undp.org/en/content/violence-against-women-cause-and-consequence-inequality

management functions. Still, women are over-represented in support management functions, including finance, administration, and human resources and under-represented in management and leadership positions. Men usually hold decision-making positions levels such as executive officers and CEOs. Globally, the proportion of women in leadership positions is still low. Africa has the highest rank (39 percent) of the proportion of women in leadership positions, while the ASEAN Region is a close second (38 percent) based on Grant Thornton International in 2021.

KEY REGIONAL FINDINGS ACROSS THE GESI DOMAINS

Table 1 summarizes E4SEA's key findings related to the gender gap and challenges and the constraints to women having the opportunity to study STEM and enter the growing and transitioning energy sector.

TABLE 1: KEY REGIONAL FINDINGS ABOUT CHALLENGES TO GENDER EQUITY AND GENDER EQUALITY

Law and Policy	• There are no laws, policies, and regulations in the SEA Region that limit girl's and women's opportunities to study and work in STEM areas. However, there is a lack of specific policies, regulations, or measures such as scholarships and job placement programs. • There is a lack of regional gender-responsive energy policy frameworks in SEA. Specific policy frameworks on gender equality and energy issues exist but are implemented in operational silos and often the policies do not translate to concrete on-the-ground programs. • Some provisions under labor laws, such as safety on remote job sites, indirectly discriminate against women's employment in the energy sector. • Gender equality and safeguarding policies such as non-discrimination, anti-harassment and bullying, child protection policies, and measures for the protection of students in schools and tertiary institutions, have not yet been adopted in many countries in the region.
Access to Resources	• Poverty and social disparity are fundamental root causes of gender inequality and significantly limit access to educational and career opportunities. Women and girls who live in low-income families, patriarchal societies, and/or marginalized communities have strong social norms and cultural practices that hinder gender equality. • Information on educational opportunities, career guidance, networking, and other academic and career prospects in STEM education and the energy sector is still insufficient. • For internship and job placement opportunities, male STEM students usually have better opportunities than female students. Most heavy industries and energy companies, prefer men rather than women due to the physical nature of heavy labor jobs. • More women are studying in STEM. However, they have limited opportunities to access scholarships, financial support, and job placement in heavy industries and the energy sector. • There is a lack of female role models in the STEM field (particularly engineering and technical positions in the energy sector) for motivating young girls to pursue energy sector careers. • The drop-out rate among female students in STEM studies during the second and third years in undergraduate studies remains high because many energy employers prefer hiring men.
Power and Decision-Making	• Regarding decision-making about education and employment opportunities, women and girls exhibit agency in making their own decisions and parents strongly support them. However, parents still prefer to have the final say on the daughters' education and career choices. • Senior executives and leaders in the energy industry recognize and value female leaders, yet some companies still prefer to recruit men for senior and leadership positions. • Women's empowerment and women's career advancement programming exist but are insufficient. There is a lack of policies and mechanisms for promoting, managing, measuring, and monitoring the progress of gender equity and women in senior leadership positions in the energy sector.
Roles and Responsibilities	• Traditional gender norms dictate that men are typically expected to serve as breadwinners for the family and women are expected to perform double roles as working professionals and

TABLE 1: KEY REGIONAL FINDINGS ABOUT CHALLENGES TO GENDER EQUITY AND GENDER EQUALITY	
	caregivers for the family. Women's reproductive role is often used as a basis to discriminate against them for leadership roles or leadership development.
Knowledge and Beliefs	• Deeply embedded social norms lead to higher gender segregation in tertiary education, undermining women's empowerment. • Discriminatory social norms and attitudes play a critical role in shaping the educational choices of girls and young women, specifically, decisions related to education in the STEM field.
Human Dignity and GBV	• Many male and female student participants of the FGDs expressed that they routinely witnessed sexual harassment committed by students or teachers in educational institutions against female students and students who identify as lesbian, gay, bi-sexual, transgender, queer, inter-sex, and others (LGBTQI+). • Non-discrimination, anti-harassment, anti-bullying policies, and grievance mechanisms exist in many energy sector workplaces but are not always implemented.

RECOMMENDATIONS TO ADDRESS GENDER GAPS IN THE SOUTHEAST ASIA REGION

Based on the findings of this Assessment Report, Table 2 summarizes both strategic and activity-level recommendations to address the gender gaps and challenges in the region.

TABLE 2: SUMMARY OF RECOMMENDATIONS TO ADDRESS GENDER GAPS IN THE SOUTHEAST ASIA REGION
STRATEGIC AND PROGRAMMATIC RECOMMENDATIONS
• Coordinate with the Southeast ASEAN Ministers of Education Organization (SEAMEO) Regional Centre for STEM Education (STEM-ED) to promote gender equitable practices such as scholarships for women to prepare them for energy sector employment. Expand the outreach of SEAMEO STEM-ED for it to act as a model to foster integrated STEM education for women across the SEA Region. • Build regional gender-responsive energy policy frameworks in the SEA Region. Policy frameworks and institutional mechanisms on gender equality and energy issues are often implemented in operational silos. This presents RDMA with an opportunity to initiate a regional program aimed at major gender policy reform in the region linked with GESI, climate change, and decarbonization. • Consider initiating a regional capacity building and training program for gender integration to enhance women's opportunities in the transitioning energy sector by creating a major capacity building, training, and scholarship program for women to study STEM and enter the growing renewable energy (RE) sector. • Initiate a program to review national-level policies (even those unrelated to gender) from a gender lens. For example, the OECD finds that, across the SEA Region, a gender lens is absent from post-COVID-19 policy measures and recovery plans. • Collaborate with multinational energy companies that promote gender equality, inclusive workplaces, and women leadership opportunities. Many private sector companies in the region are increasingly responding to sustainability rankings such as the Dow Jones Sustainability Indices (DJSI) with continuous development of performance standards. RDMA can partner with the ASEAN to design a regional program for energy employers to introduce gender equity and gender equality in their overall governance, HR, and day-to-day-operations. • Engage with SEA public sector entities in partnership with UN ESCAP and ASEAN in a policy dialogue and capacity building program in gender and social inclusion for women's and socially excluded groups' (including people living with disabilities) equal participation in the region's energy transition. • Collaborate with a specific organization in energy transition such as the Global Women's Network for the Energy Transition (GWNET) to customize a gender-based SEA program for women in clean energy (e.g., solar, wind, geothermal, energy efficiency, EVs, and battery storage). Develop and implement interventions to advance women's entry into the growing renewable energy industry.
RECOMMENDATIONS FOR SPECIFIC REGIONAL INITIATIVES

TABLE 2: SUMMARY OF RECOMMENDATIONS TO ADDRESS GENDER GAPS IN THE SOUTHEAST ASIA REGION

The recommendations summarized above are for high-level regional programs and interventions to achieve gender equality and gender equity in all segments of society, including the energy sector. The recommendations provided below are program and activity-level interventions in specific areas of GESI challenges.

Law and Policy	• Push for widespread reform of current laws and policies governing employment, discrimination, and unfair labor practices in the region, including specific provisions for gender equality and gender equity in the public and private sectors. • Engage with project partners and key stakeholders at national and regional levels to foster a dialogue on gender-responsive energy policy frameworks in the SEA Region. • Organize regional events that promote STEM education and women's employment in energy sector workplaces.
Access to Resources	• Enhance employment opportunities for women in the energy sector through the provision of scholarship, internship, and job placement opportunities. • Promote an inclusive working environment that helps to retain female employees in the energy sector through communications and outreach in partnership with energy employers. • Implement regional programs to support coaching and mentoring for women working in engineering and other technical positions through creative public-private partnerships. • Link gender equality initiatives and programs to climate change initiatives supporting energy transition to clean technologies and decarbonization. RE provides significant employment and entrepreneurial opportunities for women both in the urban and rural areas.
Power and Decision-Making	• Encourage government entities to consider designing and implementing outreach programs that enhance policy and decision-making that is gender-equitable and inclusive. • Encourage women's leadership opportunities in the energy sector through sharing best practices in organizational development (OD) and human resource management (HRM). • Promote buy-in and recognition from top business leaders on gender equality by making a business case for gender equality and business outcomes. • Engage public and private sector leaders to reverse the inherent bias that leads to a preference for hiring men over women in the energy sector.
Roles and Responsibilities	• Encourage regional bodies and the government entities to design and implement unconscious bias training programs to enhance opportunities for women to participate in decision-making on policy, regulations, and economic activities. • Promote outreach programs, best practices, and special benefits (e.g., flexible work hours, and on-site childcare facilities) that allow women (and men) to balance their work and family life.
Knowledge and Beliefs	• Encourage donors and government entities to forge region-wide learning and knowledge enhancement programs including public campaigns and outreach programs to address social norms that are not gender inclusive and/or are discriminatory. • Train energy employers to reform old practices and embrace technology and innovation. With the advent of technology, women can undertake energy jobs just as well as men.
Human Dignity and GBV	• Strengthen mechanisms to implement non-discrimination, anti-harassment and bullying policies and action plans. Forge partnerships with energy employers to assist them in reforming their HR policies related to workplace GBV. • Enforce laws to reduce domestic violence and GBV. Proactive communication, and education on GBV are necessary at every level in educational settings and workplaces. • Encourage governments to play a leadership role in pushing educational institutes and industries to enhance education on GBV and reform HR policies initiatives.

The Main Report includes a section entitled "Opportunities for RDMA to Collaborate with Regional Organizations to promote GESI in the SEA Region" that provides additional details and recommendations on regional gender programs offering innovative opportunities for RDMA to partner.

Through these additional programs, RDMA can have a major impact on enhancing opportunities for women in the transitioning energy sector in the SEA Region.

INTRODUCTION

E4SEA ACTIVITY

Despite generational gender biases and challenges, some advances have narrowed the gender gap in many countries in Southeast Asia, particularly in the Philippines. Nevertheless, some GESI issues still exist in the education and employment sectors across the region. The incidences of gender inequality and lack of inclusion are particularly prevalent in the highly male-dominated energy sector across the SEA Region. Women are underrepresented in engineering, technical, and leadership positions in the energy sector because of several obstacles and challenges and age-old biases that need to be systematically addressed.

The E4SEA Activity is under the Asia EDGE initiative overseen by USAID/RDMA. Asia EDGE is a key component of the U.S. Government's approach to grow sustainable and secure energy markets throughout the Indo-Pacific Region. The E4SEA Activity aims to contribute to that effort by improving gender equality and inclusion in Southeast Asia's energy sector to strengthen the region's energy institutions and advance women's economic empowerment. Specifically, the E4SEA Activity is working towards three primary outcomes:

1. Increased workplace diversity in Southeast Asia
2. Improved inclusive workplace environment
3. Expanded equitable promotion opportunities

The E4SEA Activity is being implemented through several targeted interventions under five (5) objectives:

1. **Objective 1**: Identify core challenges to gender equality in the energy sector in Southeast Asia
2. **Objective 2:** Increase the number of women and girls pursuing careers in the energy sector
3. **Objective 3:** Increase the recruitment, retention, and promotion of women in the energy sector workplace
4. **Objective 4:** Increase mentorship and leadership opportunities for women in the energy sector
5. **Objective 5:** Enhance communication, collaboration, and learning

While many regional gender-related activities are being implemented by a host of bilateral and regional organizations, E4SEA is the first regional Activity that focuses on GESI in the full chain of the energy sector. The overall goal of the Activity is to enhance opportunities for women in the energy sector.

ASSESSMENT REPORT

This report entitled "Assessment of Women's Participation in the Energy Sector in Southeast Asia" ("Assessment Report") documents deeper analytical findings from the regional and national perspectives,

on achievements, gaps/challenges, lessons learned, and opportunities. The report builds upon the Gender Equality and Social Inclusion (GESI) Analysis and Gender and Inclusive Development Action Plan (GIDAP) developed earlier under the Activity which were based only on secondary data and analysis from desk research and literature review.

The methodology deployed to conduct the assessment included five (5) discrete, yet related, components: 1) desk review of Regional gender programs and discussions with several regional partners, 2) additional desk research and literature review of other programs and research, 3) In-Depth Interviews (IDIs) with selected stakeholders on gender/energy gaps, 4) Focus Group Discussions (FGDs) with selected participant groups, and 5) baseline citizen surveys in the focus countries. Additional details on the methodology are included later in this report and in a separate report entitles "Methodology and Tools".

The key findings from the IDIs, FGDs, and the Baseline Citizen Survey provide information about attitudes, biases, and challenges across the GESI domains in the SEA Region. While the original scope of the E4SEA Activity covers seven (7) counties -- Burma, Cambodia, Indonesia, Laos, the Philippines, Thailand, and Vietnam -- the initial three (3) countries (Indonesia, the Philippines, and Thailand) were selected in consultation with RDMA and the bilateral missions based on two main criteria: 1) the availability of bilateral energy programs and 2) the country and mission's readiness for engagement.

In addition to this report (Executive Summary and Main Report) focusing on the regional findings and recommendations, the research and analysis also documented country-specific gender gaps and challenges and developed recommendations for the three focus countries that are included in separate stand-alone Country Chapters for each of the three focus countries -- Indonesia, the Philippines, and Thailand. These individual Country Chapters also include summaries of findings related to gender challenges in the student life cycle and the employee life cycle.

ASSESSMENT REPORT STRUCTURE

The complete Assessment Report consists of five separate reports as follows:

1. **Executive Summary and Main Report:** This part of the Assessment Report provides an overall executive summary of the report and a main report summarizing key findings and recommendation at the regional level.

2. Indonesia Country Chapter: This is a separate stand-alone report on the gender gaps, challenges, and opportunities in the energy sector in Indonesia.

3. Philippines Country Chapter: This is a separate stand-alone report on the gender gaps, challenges, and opportunities in the energy sector in the Philippines.

4. Thailand Country Chapter: This is a separate stand-alone report on the gender gaps, challenges, and opportunities in the energy sector in Thailand.

5. Methodology and Tools: This report provides a summary of the research methodology and tools used in order to conduct the research and analysis that led to the

development of the Assessment Report and the individual Country Chapters for the three countries. This report includes the following Annexes:

- Annex 1: Targeted Stakeholders and Selection Criteria
- Annex 2: List of Stakeholders
- Annex 3: List of Questions for the In-depth Interviews (IDIs)
- Annex 4: List of Questions for the Focus Group Discussions (FGDs)
- Annex 5: Survey Instrument for the Baseline Citizen Survey

It should be noted that the Country Chapters for Indonesia, the Philippines, and Thailand are based on a focused and rather limited effort to gain a deeper understanding of the overall GESI issues, challenges, and opportunities in the three countries to the extent they were relevant to the regional focus of the Assessment Report. These Country Chapters provide a foundation for the USAID bilateral missions and the Implementing Partners (IPs) engaged in various activities to further expand the research and conduct more detailed GESI analysis to inform the gender equity and equality issues in the energy sector in their respective countries.

This report **"Executive Summary and Main Report"** captures the regional findings on the status of women's participation in the energy sector in SEA and opportunities for targeted regional partnerships and collaboration to implement collaborative and impactful interventions across the region.

The E4SEA Activity acknowledges and appreciates the extraordinary support and guidance provided by RDMA, the bilateral Missions, and USAID/Washington that immensely contributed to the preparation of this Assessment Report.

CONCEPTUAL FRAMEWORK

Despite various efforts by governments and the energy industry to address gender inequality and inequity, considerable gender gaps continue to exist in the energy sector that must be addressed to advance the shared goal of strengthening the SEA region's socio-economic growth and social development. The U.S. Government is committed to promoting gender equality and women's empowerment in all workplaces, including the energy sector, as underscored by the Biden Administration's expanded commitment to funding targeted and impactful gender programs.

THE BIDEN-HARRIS NATIONAL STRATEGY ON GENDER EQUITY AND EQUALITY

The Biden-Harris Administration established the White House Gender Policy Council and launched the first-ever National Strategy on Gender Equity and Equality (the White House, 2021).[7] It sets forth an aspirational vision and a comprehensive agenda to advance gender equity and equality in domestic and foreign policy — and demonstrates that families, communities, and nations around the world stand to benefit (the White House, 2021).[8] This strategy reinforces the implementation of the USAID's Gender Equality and Women's Empowerment Policy (2020). In March 2022, the Administration requested a budget in the amount of $2.6 billion, more than double the size of last year's budget, for foreign aid to

[7] https://www.whitehouse.gov/briefing-room/statements-releases/2021/10/22/fact-sheet-national-strategy-on-gender-equity-and-equality/

[8] https://www.whitehouse.gov/briefing-room/statements-releases/2021/10/22/fact-sheet-national-strategy-on-gender-equity-and-equality/

address gender inequality. This demonstrates the Administration's unwavering commitment to promoting gender equality across the globe.

USAID GENDER EQUALITY AND WOMEN'S EMPOWERMENT POLICY 2020

The USAID Gender Equality and Women's Empowerment Policy (2020) affirms USAID's vision of a prosperous and peaceful world in which women, girls, men, and boys enjoy equal economic, social, cultural, civil, and political rights, and are equally empowered to secure better lives for themselves, their families, their communities, and their countries.[9]

USAID ADS 205: INTEGRATING GENDER EQUALITY AND FEMALE EMPOWERMENT IN USAID'S PROGRAM CYCLE

USAID ADS Chapter 205: Integrating Gender Equality and Female Empowerment in USAID's Program Cycle (revision 2021) provides a broad framework for gender analysis. This framework considers five domains: 1) Law & Policy, 2) Access to Resources, 3) Power and Decision-Making, 4) Roles and Responsibilities, and 5) Knowledge and Beliefs.[10] This report considers an additional sixth domain measuring Human Dignity and Gender-Based Violence (GBV). This sixth domain is included in the analytic framework for analyzing the findings gathered from documentary research and field research.

USAID ENGENDERING INDUSTRIES: BEST PRACTICES FRAMEWORK

Figure 1: Employee Life-Cycle Framework

The USAID publication – "*Delivering Gender Equality: A Best Practices Framework for Male-Dominated Industries* (2021)" - identifies eight phases and four organizational enablers of the employee life cycle as key entry points to affecting long-lasting and impactful change within electricity and water utilities. This framework provides insights for its applicability to other industries (see Figure 1).[11] It also includes a suite of 126 best practices that employers in male-dominated industries can implement to advance gender equality. This Best Practice Framework provided the work structure and analysis conducted under this report. Figure 1 illustrates the employee life-cycle framework adapted for the analysis conducted in the report.

[9] https://www.usaid.gov/GenderEqualityandWomensEmpowermentPolicy
[10] https://www.usaid.gov/sites/default/files/documents/205.pdf
[11] https://www.usaid.gov/sites/default/files/documents/Delivering-Gender-Equality-Best-Practices-Framework.pdf

METHODOLOGY

OVERVIEW

The methodology deployed for conducting the research and analysis for this "Assessment Report" included a combination of 1) initial desk research and literature review leading to GESI Analysis and GIDAP; 2) additional desk research (secondary data collection and literature review); 3) stakeholder identification and mapping; and 4) field research in the region (primary data and information collected through IDIs, FGDs, and a Baseline Citizen Survey). The outputs of the desk research were 1) the GESI Analysis and 2) the GIDAP that were completed and submitted at the beginning of the Activity. This report represents the output of the fieldwork that updates and validates the GESI Analysis and GIDAP based on primary in-country data collection and analysis. Research and country-specific consultations included 1) 46 IDIs with key stakeholders, 2) 30 FGDs, and 3) a phone-based Baseline Citizen Survey involving 1,377 (48 percent female, 52 percent male) respondents in the region. More details on the methodology are provided in a report entitled "Methodology and Tools" – submitted separately.

INITIAL DESK RESEARCH AND LITERATURE REVIEW DURING GESI ANALYSIS AND GIDAP

At the beginning of the Activity, initial desk research included a literature review and data collection from over 250 available sources on gender and energy activities in the region and globally. Specifically, research papers and reports of projects funded by various donors were reviewed to identify gender challenges and gaps. The findings of the extensive review were documented in the GESI Analysis and GIDAP submitted to RDMA. Based on the identified gaps, standardized semi-structured interview questions and guidelines for IDIs and FGDs, research protocol documents, and survey instruments were developed, tested, and deployed for the research and analysis in this report.

Additional research included an extensive review of government laws, policies, regulations, and practices related to gender inclusion, studies conducted by various donors and private entities on the status of gender in the region, and discussions with various USAID Missions and implementing partners.

STAKEHOLDER IDENTIFICATION AND MAPPING

Identifying and mapping target stakeholders was a key component of the methodology deployed for the research and analysis. Stakeholders were selected from among many public and private sector organizations based on clearly defined criteria to maximize the quality of information and data needed to inform the GESI Analysis and GIDAP. Table 3 lists the types of organizations in the three focus countries from which the 46 IDI interviewees were selected.

TABLE 3: STAKEHOLDER IDENTIFICATION AND MAPPING

KEY STAKEHOLDERS IN THAILAND, INDONESIA, AND THE PHILIPPINES
Public Sector Entities ● Energy ministries and other national entities dealing with education, employment, energy, gender equality, protection of women and children, youth development, and social welfare issues ● National energy regulators and commissions ● State-Owned Enterprises (SOEs) and national enterprises in the full supply chain of the energy sector
Private Sector Organizations ● Energy and power companies

TABLE 3: STAKEHOLDER IDENTIFICATION AND MAPPING
• Energy industry associations
Secondary and Tertiary-Level Educational Institutions • High schools (mainly with STEM focused programs) • Universities (STEM and Non-STEM programs) • Vocational educational institutions (STEM and Non-STEM programs)
Associations, Non-Governmental Organizations, Foundations and Networks • Associations or networks related to engineering and energy fields • Foundations, NGOs, or networks related to gender equality, human rights, and social development

FIELD RESEARCH/PRIMARY DATA COLLECTION

Field research (primary data collection) included three distinct activities: 1) IDIs with selected stakeholders, 2) FGDs with various groups, and 3) a Baseline Citizen Survey. Key elements of the methodology deployed for conducting these activities are discussed below.

SURVEY OF REGIONAL GENDER PROGRAMS AND ENGAGEMENT WITH REGIONAL INSTITUTIONS

To explore potential opportunities for E4SEA to leverage and expand its collaboration with key regional programs and organizations, E4SEA conducted desk research and a survey of various regional gender programs. Specifically, some of the programs reviewed included initiatives of key regional entities such as the Asian Development Bank (ADB), Asian Center of Energy (ACE), ASEAN Foundation, GIZ, UN Mission to ASEAN (YSEALI), Asia Foundation, UNESCO, ASEAN (SEAMEO), ENERGIA, GWNET, and other entities.

E4SEA has engaged with a number of the organizations in the region to explore potential collaboration opportunities. The initiatives of the regional entities range from generating better evidence and data on gender equality in the region to working at the programmatic and policy levels aimed at improving women's and girls' skills, networks, and access to financial and social services. This regional snapshot of GESI efforts in different sectors has reiterated the unique space where E4SEA is working in the energy/gender area. It is the first regional GESI activity exclusively devoted to enhancing opportunities for women in the energy sector and it is bridging the gap between tertiary educational institutions and the energy sector employers, the two key stakeholders under E4SEA.

While none of the programs being implemented in the region are exclusively at the nexus of energy and gender, many of the tools, research techniques, best practices, and findings from these programs have a bearing on E4SEA and activities that RDMA may initiate in the future. Similarly, E4SEA, being the first regional GESI activity exclusively devoted to enhancing opportunities for women in the energy sector and bridging the gap between tertiary educational institutions and energy employers, has a lot to offer other programs in the region. Therefore, there are many potential opportunities for RDMA to leverage its program with other regional programs to advance opportunities for women to enter and prosper in the energy sector.

Accordingly, E4SEA engaged with several regional organizations to explore the potential for collaboration. E4SEA engaged with The Asia Foundation, ASEAN (various groups), GWNET, and others

to better understand the regional initiatives that are working towards closing the gender gap and addressing GESI challenges. Additional discussions with several other regional entities are underway.

IN-DEPTH INTERVIEWS

IDIs were conducted with 46 respondents in the region to gather information on gender and energy gaps and challenges and interventions implemented by the IDI participants. The IDI interviewees were from five (5) specific groups of stakeholders: 1) private sector (energy companies), 2) public sector (government ministries and regulators), 3) SOEs, 4) school and tertiary educational institutions (high schools, universities, and vocational institutions), and 5) non-profit organizations, foundations, associations, and related networks (gender, energy, and engineering). Many of the IDIs were conducted with energy employers who have regional operations and cross-border trade in the SEA Region. Additionally, the educational institutions interviewed as part of the IDIs included schools with regional and international programs with coverage across the region in terms of exchange students and faculty.

FOCUS GROUP DISCUSSIONS

In addition to the IDIs, 30 FGDs were conducted with various pre-selected respondents in the region. The FGD participants included 1) engineers and geologists from energy companies, 2) high school students, 3) vocational school students, and 4) university students. A set of pre-prepared and vetted questions was used for facilitating the FGDs.

BASELINE CITIZEN SURVEY

The fourth component of the methodology to collect primary data and information on gender equality gaps and challenges was a detailed baseline citizen survey in the region. The survey deployed the Computer-Assisted Telephone Interview (CATI) technique and was carried out by GeoPoll, an international survey firm. Different stages of this intervention included 1) a survey design, 2) a call center setup and operator/enumerator training, 3) tool testing, 4) survey implementation and 5) data entry, transmission, and delivery. The sampling for CATI respondents included 1) male and female students aged 18 and above 2) recent university graduates, 3) parents of children aged 20 and below, 4) working professionals, and 5) others. Table 4 below provides a breakdown by country of the survey participants and the time frame when the surveys were conducted.

TABLE 4: BASELINE CITIZEN SURVEY: INDONESIA, THE PHILIPPINES, AND THAILAND

COUNTRY	TIME FRAME	NUMBER OF RESPONDENTS
Thailand	Oct 23-28, 2021	252 Respondents (50 percent female and 50 percent male)
Indonesia	Oct 22-Nov 1, 2021	546 Respondents (49 percent female and 51 percent male)
Philippines	Oct 23-30, 2021	579 Respondents (46 percent female and 54 percent male)

COVID-19-RELATED CHALLENGES

The COVID-19 pandemic created challenges for primary data collection as travel restrictions did not permit face-to-face interviews and focus group discussions with key stakeholders. Therefore, virtual IDIs and FGDs were conducted via online applications such as Zoom, Microsoft Teams and Google Meet. Although this posed some coordination challenges, the quality of interviews and surveys was not compromised. In some cases, repeated interviews were conducted to clarify and/or confirm the veracity of information gathered during initial interviews. Appropriate dry runs and trials were conducted in advance to maximize the value of the interviews and the baseline citizen survey.

GENDER EQUALITY FINDINGS IN THE ENERGY SECTOR IN THE SOUTHEAST ASIAN REGION

Based on a sample of the three countries, a few key conclusions can be drawn about the gender challenges at the regional level which offer opportunities for further engagement through creative and targeted programs. This regional analysis will be further updated as more countries are added under the Activity. It is anticipated that Laos and Vietnam may be added to the research over the next few months for further assessment.

KEY OVERALL REGIONAL GENDER EQUALITY FINDINGS IN SOUTHEAST ASIA

In 2021, ASEAN Member States strengthened their commitments toward gender equality and the advancement of women's rights by adapting the Association of Southeast Asian Nations (ASEAN) Gender Mainstreaming Strategic Framework (GMSF) 2021-2025 (See Figure 2).[12] According to the World Economic Forum's 2021 Global Gender Gap Report, many countries will likely see an increase in gender gaps in labor participation and income due to the COVID-19 crisis. Nevertheless, ASEAN countries, and other countries in the Asia Pacific region, have made significant advancements compared to other regions. As of 2021, 68.9 percent of the overall gender gap across all sectors has been closed in the East Asia and the Pacific Region. Despite this progress, the gender gap in the energy sector continues to be relatively large for a variety of reasons as discussed throughout this report. Among the SEA countries, the Philippines has already achieved its ambitious goal of closing the gender gap and has reached the highest rank in the SEA region, followed by Laos, Singapore, Thailand, Vietnam, and Indonesia.[13]

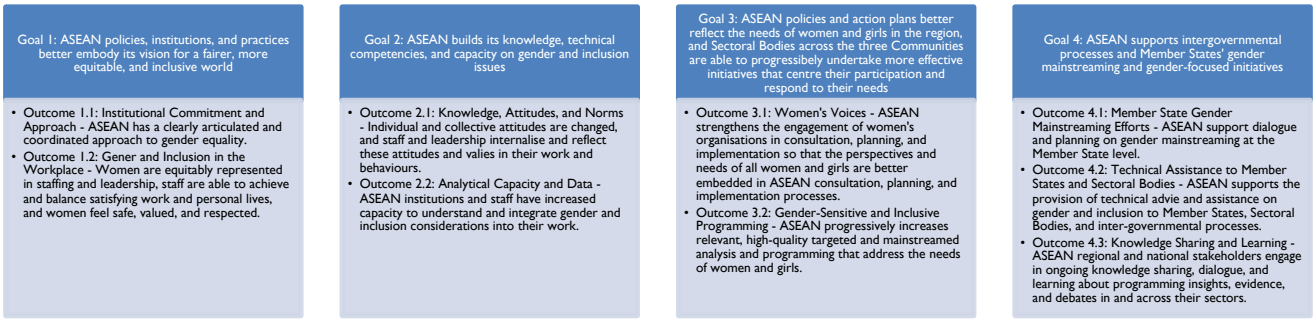

Figure 2: ASEAN Gender Mainstreaming Strategic Framework

[12] ASEAN Gender Mainstreaming Strategic Framework 2021-2025. September 2021.
[13] Southeast Asia (SEA) region, (ranking 1st: SEA & ranking 17th: Global), followed by Lao PDR (ranking 2nd: SEA & ranking 37th: Global), Singapore (ranking 3rd: SEA & ranking 58th: Global), Thailand (ranking 4th: SEA & ranking 80th: Global), Vietnam (ranking 5th: SEA & ranking 87th: Global) and Indonesia (ranking 6th: SEA and ranking 99th: Global).

Among middle-income countries in the SEA region, Indonesia, the Philippines, and Thailand have made some progress in narrowing their gender gaps related to three of the four sub-indices (Economic Participation and Opportunity; Educational Attainment; and Health and Survival). However, they have regressed on the Political Empowerment sub-index. For example, Thailand has only 16 percent of women holding seats in the country's Parliament. In contrast, 28 percent of the women in the Philippines and 21 percent of the women in Indonesia hold seats in their respective parliaments. [14] [15] [16]

Indonesia, for example, has made significant progress in narrowing the gender disparity in political empowerment but has fallen in economic participation and opportunity. In this regard, Indonesia has used an electoral quota to reduce the imbalance and has made significant progress on increasing the percentage of women in the parliament. Political parties in Indonesia must ensure that at least 30 percent of their candidates in each multi-member constituency are women.[17] The Philippines has a Bicameral Parliament with the help of "voluntary party quota" and "legislated quotas" at the sub-national level. Thailand has a Bicameral Parliament using only the "voluntary party quota". Therefore, the numbers of women parliamentarians in these two countries are lower.

The Philippines has made considerable progress in closing gender gaps in economic participation and opportunities, political empowerment, and education attainment sub-indices. For economic participation and opportunities in the SEA region, the Philippines achieved the first ranking, and Laos achieved the second ranking.[18] Compared to Thailand and Indonesia, the Philippines has gained the highest scores and top rank in the economic participation and opportunities, political empowerment, and education attainment sub-indices.

Table 5 summarizes the Global Gender Gap Index and ranking in the SEA region (2021).

TABLE 5: THE GLOBAL GENDER GAP INDEX AND RANKINGS IN THE SEA REGION (2021)

Country	Rank		GGI Score	Country	Rank		GGI Score
	Regional	Global			Regional	Global	
Philippines	1st	17th	0.784	Indonesia	6th	99th	0.688
Lao PDR	2nd	37th	0.750	Cambodia	7th	103rd	0.684
Singapore	3rd	58th	0.727	Myanmar	8th	109th	0.681
Thailand	4th	80th	0.710	Brunei Darussalam	9th	111th	0.678
Vietnam	5th	87th	0.701	Malaysia	10th	112th	0.676

Source: The Global Gender Gap Report 2021, World Economic Forum (2021)

[14] https://www.idea.int/data-tools/data/gender-quotas/country-view/280/35
[15] https://www.idea.int/data-tools/data/gender-quotas/country-view/142/35
[16] https://www.idea.int/data-tools/data/gender-quotas/country-view/240/35
[17] https://www.lowyinstitute.org/the-interpreter/indonesia-look-beyond-quotas-gender-representation
[18] The Philippines gained highest scores and served the 2nd rank at SEA level (ranking 18th: Global), followed by Thailand (ranking 3rd: SEA and ranking 22nd: Global) and Indonesia (ranking 9th: SEA and ranking 99th: Global).

Table 6 provides a summary of the data on the global gender index and results by sub-index in several SEA countries.

TABLE 6: GLOBAL GENDER GAP INDEX, AND RESULTS BY SUB-INDEX IN THE SEA COUNTRIES - 2021

Country	Economic Participation and Opportunities		Educational Attainment		Health and Survival		Political Empowerment	
	Ranking SEA	Ranking GLO	Ranking SEA	Ranking GLO	Ranking SEA	Ranking GLO	Ranking SEA	Ranking GLO
Lao PDR	1st	1st	9th	112th	5th	57th	4th	104th
Score	0.915		0.965		0.975		0.146	
Philippines	2nd	18th	1st	39th	2nd	34th	1st	33rd
Score	0.795		0.999		0.979		0.362	
Thailand	3rd	22nd	3rd	74th	3rd	41st	9th	134th
Score	0.787		0.992		0.978		0.084	
Vietnam	4th	26th	6th	94th	10th	152nd	6th	121st
Score	0.765		0.982		0.945		0.113	
Cambodia	6th	46th	10th	128th	4th	46th	7th	126th
Score	0.729		0.919		0.978		0.111	
Indonesia	9th	99th	8th	107th	7th	76th	3rd	92nd
Score	0.647		0.970		0.971		0.164	

Source: The Global Gender Gap Report 2021, World Economic Forum (2021)

The World Economic Forum compiled these data in the Global Gender Gap Report published in 2021. It shows the ranking of various countries concerning the gender gap in key areas (sub-indices) including 1) economic participation and opportunities, 2) educational attainment, and 3) political empowerment. Indonesia is almost at the bottom of the ranking in the SEA region in most areas.[19] A few interesting findings from this report are as follows:

- Laos ranks first in the region in economic participation and opportunities but falls behind many countries in the region in educational attainment.
- The Philippines ranks first in educational attainment and political empowerment and ranks second in economic participation and health and survival categories.
- Thailand has made considerable progress in the areas of education, economic participation, and health (ranked third in these areas) but is behind in political empowerment of women.
- Vietnam has made progress in all categories but lags behind the Philippines, Thailand, and Laos in all sub-indices.
- Cambodia and Indonesia lag behind the rest of the region in most sub-indices.

[19] https://www.weforum.org/reports/ab6795a1-960c-42b2-b3d5-587eccda6023/in-full/gggr2-benchmarking-gender-gaps-findings-from-the-global-gender-gap-index-2021

KEY REGIONAL HIGHLIGHTS FROM STAKEHOLDER MAPPING AND ANALYSIS

Stakeholder mapping was done in Indonesia, the Philippines, and Thailand and regionally across the four categories -- 1) public sector, 2) private sector, 3) high schools and tertiary-level educational institutions, and 4) associations, non-profit organizations, foundations, and networks.

REGIONAL FINDINGS IN THE PUBLIC SECTOR

Public sector entities in the region comprise public services and public enterprises, including ministries, governmental institutions, national energy regulatory commissions, national commissions, and state-owned enterprises (SOEs). Generally, public sector actors, particularly, national enterprises, or SOEs, offer welfare benefits to all employees and provide specific support and facilities for accommodating women and their family members. As an example, compared with Thailand and Indonesia, public sector entities in the Philippines have made outstanding achievements in gender integration across government ministries and agencies, especially at the Energy Regulatory Commission (ERC) and the Department of Energy (DoE). Box 1 provides an important example of the status of women in leadership positions in the Philippines, many of whom serve as effective role models for young aspiring women. For instance, in 2021, there were 12 women holding directors' positions in the Ministry of Energy and Mineral Resources (MEMR). Also, the overall number of women employees in the MEMR has increased from 23 percent in 2011 to 28 percent in 2021.[20]

Box 1: The Philippines: Role models and women's leadership promotion in the public sector

In the Philippines, there is a strong organizational culture related to women's empowerment. In addition, national law and policy frameworks on gender have been successfully enacted, enforced, and integrated into institutional policies and practices, which reinforce the existing organizational culture across ministries, state-owned enterprises, and other public and private sectors. Moreover, the Energy Regulatory Commission of the Philippines (ERC) has numerous women holding senior and high-level positions, and the current Commissioner is also a woman with a non-STEM background. The visibility and presence of female leadership encourages other women to consider ERC as an employer of choice and career growth. The ERC is also implementing programs to increase the capacity of female officials through coaching and mentoring.

In other countries in the region, the public sector entities, generally, do not have specific institutional policies on women's leadership promotion, and gender equality initiatives have limited program interventions and operational practices. However, these entities, especially the SOEs, usually provide scholarships, internships, job placement, and career advancement opportunities to students from vocational schools and universities and provide for continuing education to junior personnel. To promote women's career advancement in the public sector, government institutions and state

[20] ASEAN Climate Change and Energy Project (ACCEPT). 2021. ASEAN Women in Energy-Climate (2021) https://accept.aseanenergy.org/indonesia-perspective-of-women-towards-inclusive-energy-transition-in-asean/

enterprises typically offer attractive employee benefits packages and special support for female personnel often better than offered in the private sector.

While various public sector actors in the region have adopted and operated their institutional code of conduct, particularly anti-sexual harassment policies and employee grievance mechanisms, considerable additional focus and commitment are needed to achieve the potential that GESI initiatives offer for public sector reform and economic and social benefits to the society.

While many public sector organizations in the region have strong gender equality initiatives, they are typically limited, and are not practiced in the day-to-day operations.

Despite the fact that various public sector actors in the region have adopted and operated their institutional code of conduct, particularly anti-sexual harassment policies and employee grievance mechanisms, considerable additional focus and commitment are needed to achieve the potential that GESI initiatives offer for public sector reform and economic and social benefits to the society.

REGIONAL FINDINGS IN THE PRIVATE SECTOR

Figure 3 provides data on the female labor force participation rate (percent of female population ages 15+) (Modeled ILO Estimate) in selected SEA countries (2019). Figure 4 provides data on the male labor force participation rate (percent of male population ages 15+) (Modeled ILO Estimate) in selected SEA countries (2019).

As shown in Figures 3 and 4, women's labor force participation is generally lower than that of men throughout the region. These rates are not comparable internationally, reflecting that demographic, social, legal, and cultural trends and norms determine whether women's activities have an economic value to the society. In many low-income countries, women often work on farms or other family enterprises without pay. Others work in or near their homes, mixing work and family activities during the day. In many high-income segments, women have been increasingly acquiring higher education leading to better-compensated, longer-term careers rather than lower-skilled, shorter-term jobs. However, access to well-paying occupations for women remains unequal in many fields and countries worldwide. Labor force statistics by gender are essential to monitor gender disparities in employment and unemployment patterns and design interventions to address these disparities.

Labor force statistics by gender are essential to monitor gender disparities in employment and unemployment patterns and design interventions to address these disparities.

At a global and regional level, the presence of women in senior and managerial roles remains high in some of the countries in the region (Lao PDR, the Philippines and Thailand).[21] While the numbers of women in leadership positions vary by country, the Philippines has the highest number of women in politics and in the private sector.[22]

In the private sector in the region, women are generally performing better in leadership achievements in some of the countries. For example, Thailand has nine (9) percent of women CFOs, which grants it the

[21] Senior and managerial roles refer to the positions/roles where one manages and oversees a team and supervises more junior staff.
[22] Leadership positions refer to C-suite and managing director positions who are responsible for strategic direction and decisions of their organization.

third place in the Asia Pacific region, followed by the Philippines with eight (8) percent of women CFOs.[23] IDIs and FGDs conducted as part of this Activity found similar results.

Country	Most Recent Year	Most Recent Value	
Cambodia	2020	74	
Indonesia	2020	53	
Lao PDR	2020	75	
Myanmar	2020	43	
Philippines	2020	43	
Thailand	2020	59	
Vietnam	2020	70	

Source: World Bank Data (2021). (World Bank 2021, as cited in the ILOSTAT database.) (Data retrieved on February 8, 2022)[24]

Figure 3: Labor force participation rate, Female (percent of Female of population ages 15+ (Modeled ILO Estimate) in the selected countries in SEA (2020)

Country	Most Recent Year	Most Recent Value	
Cambodia	2020	86	
Indonesia	2020	82	
Lao PDR	2020	78	
Myanmar	2020	72	
Philippines	2020	67	
Thailand	2020	75	
Vietnam	2020	80	

Source: World Bank Data (2021). (World Bank 2021, as cited in the ILOSTAT database.) (Data retrieved on February 8, 2022)[25]

Figure4: Labor force participation rate, Male (percent of Male of population ages 15+) (Modeled ILO Estimates)

[23] HRM Asia. 2019. Asia-Pacific leads the world for female. https://hrmasia.com/asia-pacific-leads-the-world-for-female-ceos/
[24] https://data.worldbank.org/indicator/SL.TLF.CACT.FE.ZS?end=2020&locations=ID-PH-TH-LA-MM-VN-KH&start=1990&view=chart
[25] https://data.worldbank.org/indicator/SL.TLF.CACT.MA.ZS?locations=ID-PH-TH-LA-MM-VN-KH

The 2019 ILO enterprise survey found that women and men are concentrated in different middle and senior management functions. Still, women are over-represented in support management functions, including finance, administration, and human resources. Men usually hold decision-making positions at senior and leadership levels such as CEOs and top executives. Globally, the proportion of women in leadership positions is still low. Africa has the highest rank (39 percent) of the proportion of women in leadership positions, while the ASEAN region is a close second (38 percent) based on research conducted by Grant Thornton International in 2021.[26]

Table 7 provides data on the proportion of women in leadership positions in various geographic regions of the world. The ASEAN region's stance at thirty-eight (38) percent puts it above the global average of thirty (30) percent.

TABLE 7: PROPORTION OF WOMEN IN LEADERSHIP POSITIONS IN DIFFERENT REGIONS

Region	Africa	ASEAN	Latin America	European Union	North America	Asia Pacific
Percentage	39%	38%	36%	34%	33%	28%

Remark: The global average of women in leadership roles is thirty (30) percent.

Source: Women in Business 2021, Grant Thornton International[27]

At the global level, the women's labor force participation is much lower than that of men. According to an ILO study in 2018, about 60 percent of the global labor force comprised of men. The energy sector, both conventional energy and renewable energy[28], was dominated by men; however, renewable energy (RE) industries are more appealing to women as RE may provide more opportunities to women in the urban and rural areas. Globally, women represent 32 percent of the workforce in the RE industry. In contrast, only 22 percent of workforce consists of women in the conventional energy sectors (JRC, 2020 cited in IRENA, 2020).[29] Likewise, the percentages of women in STEM careers at the global, regional, and national levels are very low, especially in the engineering, technical, and leadership positions in energy sector.

There is a low representation of women in STEM areas and energy sector workplaces in the SEA Region.

[26] Grant Thornton International. 2021. Women in Business 2021. https://www.grantthornton.global/en/insights/women-in-business-2021/

[27] Grant Thornton International. 2021. Women in Business 2021. https://www.grantthornton.global/en/insights/women-in-business-2021/

[28] Conventional energy refers to energy sources that, once exhausted, do not replenish themselves within a specific period are called conventional or non-renewable energy sources like coal, gas, and oil. For a long time, these energy sources have been extensively to meet the country's energy demands. If the rate of consumption is much greater than the rate of formation, these sources of energy have been depleted and do not replenish themselves. Conventional sources of energy emit hazardous emissions that not only damage the earth's atmosphere but also deteriorate the health conditions of the people. Renewable energy refers to sources of energy that are replenished by a natural process after being used. These are renewable energy sources. These sources are solar energy, wind energy, geothermal energy, bioenergy (biomass, biogas, and biodiesel), geothermal energy, and hydro energy. Science Direct. 2016. Conventional Energy. https://www.sciencedirect.com/topics/engineering/conventional-energy

[29] Joint Research Centre (JRC). 2020. https://publications.jrc.ec.europa.eu/repository/handle/JRC120302.

Even though gender equality is a crucial element of the energy transition in the ASEAN, women's workforce participation in the energy sector is still limited at every level within the energy companies in the region.

> In heavy industries, the energy sector employers still prefer to recruit men rather than women for engineering and technical positions and on-site jobs in remote locations.

Findings from IDIs with CEOs, HR officers, and energy employees in Thailand, Indonesia, and the Philippines highlight that women in engineering and technical positions can perform any job as well as men. Additional research in the region indicates similar findings. Women have the proficient technical capacity and the skills to work harmoniously within teams and engage with a wide cross-section of stakeholders. They are also strong analytical thinkers and have a caring attitude toward their team members. Nevertheless, many employers in heavy industries and the energy sector still prefer to recruit men rather than women for engineering and technical positions. Women with engineering and technical graduate degrees may be recruited for jobs in the sales, purchasing, coordination or project development areas rather than in engineering and technical specialist roles.

Jobs in conventional energy, power transmission, and power distribution involve hard physical work, stressful working conditions, long shifts, night shifts, and recurring periods of absence from families, making them less desirable for women. There is also perceived bias that these working conditions may not fit women. Employers also perceive that energy jobs might not be the right choice for women, and it is more productive to employ men than women.

Spotlight on the Importance of Work-life Balance

Across the world, women engage in unpaid care work at a higher rate than men do. This unequal distribution of care responsibilities is linked to discriminatory social institutions and behavior that reinforces traditional gender roles. The same phenomenon holds true across the Southeast Asia Region. The struggle for women to reconcile care responsibilities with paid employment can lead to "occupational downgrading", where women choose employment below their skill level and accept poorer conditions (Hegewisch and Gornick, 2011). As such, employers that prioritize work-life balance benefit women employees in an equitable manner, allowing them to manage employment and other duties.

For example, in Thailand, labor laws include specific measures to protect women workers, such as prohibiting employers from hiring women to perform certain types of jobs in hazardous working conditions. Therefore, Thai women with engineering and technical education are discriminated against and eliminated from the hiring pool and recruitment process by many employers, especially those in the energy sector. Many energy companies are concerned with safety and protection measures beyond the requirements under Thai labor laws. For instance, Thai labor law prohibits pregnant women from working during the night shift. Therefore, the recruitment practices of companies dealing with energy or heavy industry prefer male candidates to fill engineering and technical positions that require night shift hours.

Another example in the region is the lack of women's participation in the energy field in Indonesia. According to the Indonesian Women's Coalition, women's participation in the energy sector still needs improvement. Based on data from the 2017 Indonesian Employment Report, the number of female workers in STEM has only reached 30 percent. It found two factors contributed to this occurrence.

First, local stakeholders tend to view women solely as uncritical energy consumers. For them, especially in rural areas, women only need to take care of the house and do not need to worry about other problems and responsibilities. Second, women's interest in working in the energy-intensive engineering sector is minimal. According to the study conducted by UNESCO, engineering and technical jobs are perceived as "laborious" work for women.[30]

Public sector employment may be more favorable to women's needs for work-life balance, offering workplace culture and benefits that the private sector generally does not offer.

Private-sector employees receive better salaries than public sector employees, particularly in energy companies. However, the public sector, particularly the SOEs, provides better medical and welfare benefits to employees and their family members. Also, the organizational culture and practices in the public sector facilitate "work-life balance" and promote women's wellness in the workplace better than those in the private sector. For instance, bringing children to the workplace is less common in the private sector, while the public sector promotes a "family-friendly work environment."

Another example in the region is Indonesia which has many SOEs. Some SOEs in Indonesia, such as Pertamina, highly consider the needs of working mothers, providing a childcare program to accommodate female and male employees. Apart from the leave days entitled to employees under the national labor laws, some energy companies also offer special leave for emergency family matters. Additionally, Pertamina has a budget allocation to facilitate the safety and well-being of employees and their family members. For example, there is a service hotline for counseling employees' spouses' mental health and well-being during the COVID-19 pandemic. Moreover, it should be noted that in Thailand and Indonesia, employees tend to prioritize salary and location when choosing a job, but in the Philippines, respondents uniformly prioritize benefits packages.

The energy sector worldwide is in transition. There is a strong move to decarbonize by gradually replacing fossil energy with clean, renewable energy. This transition is changing the energy industry structure and the skill sets needed among the new workforce, both significantly and rapidly. Klaus Schwab, the Founder of the World Economic Forum, has defined the arrival of the "Fourth Industrial Revolution", which includes a major shift of the energy sector to deploy clean fuels in all services, thereby advancing climate change and decarbonization. The Fourth Industrial Revolution, or "Industry 4.0", is transforming opportunities for women and girls to join energy sector workplaces.

Spotlight on the Fourth Industrial Revolution

According to Klaus Schwab, the Founder and Executive Chairman of the World Economic Forum, a Fourth Industrial Revolution, also known is "Industry 4.0" is oncoming. This revolution is characterized by a fusion of technologies that is blurring the lines between the physical, digital, and biological spheres. As technologies which increase the ease and efficiency of our lives become more accessible and widely used, the Fourth Industrial Revolution has the potential to raise global income levels and improve the quality of life for populations around the world.

[30] Publishing what you pay: Indonesia. 2021. Women's Challenge in Renewable Energy in Indonesia. (2021). https://pwypindonesia.org/en/womens-challenge-in-renewable-energy-in-indonesia/#easy-footnote-bottom-2-497008

The growth in RE is opening more opportunities for women, which requires determining interventions to advance opportunities for women pursuing STEM education and entering the energy sector. This, in turn, requires partnerships between educational institutions and energy employers to create more internships and entry-level positions for women. As more and more women enter the energy industry, employers need to develop mentorship programs to promote talented women into managerial roles and eventually to leadership positions.

Following the ASEAN Declaration on Industrial Transformation to Industry 4.0, many countries in the SEA region[31], particularly the middle-income countries like Thailand, Indonesia, and the Philippines, adopted new policies and programs on vocational education systems and skill development of workers, such as the Thailand 4.0 policy and Indonesia Industrial 4.0 policy. This is a response to the rapid change in technology, industries, societal patterns, and processes in the 21st century due to increasing interconnectivity, smart automation, and the emergence of digital products. In this regard, STEM education is considered essential for increasing employment opportunities for women and girls in the energy sector.[32]

At the same time, the ASEAN energy industry has aggressively started the transition process as evidenced by a rapidly growing renewable energy industry. This growth is opening more opportunities for women, which requires determining interventions to advance opportunities for women pursuing STEM education and entering the energy sector. This, in turn, requires partnerships between educational institutions and energy employers to create more internships and entry-level positions for women. As more and more women enter the energy industry, employers need to develop mentorship programs to promote talented women into managerial roles and eventually to leadership positions.

REGIONAL FINDINGS IN HIGH SCHOOLS AND TERTIARY-LEVEL EDUCATIONAL INSTITUTIONS

The Southeast Asian Ministers of Education Organization (SEAMEO) is a regional intergovernmental organization established to promote regional cooperation in education, science, and culture in ASEAN. SEAMEO also established a Regional Centre for STEM Education (STEM-ED) to serve a crucial role in developing, maintaining, and strengthening capacities in STEM education in the SEA countries. Nevertheless, the integrated STEM education approach in the SEA countries usually does not receive sufficient national attention. National law and policy frameworks barely addressed this matter, and policymakers did not pay strong attention to STEM integration.[33] Another study also revealed that students in Asia Pacific have a strong interest in STEM, but both the students and their teachers need more resources.[34]

Findings from IDIs suggest common gender barriers in the education system. There is a high rate of educational abandonment at the tertiary level among girls and young women due to poverty, child marriage, uncertainty of job prospects, and unplanned pregnancy. The lack of educational options for girls and young

There are common gender barriers to education across the SEA region.

[31] ASEAN. 2019. the ASEAN Declaration on Industrial Transformation to Industry 4.0, many countries in SEA region (2019). https://asean2019.go.th/en/news/asean-declaration-on-industrial-transformation-to-industry-4-0/
[32] Philippines Commission on Women (PCW). 2020. Gender and Development (GAP) Budget Report, Fiscal Year 2019. https://www.coa.gov.ph/gad/resources/news/GAD_Budget_Report_FY_2019.pdf
[33] https://www.bangkokpost.com/thailand/general/2083287/asean-centre-urges-integration-sustainability-in-stem-education-courses
[34] https://www.nyas.org/press-releases/stem-education-in-asia-pacific-study-reveals-strong-student-interest-in-stem-but-students-and-teachers-need-more-resources/

women is also playing a critical role, especially for low-income families in urban and rural areas. Child marriage and early marriage of girls and young women also occur in conservative communities in the SEA region. For example, this is especially the case in West Java in Indonesia, the southern Muslim-majority provinces of Thailand, and Mindanao in the Philippines. [35] [36]

Regarding education disparity in the region, Thailand, Indonesia, and the Philippines generally have legal and policy frameworks for free and compulsory education for at least some levels of primary education for both boys and girls. However, integrating the promotion of gender sensitivity and gender equality into the school curriculum and learning pedagogy is a persisting challenge in the education system. Furthermore, the COVID-19 pandemic has significantly contributed to educational disruptions, affecting over 168 million children globally, with schools closing for almost one (1) full year. Approximately, five (5) percent of instruction days were taken away from children globally. In East Asia and the Pacific, schools were closed for an average of 56 instruction days and remained partially closed for another 70 instruction days from March 2020 to February 2021.[37]

> Education disparity is still present in underserved communities throughout the SEA region, most notably in Thailand, Indonesia, and the Philippines.

Online courses for students in the region have been offered, but school dropout rates are still high and new enrollment rates are also low. This, in many cases, is caused by the economic hardship of parents. Opportunities to access online education for children from all countries in the region are also limited. Children from families living in poverty and remote areas face difficulties in continuing their education as parents cannot afford mobile phones, tablets, and laptops for their children.

Figure 5 provides data on the enrollment of tertiary students in STEM areas in ASEAN (engineering, manufacturing, and construction programs). Malaysia has the highest enrollment of women by far at 15 percent of the total STEM enrollment which is 35 percent of the total student enrollment. Thus, women's enrollment in STEM is almost at 50 percent of the total STEM enrollment. Cambodia ranks the lowest with only eight (8) percent of the tertiary students enrolling in STEM of which women enrollment is approximately ten (10) percent compared to men at 90 percent. In Indonesia, a total of 15 percent of tertiary students are enrolled in STEM of which 25 percent are women students; in the Philippines, the percentage is 28 percent and a bit less than a third are women; and in Thailand, the percentage is 26 percent and approximately 20 percent are women.

REGIONAL ENERGY LANDSCAPE IN THE ASEAN REGION AND OPPORTUNITY FOR ADDRESSING GENDER GAPS

Globally, the ASEAN region is one of the fastest-growing regions with a significant demand for energy for moving their economies, especially in the middle-income countries like Thailand, Indonesia, and the Philippines. At the same time, the energy sector is in transition with the RE share expected to grow rapidly. This sector growth and transition offer ASEAN the opportunity to enhance women's participation in the energy sector by addressing the prevailing gender gaps and challenges.

[35] https://theaseanpost.com/article/how-buy-thai-child-bride
[36] https://www.bangkokpost.com/world/2012359/indonesias-child-bride-problem
[37] https://data.unicef.org/resources/one-year-of-covid-19-and-school-closures/

The total primary energy supply (TPES) in the region is dominated by fossil fuels as shown in Figure 6. In 2017, oil had the largest share of TPES, with more than 35 percent for the share of total energy in the ASEAN region, while gas and coal contributed approximately 20 percent each. Biofuels hold the highest share of renewable sources at 18.4 percent, followed by geothermal and hydro at 4.58 percent and 2.16 percent respectively. Other underutilized sources of renewable energy (solar and wind) amounted to less than one (1) percent share of the total.

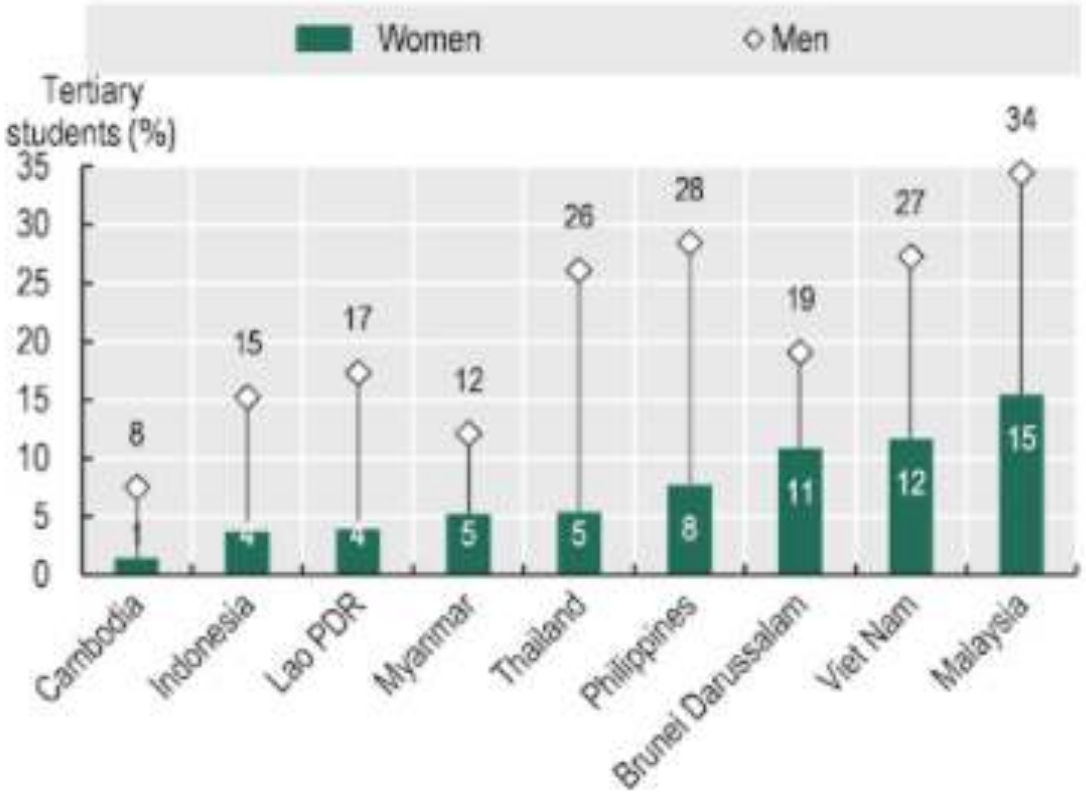

Figure 5: Enrollment of tertiary students in STEM areas in ASEAN (engineering, manufacturing, and construction programs)[38]

Source: The SIGI 2021 Regional Report for Southeast Asia (OECD, 2021 cited in World Bank, 2018, Human Capital Index & UNESCO, 2020)[39]

Indonesia, Malaysia, Thailand, and Vietnam have the highest energy needs in the region. However, all four (4) countries depend heavily on either oil, gas, or coal. On the other hand, Cambodia, and Burma, rely more on renewable energy sources, particularly, on biofuels and waste. Malaysia and Vietnam are leading the way in terms of hydropower projects, and Indonesia has the largest geothermal sector, followed by the Philippines, in the ASEAN. Energy trading has been growing in the region due to the rise of the People's Republic of China (PRC) and India.

According to the ASEAN Center for Energy (ACE), coal and gas are the essential energy commodities for export. Malaysia and Vietnam are the leading exporters of gas. Indonesia exports considerable

[38] Data cover different years depending on the country, as follows: Cambodia, Indonesia, Lao PDR, Malaysia, and Myanmar (2018); the Philippines (2017); Thailand and Viet Nam (2016); Brunei Darussalam (2014). Data are missing for Singapore and Timor-Leste. Countries are ordered by increasing shares of women enrolled in engineering, manufacturing, and construction programs.
[39] OECD. 2021.The SIGI 2021 Regional Report for Southeast Asia. Social Institutions and Gender Index in the Southeast Asian region. https://www.oecd-ilibrary.org/sites/b01a4f2f-en/index.html?itemId=/content/component/b01a4f2f-en#chapter-d1e3669

amounts of coal. The Lao PDR is a hydropower exporter in the region, whereas Thailand and the Philippines import energy commodities, particularly oil and gas.[40]

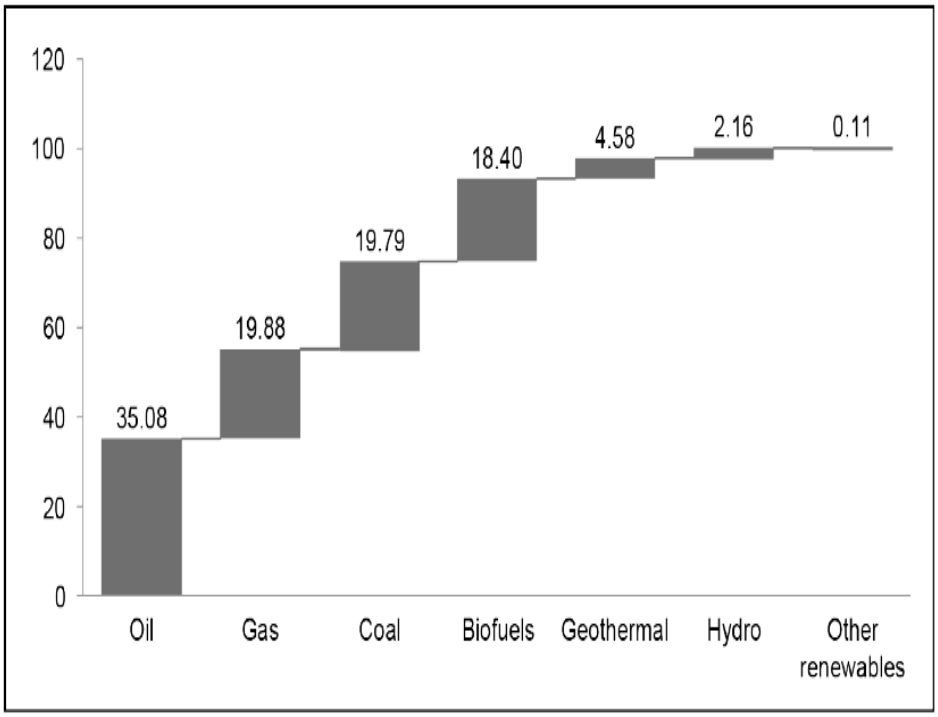

Figure 6: ASEAN Primary Energy Supply Structure by Fuel (2017) (precent)

Source: Compiled from IEA 2019 World Energy Statistics and Balances.

Regional collaboration, and coordination initiatives among ASEAN member countries, particularly the ASEAN Plan of Actions for Energy Cooperation (APAEC), have been established, formulated, and subsequently updated from 1999 until now. The theme of this plan is "enhancing energy connectivity and market integration in ASEAN to achieve energy security, accessibility, affordability, and sustainability for all." (Tongsopit et al. 2016, cited in ADB 2021).[41]

The current cooperation in the energy sector within the region is directed by the ASEAN Plan of Action for Energy Cooperation (APAEC) Phase II: 2021-2025. Under this plan, ASEAN is committed to reinforcing the efforts to meet the target of 23 percent RE share in total primary energy supply and 35 percent RE share in the total installed power capacity by 2025.

[40] Asian Development Bank (ADB), 2021. An Energy Policy for ASEAN? Lessons from the EU Experience on Energy Integration, Security, and Decarbonization (2021). https://www.adb.org/publications/energy-policy-asean-lessons-eu-experience-energy-integration-security-decarbonization

[41] Asian Development Bank (ADB), 2021. ADB Working Paper Series: An Energy Policy for ASEAN Lessons from the EU Experience on Energy Integration, Security and Decarbonization. (2021) https://www.adb.org/sites/default/files/publication/680046/adbi-wp1217.pdf (page 10)

ASEAN, in partnership with other regional entities, is in the ideal position to explicitly integrate GESI in the ASEAN Plan of Action for Energy Cooperation (APAEC) for region-wide gender integration in the energy sector. RDMA is well placed to foster meaningful collaboration with the ASEAN at the nexus of energy, gender, and climate change.

The APAEC mainly focused on energy cooperation and therefore gender and social inclusion issues have not yet mainstreamed into its strategies and action plans. ASEAN is in the ideal position to explicitly integrate GESI in APAEC for region-wide gender integration in the energy sector and RDMA is well placed to foster meaningful collaboration with the ASEAN at the nexus of gender, energy, and climate change.

Specifically concerning the gender gap in the energy sector in SEA, ASEAN recognizes that gender equality is an important element of energy transition and the limitation of women's participation in the energy sector must be eliminated. The ASEAN Climate Change and Energy Project (ACCEPT) was established under ACE aiming to promote the importance of gender equality in the energy transition by asking for perspectives from women who work as policymakers, academies, and leaders in state-owned and private sector companies (ASEAN: 2021).[42]

Collaboration with ASEAN can address the gender gap in the energy sector at the regional level. Given that E4SEA is the first regional activity exclusively devoted to the gender-energy nexus, RDMA has a great opportunity to collaborate with the ASEAN for wider regional GESI impact.

Collaboration and coordination between ASEAN Socio-Cultural Communities in education, labor, and gender with ASEAN Energy Cooperation and ASEAN Center for Energy are still limited since there are no integrated work plans and action plans on gender integration across ASEAN pillars and agencies.[43] [44] This creates a good opportunity for the E4SEA Activity and RDMA to collaborate with the ACE to advocate gender integration in the energy sector and facilitate the design of new programs to explicitly promote GESI in policy development, planning, and programming.

Men dominate the energy sector in the ASEAN countries. To empower women in the energy sector, it is important to build a network - a community of women in the energy sector for exchanging experiences, sharing knowledge, and networking for access to career advancement and other opportunities. At the global level, the Global Women's Network for the Energy Transition (GWNET) was established to empower women in the energy sector through interdisciplinary networking, advocacy, training, coaching, and mentoring. GWNET seeks to address the current gender imbalances in the energy sector and promote gender-sensitive action around the energy transition in all parts of the world.[45]

The ASEAN energy network and operational mechanisms are in place, but these are lacking for women. There is an attractive opportunity to develop a specific ASEAN energy network and a dedicated program for "women" in the energy sector.

[42] ASEAN and Climate Change and Energy Project (ACCEPT). 2021. ASEAN Women in Energy-Climate (2021). https://accept.aseanenergy.org/women-energy-climate
[43] ASEAN. 2020. ASEAN Socio Cultural Community. (2020). https://asean.org/our-communities/asean-socio-cultural-community/
[44] ASEAN. 2021. Centre for Energy. (2021). https://aseanenergy.org/introductions/
[45] Global Women's Network for the Energy Transition (GWNET). 2021. https://www.globalwomennet.org/about-gwnet/

Equivalent to GWNET in the Asia-Pacific region, Women in Energy, Asia (WIEA) was established to give women professionals in the energy sector a platform to grow their industry network and foster their careers through mentoring, training, role-modeling, and professional development.[46] At the ASEAN regional level, ASEAN institutions and mechanisms on energy networks like ACE and ACCEPT have been established and are functional. However, there is no specific ASEAN energy network or initiatives to promote mechanisms or programs for women in the energy sector.

In Indonesia, for example, several energy networks, particularly networks of women engineers and energy professionals, have been established and are actively operating at the national level. As a large and resource rich country, Indonesia has several networks in the energy sector including the Institution of Engineers Indonesia (PII), the Society of Women Engineers (SWE) Jakarta, and the Society of Renewable Energy (SRE). Women in Mining and Energy (WIME) is a unique Indonesian organization that serves as a strategic hub for forming collaborations with companies, governments, and other relevant stakeholders through education and knowledge management to benefit gender advocacy efforts in the mining and energy sectors.[47] Women in Geothermal (WING) was established in the United States as a not-for-profit, and volunteer-based organization focused on promoting women's education, professional development, and advancement in the geothermal industry. WING has almost 200 members from 48 countries, including Indonesia and the Philippines. Since Indonesia remains focused on becoming the world's top-ranking geothermal country, the geothermal community is constantly growing.[48] WING Indonesia is actively engaging more Indonesian women in educational and career advancement in the geothermal industry.

> National networks of women engineers and women professionals in the energy industry actively operate in selected ASEAN countries. There is a need to promote such networks and develop a regional network of women in energy and women engineers that could serve as a key platform for GESI in the energy sector. RDMA could consider convening a donor conference to explore how a strong regional network dedicated to women's equality in the energy sector could be established in the region.

Women's engineering networks operate at the national level in most countries in the region. In Thailand, the Thai Women Engineers Alliance (TWEA) was founded in 2006 by a group of Thai women engineers. TWEA aims to support and promote the engineering profession among women and girls and conduct networking with Thai women engineers.[49] In the Philippines, the Women Engineers Network (WEN) is an organization of women engineers representing the national engineering organizations under the umbrella of the Philippines Technological Council (PTC) and the Women Engineers of the ASEAN Federation of Engineering Organizations (WEAFEO). The PTC aims to promote understanding, goodwill, and cooperation among women engineers, exchanging experiences and ideas, and supporting the objectives of the PTC and WEAFEO.[50] These entities, largely national in structure, offer many lessons learned that could be used to develop an effective regional network dedicated to advancing women's entry and growth in the transitioning energy sector in the region.

[46] Women in Energy Asia (WEIA). 2020. https://www.womeninenergyasia.com/
[47] Women in Mining & Energy (WIME). 2021. https://wimeindonesia.id/about/
[48] Women in Geothermal (WING), 2021. https://womeningeothermal.org/about-wing/#
[49] Thai Women Engineers Alliance (TWEA). 2021. https://www.facebook.com/twea.wethai/about/?ref=page_internal
[50] The Women Engineers Network. PTC WEN. 20201. https://2021apnn.wenph.org/web-agency-gb-about-us/#:~:text=PTC%20WEN%20or%20the%20Women,of%20Engineering%20Organization%20(WEAFEO).

Many IDI participants from energy networks highlighted that multinational companies, especially those in the energy sector, have incorporated GESI policies and plans to promote gender equality, inclusive workplaces, and leadership opportunities for women. Gender equality is a key component in the adherence to Sustainable Development Goals (SDGs) and Environmental, Social, and Governance (ESG) investment criteria, which have become mainstream for corporate reputation. In addition, large global companies are increasingly responding to sustainability rankings such as the Dow Jones Sustainability Indices (DJSI) with the development of ESG strategies, performance, and reporting. As a result, grievance and other safeguard mechanisms are established and monitored for sustainability disclosure. Leading multinational energy companies have strong initiatives and take serious actions to ensure the safety and well-being of employees and local communities, especially women and children.

> Global standards and national stock market requirements encourage multinational energy companies to take proactive action in advancing gender equality in ASEAN. Government, donors, and the ASEAN should capitalize on this momentum to forge effective partnerships with the energy industry based on the models and best practices developed under Engendering Industries (EI) and E4SEA.

There is an opportunity to devise a regional "Gender Index" or a "Gender Metric" for GESI in the energy sector that could be voluntary, and a targeted communications and outreach campaign could be launched for the energy industry to participate in achieving high rank based on such a metric or index.

GENDER EQUALITY FROM A REGIONAL PERSPECTIVE: ACHIEVEMENTS, CHALLENGES, AND RECOMMENDATIONS

Based on the analysis of data and information gathered from secondary research (desk research and literature review) and primary research through IDIs, FGDs, and a baseline citizen survey, this section summarizes the achievements, challenges, and recommendations to enhance GESI and opportunities for women to enter and prosper in the transitioning energy sector in the SEA Region. The discussion is organized by the GESI: 1) Law and Policy, 2) Access to Resources, 3) Power and Decision-Making, 4) Role and Responsibilities, 5) Knowledge and Beliefs, and 6) Human Dignity Including Gender-Based Violence.

LAW AND POLICY

Table 8 summarizes the regional achievements, challenges, and recommendations in the law and policy domain.

TABLE 8: LAW AND POLICY

ACHIEVEMENTS

- In general, in the SEA region, most countries have appropriate laws and policies governing gender equality, social inclusion, and non-discrimination. In addition, there are labor and employment laws that require safety and security for employees. They also provide workers and employees both in the public and private sectors avenues for reporting any discrimination, harassment, and GBV. Despite this achievement, the implementation of these laws and policies widely varies across the region and needs significant strengthening.
- The Philippines Magna Carta of Women (Republic Act No.910) and the Philippine Commission on Women (PCW) are the most robust national law and national gender machinery for gender equality advancement and women's empowerment. Other countries in the region have not enacted similar national-level laws and institutional mechanisms on women's rights. Thailand and the Philippines successfully enacted national laws on GESI, and non-discrimination based on sexual orientation, gender identity, and expression (SOGIE).
- A success story in the Philippines is the DOE's Gender Mainstreaming Toolkit for the energy sector, which aims to increase women's participation in RE systems and promotes STEM and energy-related courses among high school girls.
- Unlike other countries, Indonesia's laws and policies successfully use a quota system and timebound targets, to increase women's participation in the public sector and workforce.

CHALLENGES

- There is a lack of regional level gender-responsive energy policy frameworks in the SEA region. Although, policy frameworks and institutional mechanisms on gender equality and energy issues exist, they are implemented and operated in silos and sometimes not implemented at all.
- No law prohibits women from working in a wide range of energy operations; however, some employers do not consider employing women for technical and engineering jobs, especially in the energy sector.
- Safety concerns discriminate against women's options for performing engineering and technical duties in energy sector workplaces, especially in remote facilities and during nighttime hours.
- Some provisions under the Thai Labor Law indirectly discriminate against women's employment in energy sector workplaces. Many employers overreact to the legal requirements under the law on labor protection of women and shy away from recruiting women for jobs requiring technical/engineering background.
- In many high schools and tertiary educational institutions, gender policies are rarely adopted and formulated into action.
- Specific policies and programs on gender equality promotion, particularly women's career advancement and leadership promotion, are still insufficient across all sectors of the economies in the region.

- Effective gender and social inclusion integration in the energy sector at national and regional levels requires a robust legal and policy framework, comprehensive institutional mechanisms, and strong women's networks in this arena that are largely non-existent.

RECOMMENDATIONS

- In the SEA region, there is a compelling need for strengthening laws and policies to achieve GESI in the energy sector. This requires regional networking, a strong partnerships between government, donors, and the energy industry and commitment to attaining GESI. This is all the more important as the energy sector makes a significant transition to RE, given the strong climate change initiatives in the region.
- In parallel, well-designed capacity building programs are needed to build the capacity of regional governments and institutions in gender mainstreaming in program design.
- Engagement with project partners and collaboration with key stakeholders at national and regional levels is critically needed to foster a dialogue on gender-responsive energy policy frameworks in the SEA region.
- Events and fora for sharing knowledge and experience should be organized to promote STEM education and women's employment in energy sector workplaces.
- Research addressing factors hindering women's employment in the energy sector should be carried out and the knowledge should be widely shared in the region.
- Technical support for promoting gender equality, safety, and inclusive learning for students, as well as an inclusive working environment for employees, should be provided. This may include a variety of targeted and customized interventions across the region.

The following provides a more detailed discussion on the regional gender issues related to "Law and Policy":

ACHIEVEMENTS

As mentioned earlier, there is a recognition of the importance of GESI in all countries in the region. Indeed, most of them have adequate laws and policies to address discrimination and gender-based exclusion and violence. One of the most significant achievements in the region is the 2021 ASEAN Member States Gender Mainstreaming Strategic Framework (GMSF) 2021-2025.[51] The FSMF focuses on internal elements of ASEAN policies, practices, and organizational culture, alongside external considerations, to support Member States' gender mainstreaming efforts.

Two impressive examples of achievements regarding legislative improvements across the region to advance gender equality are 1) the Magna Carta of Women (MCW) and 2) the Philippine Commission on Women (PCW), both in the Philippines. The MCW (Republic Act No.910), established in 2006 in the Philippines, is the most robust national law advancing gender equality. The PCW, established in 1975, is the most effective national gender entity for gender equality advancement and women's empowerment in the country. Figure 7 illustrates the key features of MCW.

[51] ASEAN Gender Mainstreaming Strategic Framework 2021-2025. September 2021. https://asean.org/wp-content/uploads/2022/01/ASEAN-Gender-Mainstreaming-Strategic-Framework-endorsed-by-AMMW.pdf

The MCW includes institutional mechanisms for protecting and advancing women's human rights in the Philippines. Other countries in the SEA region have not yet enacted and implemented similar mechanisms. The PCW is the primary policymaking and coordinating body on women and gender equality concerns. The MCW and the PCW are some of the most crucial initiatives facilitating the significant success of gender integration across government sectors in the Philippines.

The Magna Carta of Women (Republic Act No.910) and the PCW are the most robust national law, and the PCW is the most robust national gender machinery for gender equality and women's empowerment in the Philippines.

Figure 7: Key Features of the Magna Carta of Women

In Thailand, for example, the enactment of the Gender Equality Act of 2015 promotes gender equality and social parity for women and other socially excluded persons. This Act afforded women, men, or any lesbian, gay, bisexual, transgender, queer, and intersex (LGBTQI+) persons the ability to file lawsuits for compensation or punitive action if they faced discrimination and mistreatment from any educational or government institution.[52]

Thailand and the Philippines successfully enacted national laws on GESI, and non-discrimination based on sexual orientation or gender identify or expression (SOGIE).

The Prevention and Solution of the Adolescent Pregnancy Problem Act 2015 in Thailand addresses the challenge of school dropout among girls and young women in Thailand due to teenage pregnancy by protecting the rights of pregnant students to receive instruction in a "suitable and continuous manner." In the Philippines, the Comprehensive Anti-Discrimination Bill (2020) eliminates any harassment and human rights violation against women, girls, LGBTQI+ persons, and other socially excluded persons based on discrimination.[53]

[52] E4SEA.2021. IDIs with Stakeholders in Thailand. 2021.
[53] Philippines Commission on Women (PCW). 2021. https://pcw.gov.ph/enacting-the-anti-discrimination-based-on-sogie-act/

In 2016, the DOE (the Philippines) launched the Gender Toolkit for Energy to create a gender-equal work environment in the energy sector and guide the integration of gender equality in various government-sponsored programs. The gender checklist in the Toolkit ensures gender sensitivity or responsiveness in the design of energy sector programs. The Gender Mainstreaming Evaluation Framework (GMEF) in the Gender Toolkit guides mainstreaming the gender perspective and integrating GAD goals in the main business of DOE and its bureaus, attached agencies, and offices. It ascertains the level of gender integration efforts and identifies organization-focused issues that need to be addressed to make progress and achieve transformative organizational and industry changes. These documents guide the government agencies' GAD annual planning and gender audits.

In the Philippines, the Department of Energy (DOE) provides a Gender Mainstreaming Toolkit for the energy sector that has the objective to increase women's participation in renewable energy (RE) systems and promotes STEM and energy-related courses among high school girls.

The DOE implements the policy of increasing women's participation in RE systems by providing capacity building and technical assistance and conducting quarterly monitoring. In cooperation with the Department of Education (DepEd), schools, and the Girl Scouts of the Philippines, the DOE promotes STEM and energy-related courses among high school girls (DoE Annual GAD Plan and Budget, 2018).

Another example of a regional achievement in promoting women's leadership opportunities is Indonesia's Article 55 of Law 8/2012. This Law stipulates that at least 30 percent of the candidates for the members of the House of Representatives must be women. Currently, 21 percent of seats in the House of Representatives are held by women. The Ministry of State-Owned Enterprises is recognized as an agent of change in promoting women's empowerment. The Ministry has set and achieved the target of 15 percent of women leaders in SOEs by the end of 2021. It has a 2023 target of 20 percent women as leaders in SOEs, including seven (7) state-owned energy companies. There is also a 2023 target of five (5) percent Millennials on the Board of the Directors, and 15 percent female workers in SOEs. As a result of these laws and policies, many changes have already occurred.

Indonesia's laws and policies use a quota system and timebound targets to increase women's participation in the public sector and workforce.

CHALLENGES

Overall, discriminatory factors such as social norms, and cultural practices continue to persist in SEA. The SEA's Social Institutions and Gender Index (SIGI) score – denoting its level of discrimination in social institutions – is 35, in line with the score for Asia as a whole (36). However, it remains significantly higher than the level of discrimination encountered in Europe (17), Northern America (18), and Latin America and the Caribbean (27). Within Asia, Southeast Asia scores better than West Asia (41) and South Asia (48), but it trails behind East Asia, which has a score of 22. The cost of discriminatory social institutions in

Discriminatory social institutions persist in Southeast Asia.

Southeast Asia amounts to around USD 200 billion per year, accounting for 7.5 percent of the regional gross domestic product (GDP).[54]

The ASEAN Declaration on the Gender-Responsive Implementation of the ASEAN Community Vision 2025 and SDGs is a regional policy that aims to reaffirm the commitments of individual ASEAN Member States to the global development standards on GESI. It also acknowledges gender equality and the empowerment of all. Women and girls are at the center of the 2030 Agenda for Sustainable Development, and the agenda recognizes that gender equality is a precondition for the realization of sustainable development.[55] Under this Declaration, ASEAN Member States must implement gender-responsive policies, plans and actions to complement their achievement under the ASEAN Community Vision 2025 and SGDs.

There is a lack of regional gender-responsive energy policy frameworks in the Southeast Asia region. Specific policy frameworks and institutional mechanisms on gender equality and energy issues exist; however, they are implemented in operational silos and sometimes not implemented at all.

In addition, the ASEAN Committee on Women (ACW) is a sectoral body charged with implementing, coordinating, and monitoring the implementation of ASEAN's regional priorities related to women's issues at various levels of political, economic, and social life.[56] These ASEAN policy frameworks and mechanisms for gender equality address the strategic direction of gender integration into ASEAN policy and program interventions across sectors. However, it is only limited to gender and climate change issues, and currently is not integrated into the energy policy framework and plans. For instance, the ASEAN Plan of Actions for Energy Cooperation (APAEC) mentions gender and social inclusion issues but does not mention any specific strategies or actions related to it. [57] Existing mechanisms in the energy sector like ACCEPT and ACE mainly focus on promoting gender-responsiveness in regional energy coordination at the level of program activities under the ASEAN-German Energy Programme (AGEP).[58]

There are no laws in the region that specifically prohibit women from working in offshore operations, oil rigs, power plants, and handling electric utility high voltage equipment. However, some employers, especially in Thailand, are very concerned about women's safety and deny or rarely recruit female engineers, electrical, or technical professionals in such a working environment. The Thai labor law and company regulations prohibit pregnant women from working during night shifts. Findings from the FGDs and IDIs with energy employees in the region reveal that, in

No laws prohibit women from working in a wide range of energy operations; however, some employers do not consider employing women engineers for jobs requiring technical and engineering work.

[54] https://www.oecd-ilibrary.org/sites/b01a4f2f-en/index.html?itemId=/content/component/b01a4f2f-en
[55] ASEAN. 2017. ASEAN Declaration on the Gender-Responsive Implementation of the ASEAN Community Vision 2025 and Sustainable Development Goals (2017) https://asean.org/wp-content/uploads/2017/11/7.-ADOPTION_ASEAN-Declaration-on-the-GR-Implementation_CLEAN_Sept.8-2017_for-31st-Summit_CLEAN.pdf
[56] ASEAN. 2020. Major Sectoral Bodies/Committees. 2020. https://asean.org/our-communities/asean-socio-cultural-community/gender-rights-of-women-and-children/major-sectoral-bodies-committees/
[57] ASEAN.2021. ASEAN Centre for Energy 2021. https://aseanenergy.org/2016-2025-asean-plan-of-action-for-energy-cooperation-apaec/
[58] AGEP. 2020. Promoting Gender Responsiveness in ASEAN-German Energy Programme (AGEP) (2020). Promoting Gender Responsiveness in ASEAN-German Energy Programme (AGEP) https://agep.aseanenergy.org/promoting-gender-responsiveness-in-asean-german-energy-programme-agep/

general, Thai female employees are rarely recruited to do full-time work in power plants or major energy facilities where night shifts are required.

Safety issues are a crucial concern of energy companies. In particular, energy sector workplaces in SEA countries greatly consider the safety of their female staff but also strongly empower and support women to perform technical roles and responsibilities in energy missions and operations. Female engineers and geologists can perform risky tasks if safety policies and safeguard measures are appropriately practiced at the workplaces. In general, safety, security and safeguarding policies and measures to protect and to prevent harmful situations faced by employees, especially women, are strictly applied in institutional practices across the region.

> Safety concerns lead to discrimination against women in engineering and technical duties in energy sector workplaces.

Nonetheless, legal protections and organizational practices aiming to protect women, for example those in Thailand, may also discriminate or eliminate women from being employed in engineering and technical jobs or the types of work traditionally carried out by men. These jobs include oil drilling, power generating operations, and work that requires heavy physical tasks or long hours or night shifts. Some energy companies operate overseas, and male employees are usually deployed in such assignments due to socio-cultural, legal factors, and safety issues.

In Thailand, the Thai Labor Protection Act has specific provisions for female workers. The law prohibits employers from employing female workers to perform what it deems dangerous work, such as mining, underwater construction, work inside caves or other similar jobs. Exceptions to such prohibitions are allowed if the work does not cause harm to women who will carry out certain activities. The Thai Labor Protection Act prohibits employers from employing pregnant women to work during night shifts and work involving heavy machinery, and risky situations.

> Some provisions under the Thai labor law, for example, indirectly discriminate against women's employment in the energy sector.

Typically, energy sector workplaces in SEA do not focus on career advancement and leadership programs for women. These might include special programs for strengthening technical capacity, mentoring, and coaching. In general, private-sector employees receive better salaries than public sector employees. However, the public sector, particularly state-owned utilities, provides better medical and welfare benefits to employees and their family members. Also, the organizational culture and practices in the public sector facilitate "work-life balance" and promote women's wellness in the workplace better than those in the private sector. For instance, bringing children to the workplace is less common in the private sector, while the public sector aims to promote a "family-friendly work environment" and provide onsite childcare facilities and private rooms for breastfeeding.

> Specific policies and programs on gender equality, particularly career advancement and leadership promotion for women, are still insufficient.

Integrated STEM education needs more attention from policy makers in the Southeast Asian countries.

SEAMEO has established a Regional Centre for STEM Education (STEM-ED) to serve a crucial role in developing, maintaining, and strengthening capacities in STEM education in SEA countries. Nevertheless, the integrated STEM education approach in the SEA countries usually does not receive sufficient national attention. National law and policy frameworks barely addressed this matter, and policymakers do not pay adequate attention to STEM integration. Another study also revealed that students in the Asia Pacific have a strong interest in STEM, but both the students and their teachers need more resources to advance STEM education opportunities for women.

Effective gender integration in the energy sector at the national and regional levels requires a robust legal and policy framework, comprehensive institutional mechanisms, and strong women's networks.

Energy sector workplaces, especially in the region, mainly focus on providing welfare support and benefits for attracting and retaining female employees. However, they do not generally focus on career advancement and leadership programs for women such as special programs for strengthening technical capacity, mentoring, and coaching. Thus, these benefits fall short of promoting gender equality in the energy sector.

The Philippines' achievement in gender integration clearly highlights lessons learned about significant factors facilitating successful gender integration in the energy sector and other male-dominated sectors at the country and regional levels. It requires a robust legal and policy framework, and a comprehensive institutional infrastructure at the national and regional levels. It also requires people to serve as focal points for coordination and making high-level decisions on gender and development issues, gender-disaggregated database systems for monitoring, and institutionalized gender-responsive budgeting. Furthermore, strong national networks of women's movements led by empowered women who can serve as role models can serve as game-changers in the energy sector.

RECOMMENDATIONS

Engagement with project partners and collaboration with key stakeholders at national and regional levels is needed for fostering a dialogue on a gender-responsive energy policy framework in SEA region.

Because there is a lack of a regional gender-responsive energy policy framework in the SEA region, further engagement with the E4SEA Activity partners and collaboration with key stakeholders at the national and regional level like ACCEPT, ACE and AGEP, could be carried out for fostering dialogue on gender-responsive energy policy frameworks. E4SEA plans to collaborate with a few regional partners on targeted GESI interventions. However, significant additional programs are needed to address the wide gender gaps that continue to exist in SEA.

There is a need to effectively leverage the framework laid out in the ASEAN Gender Mainstreaming Strategic Framework (GMSF) 2021-2025 for reviewing national-level policies to ensure that the policies align with the framework's goals and objectives. This provides RDMA with an opportunity to begin a dialogue with the ASEAN for collaborative programming.

Region-wide knowledge exchange events such as webinars could be held for key stakeholders from the energy sector and educational institutions to exchange views and share experiences on women's employment in engineering and technical areas. This will also provide career guidance for women and girls who want to pursue careers in the energy sector.

Events and fora for sharing knowledge and experience should be carried out for promoting women employment in energy sector workplaces.

The factors that hinder women's employment in energy sector workplaces are many and varied. Further research could help identify pain points and solutions from the perspectives of employers and employees. Companies can conduct exit interviews and employee surveys to understand why women leave their jobs or understand gendered differences in employee satisfaction and employee perspectives on how the energy employers could better support them. These surveys and results will only be helpful if the energy employers act in a gender-responsive manner by integrating the feedback into their corporate policies and operations.

Research on factors hindering women's employment in the energy sector should be carried out and acted upon through regional initiatives across the SEA region.

There is an opportunity for the E4SEA Activity to provide technical support to high schools, tertiary educational institutions, and energy sector workplaces to develop, adopt and formulate gender-related policies for promoting gender equity and gender equality. E4SEA is currently engaged in implementing key interventions with partners from the region's energy industry and tertiary educational institutions. These partnerships need to be further expanded throughout SEA.

Technical support on the promotion of gender equality, safety and inclusive learning for students and an inclusive working environment for employees should be provided.

ACCESS TO RESOURCES

Table 9 summarizes the regional achievements, challenges, and recommendations in the area of "access to resources".

TABLE 9: ACCESS TO RESOURCES

ACHIEVEMENTS
• In general, access to resources in public and private sector operations lacks gender equality. More resources are available to males than females in education and employment in the energy sector. • The Philippines is a notable exception in that the country has achieved significant success in formulating gender responsive budgeting into institutional practices across government agencies and programs. The private sector also adopts these practices by allocating internships and other financial incentives for women to advance in their careers.
CHALLENGES
• Poverty and social disparity are fundamental root causes of gender inequality. They significantly contribute to gender inequality issues, particularly access to educational and career opportunities. • Information on educational opportunities, career guidance, networking, and other resources on academic and career prospects in engineering and energy sectors is still insufficient and often not available.

TABLE 9: ACCESS TO RESOURCES
• Female students have limited opportunities to access scholarships, financial support, and job placement in heavy industry and the energy sector. • Internship and job placement programs for female vocational school students are limited to non-existent. • The COVID-19 pandemic highly affected the learning quality and internship opportunities of students. • In recent years, more women are studying engineering and energy-related programs, but employment opportunities for women in the energy sector are still limited. • The drop-out rate among female students studying engineering and technical programs at the tertiary educational level remains high. • Insufficient representation of female engineers and female technical staff in energy sector workplaces leads to a lack of female role models and the decision of women and girls to pursue STEM education and careers in the energy sector. • Opportunities for employment in engineering and technical positions in the energy sector for women are limited due to the lack of skill development opportunities. • Although there are good policies and programs to ensure that women get adequate remuneration and welfare benefits, there is a lack of specific policies and programs on gender equality, particularly in career advancement and leadership promotion.
RECOMMENDATIONS
• Women are at risk of losing their jobs because of the employment and labor market disruption caused by disruptive technologies, automation, and the COVID-19 pandemic. Therefore, skill development opportunities, particularly for developing STEM technical skills, are required. • Employment opportunities for women in the energy sector can be granted through provisions of scholarship, internship, and job placement opportunities. • Special technical support, coaching, and mentoring for women working in engineering and other technical positions is highly needed. This would require a dedicated commitment of resources in both the public and private organizations. • Promotion of an inclusive working environment helps to retain female employees in the energy sector. Best practices in this area need to be widely promoted.

The following discussion provides additional details related to gender and "Access to Resources".

ACHIEVEMENTS

Most governments in Asia and Pacific have already adopted the GAD budget initiative. The Philippines, for example, has successfully formulated gender-responsive budgeting policies across government agencies. The GAD is a general provision in the annual General Appropriations Act (GAA) and has been in place since 1995. It is a crucial provision of the gender integration strategy outlined in Republic Act 9710, or the MCW, and its Implementing Rules and Regulations (IRR). The MCW IRR provides that *"the cost of implementing GAD programs shall be the agency's or local government unit's GAD budget, which shall be at least five (5) percent of the agency's or local government unit's (LGU) total budget appropriations."* In this respect, some organizations, like the Philippines ERC, have allocated up to 15 percent of their annual budget allocation for gender and development issues. Other countries in SEA have not explicitly allocated agency-by-agency budgets for addressing GESI.

The Philippines, for example, has achieved significant success in formulating gender-responsive budgeting into institutional practices across government sectors.

CHALLENGES

At the global level, women's labor force participation is much lower than that of men. According to an ILO study in 2018, about 60 percent of the global labor force was men. The energy sector, both conventional energy and RE operations, was dominated by men. However, RE industries are more appealing to women as RE may provide more opportunities to women in both the urban and rural areas. Globally, 32 percent of the workforce of the RE industry are women. In contrast, only 22 percent of workforce are women in the conventional energy sectors (JRC, 2020 cited in IRENA, 2020).[59] Likewise, the percentages of women in STEM careers at global, regional, and national levels are very low, especially in engineering and technical leadership positions, particularly in energy sector workplaces.

Findings from IDIs suggest common gender barriers in the education system. There is a high rate of educational abandonment at the tertiary level among girls and young women due to poverty, child marriage, cultural biases, and unplanned pregnancies. Also, there is a lack of critical educational opportunities for girls and young women, especially for those who live in low-income families in both urban and rural areas. During a financial crisis, parents are more likely to support their sons rather than daughters to continue their education as female children are typically seen as a financial burden. Parents, particularly fathers, think it is more important to have their daughters bring in an income from getting married over working. Child marriage and early marriage of girls and young women also occur in conservative communities in the SEA region. This is especially the case in West Java in Indonesia, the southern Muslim-majority provinces of Thailand, and in Mindanao in the Philippines.

In terms of education disparity in the region, Thailand, Indonesia, and the Philippines generally have legal and policy frameworks for free and compulsory education up to some basic education levels for both boys and girls. However, integrating the promotion of gender sensitivity and gender equality into the school curriculum and learning pedagogy is a persisting challenge in the education system.

FGDs, conducted under the Activity, strongly indicate that women and girls have insufficient educational opportunities and career guidance information. Also, they have limited access to information and other resources about educational and career opportunities, especially in STEM and energy-related areas. This is one of the key reasons why females are less engaged in STEM and energy networks than men.

> Information on educational opportunities, career guidance, networking, and other resources on educational and career prospects is still insufficient.

Although primary education in the region is free for compulsory education levels (primary school and secondary school) in most SEA countries, many girls and young women do not reach the highest potential of their education and learning. Many of them cannot fully access scholarships or financial support for continuing higher education in high schools, vocational schools, and universities both in STEM and non-STEM areas. With limited academic

> Female students have limited opportunities in accessing scholarships, financial support, and job placement.

[59] Joint Research Centre (JRC). 2020. https://publications.jrc.ec.europa.eu/repository/handle/JRC120302.

capacity due to double roles and responsibilities within their families, young women and girls do not have the time to devote to higher education and have difficulty obtaining scholarships or grants.

Findings from the IDIs and FGDs with students and vocational schoolteachers suggest that female students in STEM programs rarely gain internship and employment opportunities. Generally, most energy companies and other energy sector employers prefer to recruit male students due to the physical conditions concerning safety issues and hazardous working conditions. Female students who study in the vocational schools that are operated and managed by energy companies have better opportunities to find internships. The COVID-19 pandemic has made finding internship and employment opportunities even more difficult. There is a greater need for tertiary institutions, in partnership with energy companies, to organize job placement programs for female students so they can have greater access to employment opportunities in the energy sector. This is a key focus area of the E4SEA Activity. Findings from FGDs with university and vocational school students suggest that online learning during the COVID-19 pandemic significantly affected their learning quality. Also, many engineering students, especially female engineering students, faced difficulties with their internship placements as many companies canceled their internship programs.[60]

> The COVID-19 pandemic has deeply impacted learning quality and internship opportunities for students.

Currently more women are studying in STEM areas, including engineering and technical fields, particularly at the university level. However, the number of female engineers and technicians in the energy sector is still limited. IDI and FGD respondents expressed that career paths in the engineering, science, technology, and energy areas are very competitive for women as most employers prefer to recruit men rather than women due to the many reasons cited earlier. Research findings also suggest that, generally, women perceive that they would not be able to have as much career advancement as men in the engineering and energy sectors.[61]

> More women are studying in engineering and energy related programs. However, employment opportunities of women in the energy sector are still limited.

The share of female engineers and female technical staff in energy sector workplaces, particularly offshore, outdoor, and indoor operations such as oil rigs, petrochemical, mining, solar energy, and geothermal fields, is still limited. This lack of representation perpetuates gendered biases about women's roles in the energy sector. It is an outcome of many factors, including the barriers for girls and women to pursue STEM educational opportunities.

> There is a lack of role models and the representation of women in STEM fields, particularly engineering and technical positions in the energy sector for shaping young girls' expectations and decisions in educational and career prospects.

Findings from IDIs, FGDs, and a baseline citizen survey[62] with students and parents reveal that women and girls do not have many educational opportunities and career options in STEM compared to men, particularly in engineering and technical professions. This is because there is a lack of female role models

[60] E4SEA. 2021. FGDs with vocational school students and university students from Thailand, Indonesia, and the Philippines (2021).
[61] E4SEA.2021. IDIs and FGDs with key stakeholders, and GeoPoll. 2021. Draft E4SEA CATI Report.
[62] Ibid. 2021

and institution-level enabling policies and programs in educational institutions and energy sector workplaces to promote educational and career opportunities for female students. Academic choices directly impact women's and men's choices of employment. The lack of representation of women in STEM fields leads to their lower representation in positions such as engineers and technical positions in energy sector workplaces. Findings from IDIs, FGDs, and the baseline citizen survey suggest that women, whether students or workers, always believe that they would not have many opportunities in the STEM fields, particularly engineering fields, as men due to the lack of women role models and the lack of institution-level enabling policies for promoting women employment opportunities in STEM fields. [63] Additionally, FGD student respondents strongly advocated for more employment opportunities for women in engineering and energy technical positions. Many female students are interested in pursuing medical careers rather than engineering due to the lack of role models and limited career opportunities in engineering and energy technical positions.

Girls and young women face difficulties in pursuing certain jobs as they must shoulder multiple roles and responsibilities, including housework. This often results in many girls and women struggling to enter or continue their studies in engineering programs. IDI respondents highlighted that the main reason for a high drop-out rate among female engineering students was the heavy responsibilities for household tasks conflicting with STEM studies. In some cases, unplanned pregnancies also contributed to high dropout rates among women students, especially in the Philippines.

The drop-out rate among female students in the engineering and technical programs in tertiary educational institutions remains high.

Working in energy operations such as oil rigs, offshore operations, or remotely located power plants can be relatively dangerous. IDIs and FGDs found that operational crews often face challenges and other complications. Energy companies, especially those engaged in significant engineering operations, usually prefer highly experienced and well-trained professionals, including engineers, geologists, and other technical staff rather than newly graduated engineers or young professionals without field experience. In this regard, women need more practical engineering training and other technical skills required for energy operations.

Women with engineering and STEM technical degrees still have limited opportunities to be employed in the energy sector due to insufficient practical engineering and technical skills.

Women in the SEA regional workforce are typically employed in low-skill positions. As the use of automated technologies increases, it is expected to displace low-skill workers. For example, Indonesian women are 20 percent more likely than men to lose their jobs because of automation in technology.[64] Worse, women in Thailand are 50 percent more likely than men to lose their jobs because of automation in technology. And worse still, women in the Philippines are 140 percent more likely than men to lose their job

Women are more at risk of losing their jobs due to the automated technologies and the COVID-19 pandemic.

[63] Ibid 2021.
[64] ILO. 2021. Women in STEM Workforce Readiness and Development Programme in Indonesia (2020). https://www.ilo.org/jakarta/whatwedo/projects/WCMS_624553/lang--en/index.htm

because of automation.[65] COVID-19 has also had an impact on the workforce in the region. The ILO has estimated 10.6 million or 3.2 percent fewer workers, including women in employment in ASEAN countries than expected for 2020 in a non-pandemic scenario. The ASEAN region recorded working-hour losses of 8.4 percent relative to the fourth quarter of 2019, and in 2021 and 2022 the situation remains unfavorable.[66]

CEOs and executives of energy companies, particularly those who deal with oil and gas exploration and production and power generation, are highly aware of the impact of automation and the transition of fossil fuel to RE on their workforces. Capacity strengthening programs to reskill and upskill male and female employees for catching up with new RE technologies and the energy transition from fossil fuels to RE has been ongoing.[67]

There are no comprehensive policies and programs on gender equality promotion, particularly career advancement and leadership promotion, for women in educational institutions and workplaces in most countries in the SEA region. Some policies and programs exist in the Philippines, but they are still insufficient. Energy sector workplaces, especially in Thailand and Indonesia, mainly focus on providing welfare support and benefits for attracting and retaining women employees. However, they do not focus on women's career advancement and leadership programs such as special programs for strengthening technical capacity, mentoring, and coaching. To increase the number of women in engineering and technical positions in energy companies, it is essential to create specific, proven mechanisms or strategies that improve recruitment and attract more qualified women to join and remain in the energy sector. Furthermore, gender-specific data, especially data on women's employment in the ASEAN energy sector at a national and regional level, is needed to make evidence-driven policy decisions.

> Across the region, career advancement is not gender-equal and existing policies are insufficient.

Career choice for women and girls with socio-economic difficulties mainly hinges on opportunities post-graduation that provide financial support for their families. Many women prefer to study in the vocational education system and not take risks choosing educational programs with limited direct employment opportunities. Women also strongly consider options where they can obtain scholarships, internships, and future job placement sponsored by the private sector. During the IDIs and FGDs, female students expressed a strong interest in pursuing energy sector employment if opportunities for jobs were available in the energy industry.

> Employment opportunities for women in the energy sector can be granted through the provision of scholarship, internship, and job placement opportunities.

Findings from multiple sources confirmed that many women employees prefer to stay in their workplaces due to pensions, welfare benefits, and other support. Executive members of energy companies also reaffirmed that providing staff welfare benefits attracts and

> The promotion of an inclusive working environment helps retain female employees in the energy sector.

[65] ILO. 2021. Women in STEM Workforce Readiness and Development Programme in the Philippines (2020). https://www.ilo.org/manila/projects/WCMS_617632/lang--en/index.htm
[66] ILO. 2021. Covid-19 has resulted in massive Southeast Asian job losses (2021). https://thediplomat.com/2021/08/covid-19-has-resulted-in-massive-southeast-asian-job-losses/
[67] E4SEA. 2021. IDIs with CEOs and Executives of energy companies in Thailand, Indonesia, and the Philippines (2021).

retains qualified employees, especially highly skilled female employees, more than just higher remuneration.

RECOMMENDATIONS

Findings from FGDs with energy employees suggest that additional training opportunities for female employees in engineering and technical fields are needed to develop women's skills further and enable career advancement in the energy sector. Also, the development of leadership skills, coaching, and mentoring programs are essential for improving gender equality in the energy sector workplace. For instance, the Women's Executive Coaching Program called "Yes, You Can!" initiated by Meralco, a national power distribution company in the Philippines, has propagated addressing gender challenges through mentorship. This program provides opportunities for senior women mentors and young women mentees to be connected to share knowledge and experiences, and learn from each other within the company.

> The need for specialized technical support, coaching and mentoring for women working in engineering and other technical fields presents an opportunity for strategic investment.

The energy sector worldwide is in transition. There is a strong move to decarbonize by gradually replacing fossil energy with clean, renewable energy. This transition is changing the energy industry structure and the skill sets needed among the new workforce significantly and rapidly. For example, coal, oil, and gas are being replaced by the solar, wind, hydropower, and new generation energy technologies, including an enormous push towards developing and utilizing hydrogen.

> The energy transition towards RE and decarbonization provides an opportunity for employment and entrepreneurial activities for women.

The Fourth Industrial Revolution, or "Industry 4.0", is transforming opportunities for women and girls to join energy sector workplaces by increasing their STEM competencies. Following the ASEAN Declaration on Industrial Transformation to Industry 4.0, many countries in the SEA region, particularly the middle-income countries like Thailand, Indonesia, and the Philippines, adopted new policies and programs on vocational education systems and skill development of workers, such as the Thailand 4.0 policy and Indonesia Industrial 4.0 policy. It is a response to the rapid change in technology, industries, societal patterns, and processes in the 21st century due to increasing interconnectivity, smart automation, and the emergence of digital products. In this regard, STEM education is crucial for increasing employment opportunities for women and girls in the energy sector.[68]

National energy policies on energy transition from fossil-based resources to RE in the ASEAN region have provided women more employment and entrepreneurship opportunities. In the Philippines and Indonesia, more women engineers and women with technical expertise have additional employment opportunities in energy sector workplaces, particularly solar power, geothermal, and wind power. Thailand has more women entering energy entrepreneurship and employment in engineering and technical professions in solar energy and the biorefinery field. Additionally, vocational education and

[68] Philippines Commission on Women (PCW). 2020. Gender and Development (GAP) Budget Report, Fiscal Year 2019. https://www.coa.gov.ph/gad/resources/news/GAD_Budget_Report_FY_2019.pdf

green jobs opportunities are available for women, men, and disadvantaged groups, including persons living with disabilities.

Therefore, there is a need for designing programs that explicitly link GESI to climate change and decarbonization. Specifically, targeted programs are needed to transition the new generation of students and prospective energy sector employees to studies related to RE and climate change.

POWER AND DECISION-MAKING

Table 10 summarizes the regional achievements, challenges, and recommendations in the area of "power and decision-making".

TABLE 10: POWER AND DECISION-MAKING

ACHIEVEMENTS
• In general, the decision-making power is unevenly vested with men at home and in the workplace. The participation of women in leadership positions both in the public and private sectors is generally low and varies across the countries. For example, the proportion of women in political participation is high in the Philippines yet relatively low in Indonesia and Thailand. Despite sporadic initiatives, there is no notable achievement in the region to change the decision-making disparities between men and women.
• Younger respondents expressed that both men and women should have equal rights, particularly power in making decisions and serving leadership roles both in the public and private spheres. There is a continuous awareness and movement toward recognizing the need for equality in the decision-making roles of men and women at home and at the workplaces.
CHALLENGES
• Women's power in making decisions in public spheres is well-recognized in Thailand and the Philippines due to increased educational attainment and economic participation opportunities. However, gender equality in public and private spheres remains challenging in Indonesia.
• Senior energy company executives recognize the value of female leaders. Yet, some energy employers still prefer to recruit men for senior and leadership positions.
• Women are good at negotiating and lobbying for the benefits of their organizations. However, women rarely negotiate for their benefits like salary increases, benefits packages, and promotions compared to men who are traditionally well versed in negotiating compensation, benefits, and promotions.
• Generally, women's empowerment and career advancement policies and programs exist in most public and private organizations. But they are still insufficient, and there is a lack of policies and mechanisms for promoting, managing, measuring, and monitoring the progress of gender equity across the career life cycle of the employees.
• A family's financial situation, labor market demand, and social norms are more important considerations than the personal interests of women and girls in deciding to join STEM careers.
• Parents would support their daughters' decision on education and career choice but believe they should have the final say on this matter.
• Most parents support their married daughters working or participating in training in a remote location, or even away from their country, as long as it is for short periods.
RECOMMENDATIONS
• Buy-in and recognition from executive members about gender equality can increase opportunities for implementing gender equality programs in the energy sector.

The following discussion provides details on the regional findings related to gender issues in "power and decision-making".

ACHIEVEMENTS

Of the countries in the ASEAN region, the Philippines has achieved a high proportion of women in politics. Indonesia has used an electoral quota to reduce the imbalance and has made significant progress in increasing the percentage of women in the Indonesian Parliament. Political parties must ensure that at least 30 percent of their candidates in each multi-member constituency are women.[69] The Indonesian law on General Elections (2007) regulates that women's representation be at least 30 percent in the Parliament. Currently, the composition of women in the Parliament is 21 percent.

The proportion of women in political participation differs across the region and is relatively high in some parts.

In recent years, public awareness of the role of women has changed. This can be seen from the increasing level of women's involvement in various sectors of activity in the society in the ASEAN region. Many women have managed to occupy positions ranging from the lowest position to the top position in various organizations. For example, in politics, women hold parliamentary chair positions, occupy ministers' positions, and hold commissioners' positions in various public and private organizations. Yet, women's representation in political and public decision-making bodies at every level is still relatively low in the SEA. For example, Thai women are still underrepresented in the Thai Parliament, government, judiciary, and administration both at the national and local levels. Women also account for only 24 percent of high-ranking civil servants in Thailand, and gender equality in senior leadership positions has risen by just three (3) percent in the last 15 years.[70]

Most of the younger respondents, including students, new graduates, and junior engineers and geologists, believe that both men and women should have equal rights, particularly equal power in making decisions and serving in leadership roles both in the public and private spheres. Additionally, the new generation, especially young female employees, is aware of gender pay gaps and other inequities. [71]

Younger respondents expressed that both men and women should have equal rights, particularly, power in making decision and serving in leadership roles, in both the public and private sectors.

CHALLENGES

Women's power in decision-making in public and private spheres and at home differs across the region and is rooted in the cultural context. In some countries, particularly Thailand and the Philippines, gender equality has been improving due to increased opportunities for women and girls in accessing higher education, employment, and other economic activities. Women in Thailand and the Philippines can exercise their power in making decisions at both the public and household levels.[72] On the contrary, in Indonesia, men generally have higher levels of education and have more employment and economic participation opportunities than women. Therefore, Indonesian women also face difficulty

Women's power in decision-making in public spheres differs across the region and is rooted in cultural context.

[69] https://www.lowyinstitute.org/the-interpreter/indonesia-look-beyond-quotas-gender-representation
[70] UN Women. 2021. https://asiapacific.unwomen.org/en/countries/thailand
[71] E4SEA 2021. IDIs and FGDs and the Baseline Citizen Survey with stakeholders in Thailand, Indonesia, and the Philippines (2021).
[72] E4SEA. 2021. Baseline Citizen Survey in Thailand and the Philippines (2021).

exercising power or making decisions both in their public and private lives.[73] In rural areas, the influence of *Ibuism* (motherhood) ideology persists, encouraging women to stay home and conform to the subordinate roles of wife and mother.[74]

Female leaders in energy companies in SEA are generally highly recognized by executives and staff. The executives' attitude, especially, male executives, towards female leaders is supportive and positive. Female employees, including female engineers, are just as capable as their male counterparts in carrying out multiple tasks and paying attention to detail. However, many companies still prefer to recruit men for field positions and executive positions because of the high turnover of women in senior positions due to personal reasons.

> Female leaders are well-regarded by executive members in the energy sector in the region. However, some companies still prefer to recruit men for senior and leadership positions.

Global and regional studies illustrate that men are four times more likely than women to ask for a salary increase and when women do ask, they typically request more modest salary increases than men (approximately 30 percent of the time).[75] In a study of 78 master's degree students, it was found that just 12.5 percent of women negotiated for their starting salary, versus 52 percent of men. That leads to as much as $1.5 million in lost income over a woman's career. The compensation gap between men and women for similar jobs is closing somewhat among younger women, who are more likely to ask for equitable salaries and are more likely to be the family's primary breadwinner. But women are still far from parity. An Australian study of 4,600 employees found that while women were as likely as men to ask for salary raises, they were 25 percent less likely to receive them.[76]

> Compared to men, women rarely negotiate for personal benefits like salary increases, benefit packages and promotions.

Similarly, findings from the IDIs with senior Human Resource Officers and CEOs, and FGDs with engineers and geologists in energy companies from both public and private sectors, highlight that female employees are keener on negotiating for the benefits of their companies than for themselves.[77] Female employees are positively acknowledged by executives from both the private and public sectors in energy for their high performance. For instance, they possess strong negotiation and coordination skills in dealing with team members, clients, and community members, and developing practical business plans. Moreover, FGD male student participants noted that girls are good at negotiating, organizing, and planning. The male students regard their female counterparts as drivers who can make things happen and give great attention to detail.

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[73] E4SEA. 2021. IDIs and FGDs with stakeholders and a Baseline Citizen Survey in Indonesia (2021)
[74] Chin. V.S. Grace. State, University of Saint Malaysia.2018. State Ibuism and One Happy Family: Polygamy and the "Good" Woman in Contemporary Indonesian Narratives (2018). https://www.researchgate.net/publication/321539329_State_Ibuism_and_One_Happy_Family_Polygamy_and_the_Good_Woman_in_Contemporary_Indonesian_Narratives/link/5e429c4692851c7f7f2f4bc6/download
[75] Babcock Linda, Lashchever Sara, *Women Don't Ask, Princeton University Press (2021)*; "The gap is…" Artz, Benjamin, Amanda H. Goodall, Andrew J. Oswald. "Do Women Ask? Warwick Economics Research Papers, No: 1127. July 2016; "An Australian study…" Cohn, Laura. "Women Ask for Raises as Much as Men Do—But Get Them Less Often." *Fortune* (2016).
[76] World Economic Forum (WEF). 2021. Lipman Joanne: Women are still not asking for pay rises. Here's why (2016). https://www.weforum.org/agenda/2018/04/women-are-still-not-asking-for-pay-rises-here-s-why/
[77] E4SEA. 2021. IDIs and FGDs with Stakeholders in Thailand, Indonesia, and the Philippines (2021).

Women feel that they must carry out multiple roles, especially childbearing, so they cannot commit all of their time to work. This finding is also confirmed by another study by Ann Elizabeth Konkel, an economist. She believes that this is because women may feel that they cannot put in 100 percent of their time and attention at work. Of the female respondents, 30-50 percent felt overwhelmed by family responsibilities and demanding jobs in their professional lives. Konkel remarked that since women tend to feel they have to overperform to ask for a promotion, they think it is impossible even to consider asking for promotions and corresponding increases in compensation.[78]

Generally, women's empowerment and career advancement programs exist in the region. However, they are still insufficient. For example, in the Philippines, women's empowerment and career advancement programs exist, but they are not as effective as they could be. In Indonesia and Thailand, there is a lack of mechanisms for promoting, managing, measuring, and monitoring the progress of gender equity and the advancement of women to senior leadership positions in the energy sector. In the Philippines, the Department of Audit performed an audit of gender integration interventions, especially promoting women to senior leadership positions in the Ministry of Energy and implemented audit recommendations to enhance women's advancement. However, private sector and public sector entities in Thailand and Indonesia do not have well-established programs for gender auditing and mechanisms for promoting, managing, measuring, and monitoring such progress. Internal auditing of gender-related programs for annual reporting requirements under national and global business standards like SDGs remain insufficient.

Generally, women's empowerment and career advancement programs exist in the region, but they are still insufficient. There is a lack of mechanisms for promoting, managing, measuring, and monitoring the progress of gender equity and the advancement of women to senior leadership positions in the energy sector.

Women and girls have the right to self-determination in choosing their future educational and career paths. However, the reason behind their decisions can be varied depending on their socio-economic and socio-cultural situations. In Thailand and Indonesia, the students' personal interests in selecting STEM programs are more important than financial considerations. In comparison, students from the Philippines, especially female students, have serious concerns about the financial situation of their families. They put labor market demand and social norms as employment barriers in male-dominated sectors, over their career interests.[79]

A family's financial situation, labor market demands, and social norms are more significant considerations than personal interests of women and girls in making the decision to join STEM careers.

The majority of FGD student respondents, especially female students, stated that they usually consulted with their family members, and their parents also respected their decisions in selecting their educational and career choices. In general, most parents in Thailand, Indonesia, and the Philippines support the conclusion of their daughters to study STEM, particularly the engineering field, if they are academically qualified. In the Philippines, parents have strong decision-making power and influence over which tertiary

[78] Half the Sky (2019). Exploring the reason why women are now less comfortable asking for a raise promotion and what they should do (2021). https://www.halftheskyasia.com/blog/2021/07/exploring-the-reason-why-women-are-now-less-comfortable-asking-for-a-raise-or-promotion-and-what-they-should-do

[79] E4SEA.2021. IDIs and FGDs with stakeholders from Thailand, Indonesia, and the Philippines and GeoPoll. 2021. E4SEA Citizen Survey in Thailand, Indonesia, and the Philippines.

courses their children choose as part of their studies. Students tend to consider the labor market's local and international demand in making choices of educational fields to pursue. Some students opt for tertiary courses that offer better promises of immediate employment after graduation, such as nursing, accounting, and teaching.

Parents in the region generally believe that they should have the final say in their daughters' choices for education and employment. For example, parents from Thailand, Indonesia, and the Philippines who participated in the FGDs reported supporting a daughter's decision to study engineering if she were academically qualified. However, they stated that they should have the final word about their children's choice of education and career as they have more insight into prospects of different career opportunities. Nevertheless, a smaller percentage of parents who disagreed said that children should be encouraged to make their own decisions about their education path and career choices. It is also noted that the percentages of women-headed families are on a constant rise in all three countries, pushing more women into leadership and decision-making roles, which could be a plus and a challenge to women, especially those from low-income families.[80]

> Parents would support the decision of their daughters on education and career choice. However, they have the final say on this matter.

The baseline citizen survey findings reported that almost 100 percent of parents from the Philippines support their daughters working in a remote location, followed by Indonesia at 67 percent and Thailand at 54 percent. Similarly, almost 100 percent of parents from the Philippines would support their married daughters in pursuing a training opportunity even if it meant being away for as much as 6-months from their families. In Indonesia 73 percent and in Thailand 64 percent, stated the same. FGDs with energy employees, especially male engineers, suggested that men would support their spouses to carry out field trips or short-term missions to pursue their careers. However, it would be difficult to support their spouse to work and live separately from their families for long periods, especially for those with child-care responsibilities.[81]

> Most parents support their married daughters working in remote locations and traveling to out of town or outside the country training opportunities.

RECOMMENDATIONS

Some CEOs and CFOs in the IDIs addressed the importance of gender equality, equity, and diversity in their organizations. This level of buy-in is important to building the business case for gender equality initiatives in the workplace. The CEOs and CFOs also have an important role in helping with the removal of gender biases and advancing employment opportunities in the energy sector. Energy company CEOs stress that, in addition to the inherent benefits that gender equality interventions provide, having a diverse workforce, especially in leadership, allows for the inclusion of new viewpoints that lead to better decision-making.

> Executives addressing gender equality can increase opportunities to implement gender equality programming in the energy sector.

[80] E4SEA.2021. FGDs with students and E4SEA Citizen Survey in Thailand, Indonesia, and the Philippines.

[81] E4SEA.2021. FGDs with energy employees in Thailand, Indonesia, and the Philippines.

ROLE AND RESPONSIBILITIES

Table 11 summarizes the regional achievements, challenges, and recommendations in the area of "roles and responsibilities".

TABLE 11: ROLES AND RESPONSIBILITIES

ACHIEVEMENTS

- Most IDI and FGD respondents in the region agreed that a man could do traditional household work and be a child's caretaker, given interchangeable gender roles.

CHALLENGES

- There is considerable bias in terms of the predetermined roles for men and women. Men are expected to serve as breadwinners for the family. Women are expected to perform double roles in both public and private spheres – breadwinner and caretaker of the family.
- Some female engineers have faced gender discrimination from their supervisors on task delegation in energy operations, due to gender stereotyping.
- Due to multiple roles, many women in the energy sector, especially engineers, decide to leave their jobs to meet the needs of their families, especially taking care of the children and the elderly.
- Reproductive health is a significant factor and women's reproductive cycle may inhibit opportunities for women, especially in leadership roles.
- Gender pay gaps between women and men still exist in all sectors, including in energy companies.

RECOMMENDATIONS

- Unconscious bias training and technical support for leadership promotion programs need to be provided to the energy companies. Unconscious bias training will improve and enhance gender equality.
- HR policies in the energy companies need to be reformed to explicitly incorporate GESI and enhance opportunities for women at all levels within the companies.

The following discussion provides more details on the regional findings related to gender and "roles and responsibilities".

ACHIEVEMENTS

Findings from IDIs, FGDs and the Baseline Citizen Survey suggest that most of the younger respondents agree with interchangeable gender roles. A man can also do traditional household work and be a child caretaker, depicting a more equitable division of household labor. These findings represent significant positive changes in social norms and attitudes about gender roles both in the public and private spheres. The respondents believe that the roles of men and women are social constructs and can, therefore, change over time with appropriate interventions. Respondents also agree that women can do what men do, including jobs in engineering/technical areas. Generations Y (those born between the years 1981-1996) and Z (those born between the years of 1997-2012) in the region are becoming more open and flexible towards shared and interchangeable roles of breadwinning and caregiving for the best interest of the children and family.

> Gender roles are shifting to be more equitable, as illustrated by younger respondents' views on gender roles.

CHALLENGES

In most countries, men are expected to serve as breadwinners for their families. Even though women are highly recognized as "great leaders" in public spheres, they are still likely to serve as "good housewives, daughters, or mothers", an important component of Asian culture and values. Patriarchal culture continues to be dominant in most traditional communities in the region.

> Men are expected to serve as breadwinners for their family while women are expected to perform double roles in both the public and private spheres – breadwinners and caretakers of the family.

Findings from IDIs, FGDs and the baseline citizen survey with stakeholders from Indonesia, the Philippines, and Thailand demonstrate that even when women take on leadership roles in the public sphere or their workplaces, they are still expected to maintain their roles and responsibilities as the "housewife" or primary caregiver in the household.[82]

Women often experience different forms of gender discrimination in task delegation, workplace roles and responsibilities, payment, access to career development, and promotion to senior management positions. Negative attitudes of supervisors and executives, particularly men, around gender roles and institutional practices in male-dominated workplaces continue to fuel stereotypes and widen the gap between men and women in the energy sector. One female engineer FGD participant shared her experience as the youngest member and the only woman on her team. She was made to do extra administrative work in this position, including being a messenger for her unit. She felt that gender discrimination was the reason why she was assigned non-technical tasks.

> Some female engineers face gender discrimination from their supervisors in task delegation due to gender stereotyping in the energy sector.

Some female engineers who were FGD and IDI respondents agreed that there is gender inequality in terms of delegation of tasks at the workplaces. For engineering/technical work in energy facility operations, data collection and reporting assignments were considered routine work that could not pave the way for female engineers to be promoted to senior managerial or leadership positions. In the energy operations field (plants and facilities), energy engineers need to demonstrate outstanding performance in operating and managing quality energy production like petroleum drilling operations in oil rigs or offshore operations. Since women engineers are typically assigned to deal with reporting, data management, and data collection, women are rarely provided the opportunities to demonstrate their competence in managing energy facility operations.[83]

On the contrary, many male and female FGD participants, engineers, and geologists in the energy sector did not see gender-based discrimination in their assigned roles and responsibilities. Apart from the typical pattern for males to go on high-risk business missions, participants did not feel any differences in treatment towards male and female employees.

[82] E4SEA, 2021. IDIs and FGDs with stakeholders from Thailand, Indonesia, and the Philippines and GeoPoll. 2021. E4SEA Baseline Citizen Survey in Thailand, Indonesia, and the Philippines.
[83] E4SEA 2021. FGDs and IDIs with stakeholders in Thailand, Indonesia, and the Philippines (2021).

Due to multiple roles, many women in the energy sector, especially women engineers, decide to leave their jobs to meet the needs of their families. In Thailand, for example, the number of women engineers joining the energy sector is limited as the country mainly imports energy from other countries. In comparison, the Philippines and especially Indonesia, are resource-rich nations. Indonesia, for example, is the world's fourth-largest producer of coal and Southeast Asia's biggest gas supplier. Therefore, Indonesia has a large demand for energy engineers and has created job opportunities for women to serve in engineering and other technical positions in the energy sector.

Due to multiple roles, many women in energy sector, especially women engineers, decide to leave their jobs to meet the needs of their families.

Although many women technicians and engineers work in the energy industry, many decide to leave their jobs due to family reasons. The nature of the work requires staff to regularly live and work in remote areas for several days at a time, where many of the energy facilities are typically located. Some women receive support from their husbands/families to work in such situations. In general, however, many women engineers do not receive support from their husbands or families to deal with childbearing and other household responsibilities and end up giving up their careers to attend to responsibilities at home.

Reproductive health is a serious workplace issue for working women, including productivity, work performance, promotion, retention, staff turnover, and leadership development, especially for those who work in heavy industries and the energy sector. [84]

Reproductive health concerns inequitably impact women's ability to work, and have not been addressed in most workplaces in the SEA region.

Women who have endometriosis and those who have difficulty managing reproductive health issues can suffer from low productivity or poor work, affecting their performance evaluations and promotion opportunities. Research on the impact of stress indicates that work performance can be negatively affected by these conditions. The stress from infertility and side effects such as lack of concentration is likely to disrupt performance and hence employment outcomes.[85] A study on women's experience in working through menopause demonstrated similar findings. An analysis of 1,418 premenopausal women aged 18-45 showed a reduced performance with approximately 10.8 hours of work lost per week. The cost of this lost productivity can be high; around $7,500 per woman annually, double the direct healthcare costs.[86] Menopause can also hurt outcomes and performance. One study of 900 women aged 45-55, reported that many women felt that menopausal symptoms had negatively affected their job performance and careers.[87]

Reproductive health can be seriously affected by unhealthy working environments. Women face difficult working conditions and exposure to chemicals that could affect their reproductive organs. Furthermore, organizational policies and practices can also affect reproductive health. For example, some energy

[84] SEE HER THRIVE. 2018. Reproductive Health is a Serious Workplace Issue. But, why? (2018). https://www.seeherthrive.com/blog/2018/11/7/why-is-reproductive-health-a-workplace-issue

[85] Bashir, U. & Ramay, M.I. (2010), 'Impact of Stress on Employees Job Performance', International Journal of Marketing Studies, 2(1): 122-126 cited in SEE HER THRIVE. 2018. Reproductive Health is a Serious Workplace Issue. But, why? (2018).

[86] Nnoaham, K.E., Hummelshoj, L., Webster, P., d'Hooghe, T. et al. (2011), 'Impact of endometriosis on quality of life and work productivity: a multicenter study across ten countries', Fertility and Sterility, 96(2): 366-373 cited in Ibid, 2018.

[87] Griffiths, A., MacLennan, S. & Vida Wong, Y.Y. (2010). Women's Experience of Working Through the Menopause. The British Occupational Health Research Foundation. cited in Ibid, 2018.

employers refuse to hire pregnant women, married women, or married women with childbearing responsibilities. Chemicals and dangerous working conditions cause problems with menstruation, pregnancy, and the baby's health. These conditions impact women disproportionately due to their reproductive role.[88]

Men and women have equal opportunities to be promoted to managerial and leadership positions. However, timing is more important for women than men. This is because the reproductive cycle, fertility, and childbearing are crucial factors affecting the decisions of the women and their employers. In many cases, qualified women give up promotions to managerial or senior leadership levels because of childbearing plans, They do not want to take on higher levels of responsibility and the related stress.

Furthermore, IDIs with HR officials and female CEOs suggest that the HR departments in various companies need to be more concerned and compassionate about staff fertility, childbearing, and retention of high potential women, especially engineers. Many qualified women in the energy field, especially engineers, decide to leave their jobs due to concerns about fulfilling their duties as wives and mothers. HR managers need to develop retention policies such as flexible hours, work from home, or special family leave to facilitate work-life balance for women, specifically addressing the issues that they face in managing dual responsibilities.

The Gender pay gap between men and women for similar jobs is estimated at 16 percent globally. In the ASEAN region, for example in Indonesia, women earn 23 percent less than men. Female employees in Indonesia have more university degrees than male employees, but higher education has not narrowed the gender pay gap. Women workers with tertiary education degrees earn substantially less than their male counterparts. According to the Ministry of Finance in Indonesia, less than 50 percent of women in the labor force work and only 30 percent of those hold managerial positions. These women in the managerial positions are also paid less than men for the same job.[89]

Gender pay gaps between women and men still exist in all sectors, including the energy sector.

Findings from FGDs and IDIs show that, in general, female engineers in Thailand and Indonesia are paid less than male engineers. Also, salary increases for female engineers are at relatively lower rates than for male engineers. Often, women face unfair and unclear performance evaluations due to long-standing institutional practices. Many managers and supervisors of women acknowledge their outstanding performance and recommend them for promotion. However, in many instances, such promotions are denied by the HR managers for various reasons and, in some cases, unfairly.[90]

[88] Hesperian Health Guides. 2020. Working affects reproductive health. 2021. https://en.hesperian.org/hhg/Workers%27_Guide_to_Health_and_Safety:Working_affects_reproductive_health
[89] ILO. 2020. Indonesia supports the global movement towards equal pay (2020). https://www.ilo.org/jakarta/info/public/pr/WCMS_755550/lang--en/index.htm
[90] E4SEA 2021. FGDs and IDIs with Stakeholders in Thailand, Indonesia, and the Philippines (2021).

RECOMMENDATIONS

Women in the ASEAN region continue to face both open and subtle gender challenges in the energy sector. There is an ever-present conflict between women's responsibilities at home and the workplace. Culturally and traditionally, they are still expected by family members and others to serve as primary caretakers of their family members, particularly taking care of children and the elderly. At the same time, many women want to pursue successful careers in the energy sector and other productive industries. This poses a conflict and requires employers to implement HR policies that would enable highly skilled women to enter the energy field and advance to management and leadership positions.

Unconscious bias training and technical support for the development of suitable mechanisms and programs on leadership promotion can be provided to energy companies.

There is a need for change in the culture of the energy industry employers to design gender-equitable approaches to the recruitment, retention, and advancement of women employees.

KNOWLEDGE AND BELIEFS

Table 12 summarizes the regional achievements, challenges, and recommendations in the area of "knowledge and beliefs".

TABLE 12: KNOWLEDGE AND BELIEFS

ACHIEVEMENTS

- Some progress has been made in gender equality and equity in the region, and there continue to be knowledge gaps and biased beliefs in the region that inhibit opportunities for women in all areas, including adequate education and employment in the energy sector. Some SEA countries (Indonesia, the Philippines, and Thailand) have made noteworthy progress. However, further initiatives and sustained efforts are needed to implement GESI.
- A more aggressive and informed approach is needed to reverse the adverse impact of biased knowledge and beliefs on women's participation and upward mobility in all segments of the energy industry.

CHALLENGES

- Deeply embedded social norms lead to higher gender segregation in tertiary education, which undermines women's empowerment and denies the opportunity for women to study in STEM fields.
- Discriminatory social norms and attitudes play a critical role in shaping the educational choices of girls and young women. Also, they affect the educational choices of women and girls in joining STEM education and pursuing careers in the energy sector.
- Beliefs, culture, traditions, social norms, and social values are significant factors that hinder gender equality. Such factors highly affect the decision-making of women and girls in pursuing STEM education and professions in the energy sector.
- The lack of role models and mechanisms to promote educational and career opportunities in the energy sector perpetuates the prevailing misconceptions that engineering work is harmful and dangerous for women and is suitable only for men.
- Women share typical traditional social roles in serving as primary caretakers for their families. However, the labor force participation rate among women in SEA can be varied due to several factors including workplace gender bias and a lack of opportunities.
- While STEM education is generally promoted in the region, many girls and young women strongly prefer medical careers rather than engineering professions. Engineering professions are perceived as challenging with work requirements in remote places such as oil rigs or production sites.

RECOMMENDATIONS

TABLE 12: KNOWLEDGE AND BELIEFS
• Unconscious bias in the energy sector still exists. Therefore, there is a real opportunity to work with tertiary educational institutions and energy employers in unconscious bias training to address gender challenges and enhance gender inclusive and gender equitable environments both for education and energy sector employment.

The following discussion provides additional details on the regional findings related to gender and 'knowledge and belief".

ACHIEVEMENTS

In the SEA region, the Philippines has made significant achievements in closing the gender gap by changing tradition and social norms to eliminate gender inequality through the enforcement and compliance of the Magna Carta of Women (RA 9710) and the formulation of mechanisms under the PCW. Thailand and the Philippines have successfully enacted national laws on GESI promotion and non-discrimination based on SOGIE. While Indonesia has made significant progress in increasing women's labor participation by promoting gender equality as a new social value in society, women still face gender challenges, especially in remote areas and rural communities. Other countries in the region also face similar challenges despite some progress.

There has been significant progress made in promoting gender equality as a new social value across SEA countries.

CHALLENGES

Gender discrimination in the STEM area in SEA remains very high, particularly in tertiary education. Although at the aggregate level more women than men are enrolled in tertiary education, including vocational schools, technical schools, and universities, the share of men enrolled in the tertiary-level engineering, manufacturing and construction programs is consistently higher than that of women. For example, the gap between the Philippines and Thailand is 21 percent. Overall, as per ILO, in six (6) out of the nine (9) Southeast Asian countries for which data are available, the gender gap in STEM enrollment is larger than ten (10) percent.[91]

Discriminatory social norms and attitudes play a critical role in shaping the educational choices of girls and young women in the ASEAN region.

Social norms, stereotypes, and extreme unconscious bias lead people to perceive STEM fields as "masculine" and play a critical role in influencing the educational choices of male and female students. The self-selection bias is considered one of the main reasons girls often choose non-STEM fields, which comes directly from stereotypes about pre-conceived gender roles.[92]

In addition, discriminatory social institutions and biases affect the educational choices of women and girls in pursuing STEM education. Findings from IDIs and FGDs with respondents from the educational sector in the region suggest that, generally, there is no discrimination against female students in entering STEM

[91] Ibid. 2021.
[92] Ibid.

programs in high school and tertiary educational institutions. The female and male students' enrollment in engineering programs is almost equal, and some STEM programs have even more female students than male students. For example, more and more women are enrolling in programs such as Geography, Geology, Environmental Science, Geoscience, Engineering, and Environmental Engineering at the level of vocational education.[93] Nevertheless, statistics show that gender segregation in the STEM fields across Southeast Asia remains very high. Although more women than men are enrolled in tertiary education, the share of men enrolled in tertiary-level engineering, manufacturing, and construction programs is consistently and markedly larger than the share of women across all Southeast Asian countries.

Even though gender equality is an important element of the energy transition in ASEAN, women's workforce participation in the energy sector is still limited at every level within the energy companies.

Findings from the IDIs with CEOs, HR officers, and energy employees in Thailand, Indonesia, and the Philippines highlight that women in engineering and technical positions can perform virtually all jobs as well as men. Additional research in the region indicates similar findings. Nevertheless, many employers in heavy industries and the energy sector still prefer to recruit men rather than women for engineering and technical positions. Consider, for example, Thailand where labor laws include specific measures to protect women workers, such as prohibiting employers from hiring women to perform certain types of jobs in hazardous working conditions. In many situations, Thai women with engineering and technical competencies are discriminated against and eliminated from the hiring and recruitment process. Many energy companies are concerned with safety and protection measures beyond the requirements under Thai labor laws. For instance, the Thai labor law prohibits pregnant women from working during the night shift. Therefore, the recruitment practices of companies dealing with energy or heavy industry prefer male candidates to fill engineering and technical positions that require night shift hours.

Another example of the lack of women's participation in the energy field is in Indonesia. According to Indonesia's Women's Coalition, women's participation in the energy sector still needs improvement. Based on data from the 2017 Indonesian Employment Report, the number of female workers in STEM has only reached 30 percent. According to the Indonesian Women's Commission, two factors contributed to this occurrence. First, local stakeholders tend to view women solely as uncritical energy consumers. For these local stakeholders, especially in rural areas, women only need to take care of the house and do not need to worry about other problems and responsibilities. Second, women's interest in working in the energy-intensive engineering field is minimal. According to the study conducted by UNESCO, engineering is perceived as "laborious" work for women.[94]

Women in SEA share common traditional social roles in serving as primary caretakers for their families. However, labor force participation rate among women varies widely among countries in the region due to several factors.

According to the World Economic Forum's Global Gender Gap Report 2021, women's workforce participation and employment rates in SEA are low. The labor participation also varies across countries in the region. In Indonesia, for example, only 54 percent of working-age women are active in the labor force as compared to 82 percent of working-age men. Even though the tertiary education enrollment rate of women and girls is equal to or sometimes even higher than men, it does not result in more job opportunities or career advancement for women. Consequently, economic

[93] E4SEA IDIs and FGDs with respondents in Thailand, Indonesia, and the Philippines (2021).
[94] Publishing what you pay: Indonesia. 2021. Women's Challenge in Renewable Energy in Indonesia. (2021). https://pwypindonesia.org/en/womens-challenge-in-renewable-energy-in-indonesia/#easy-footnote-bottom-2-497008

recovery continues to be a challenge.[95] Currently, government agencies, politicians, and the private sector in SEA are actively promoting policies and actions to promote women's employment as it is the key to improving the overall socio-economic and political situation in the region.

National science and technology institutions in the region collaborate actively with the ministries of education and other educational institutions to promote STEM education, especially among girls and young women. Science and engineering school projects are routinely available in schools for boys and girls. However, most female students prefer to pursue studies in the medical field. The lack of role models in the engineering and technical fields, and the lack of opportunities, contribute to many women choosing fields other than engineering. In the vocational education system, government agencies and educational institutions in the region have made some progress by implementing targeted policies and programs. But there is a need for sustained change to deliver impactful GESI.

STEM education is promoted in the SEA countries. However, many girls and young women strongly prefer medical careers rather than engineering professions.

RECOMMENDATIONS

Adult learning about unconscious bias and other interventions should be carried out to increase knowledge and change attitudes both at the individual and the organizational levels. Transitioning to gender equitable governance practices in the energy companies is very important as employers miss the opportunity for inclusion and diversity that could lead to higher productivity and innovation, ultimately affecting their bottom line.[96]

Unconscious bias persists in the energy sector as a barrier to gender equality, so appropriate unconscious bias trainings should be provided.

HUMAN DIGNITY, INCLUDING GENDER-BASED VIOLENCE (GBV)

Table 13 summarizes the regional achievements, challenges, and recommendations in the area of "human dignity including GBV".

TABLE 13: HUMAN DIGNITY, INCLUDING GBV

ACHIEVEMENTS
• Most countries in the region have some form of laws and policies that discourage/prevent GBV and bullying. However, proactive strategies and programs to address GBV and bullying in schools are lacking. • One noteworthy achievement is that national laws on GESI promotion and non-discrimination based on SOGIE are successfully enacted in Thailand and the Philippines. These laws have strict anti-GBV provisions and offer a redress mechanism to victims of GBV. They could serve as the basis for a region-wide reform of anti-GBV and anti-bullying policies, laws, and regulations.
CHALLENGES

[95] World Bank. 2021. Why women matter for Indonesia's economic recovery (2021). https://blogs.worldbank.org/eastasiapacific/why-women-matter-indonesias-economic-recovery

[96] E4SEA Activity 2021. IDIs and FGDs with stakeholders in Thailand, Indonesia, and the Philippines (2021).

- GBV continues to be an important gender challenge in the SEA region with varying levels of GBV and different models used by the countries to address GBV both in domestic situations and at workplaces as well as schools and universities.
- While all schools in the Philippines, for example, are required to adopt an anti-bullying policy promulgated by the government, most other countries in the region do not have any such laws and policies. There is also considerable ambiguity regarding policies and requirements to address GBV and bullying.
- Unlike the Philippines, in Thailand and Indonesia, gender policies and safeguard policies still need to be adopted and formulated into actions in high schools and tertiary educational institutions to address bullying and GBV.
- Non-discrimination, anti-harassment, and anti-bullying policies and action plans exist in many energy sector workplaces. However, such practices are not always recognized or enforced, and mechanisms for compliance need to be strengthened.
- Indonesia's national policies, strategies and legal documents have been put in place to address GBV, but implementation challenges remain.

RECOMMENDATIONS

- Awareness raising on different forms of harassment, including bullying and GBV, and advocating on reporting of such incidents, should be carried out in energy sector workplaces and educational settings. This can be achieved by the leadership and HR departments at energy companies and educational institutions to implement strict policies against any form of bullying and GBV.
- Proactive communication and education on GBV are necessary at every level, especially in educational settings and workplaces, for the prevention and handling of various levels of harassment and violations.

The following discussion provides further details of the gender-related findings on "human dignity and GBV".

ACHIEVEMENTS

Philippines stands out in SEA as the country with significant achievements for addressing GBV and bullying. For example, All schools in the Philippines are required to adopt the anti-bullying policy.

The 2013 Anti-Bullying Act in the Philippines requires all schools to adopt policies to prevent bullying in schools, and the Ministry of Education operates gender policy dissemination as a common practice.[97] However, some schools and tertiary education institutions are still inactive in adopting and formulating gender and related safeguard policies into action.

CHALLENGES

In Southeast Asia, on average, 25 percent of women have suffered physical and/or sexual violence from an intimate partner at least once in their lifetimes in the nine countries where such data are available. Violence, or the fear of it, can prevent women from pursuing education, working, earning an income, making decisions about their health or their children's education, and exercising their political rights and voice.[98] Research shows that women who are more educated, have higher incomes, and have more decision-making power within the household or their community

Violence against women has deep long-term psychological and health consequences for women in and limits their ability to seek education or employment.

[97] UNESCO. 2017. Global Education Monitoring Report (2017). https://gem-report-2017.unesco.org/en/chapter/gender_accountability_through_school/
[98] https://hdr.undp.org/en/content/violence-against-women-cause-and-consequence-inequality

are less vulnerable to gender-based violence. At the same time, women who might pursue education, employment, or who otherwise are perceived to challenge the established balance of power within a household or community face an increased risk of gender-based violence. A growing body of evidence shows that the process of women's empowerment can trigger a backlash from male partners who seek to reassert their control by resorting to violence.[99][100][101] This complexity underscores the need for programs and interventions that mitigate backlash from shifting power dynamics and demonstrates the benefits of gender equality. The E4SEA Activity addresses this concern by working with both men and women managers to engage men as allies and transform those gender norms that can lead to violence.

Increased stress levels, economic insecurity, and fear due to the COVID-19 crisis and the implementation of lockdown measures might put many women at risk of increased domestic violence with fewer support resources for survivors. Women have reduced access to medical services, which can serve as important deterrents for detection and response to GBV. In SEA, gender lenses are mostly absent from post COVID-19 policy measures and recovery plans.[102] As of January 2021, data from the UNDP's COVID-19 Global Gender Response Tracker show that since the outbreak, 167 policy measures have been implemented by the SEA countries, of which only 50 are gender-sensitive.[103]

COVID-19 has exacerbated violence against women.

Regional and national gender policies do exist in all countries. However, gender, and related safeguard policies at the level of high schools and tertiary educational institutions, still need to be adopted and formulated into actions for promoting gender equality and providing a safe and inclusive learning environment for students. Findings from the FGDs and IDIs suggest that various forms of harassment and bullying exist in many schools, colleges, and universities. Specific gender and safeguard policies such as child protection and prevention of all forms of discrimination, harassment, and bullying against any individuals, have not yet been adopted in many educational institutions across SEA.[104]

Gender policies and safeguarding policies still need to be adopted or reinforced through actions in high schools and tertiary educational institutions to address bullying and GBV.

In many workplaces, including the male-dominated energy sector, safeguard policies, including non-harassment, and grievance mechanisms, exist but are not utilized. HR personnel, executives, and employees in energy companies lack the proper knowledge and expertise to address such practices due to unconscious bias. There is a lack of understanding of harassment, ranging from verbal sexual harassment to physical harm and injury.

Non-discrimination, anti-harassment and bullying policies and action plans exist in many energy sector workplaces. However, such practices are not always recognized, and grievance mechanisms need to be strengthened.

[99] Jahan, S. (2018), Violence against women, a cause and consequence of inequality, https://www.undp.org/content/undp/en/home/blog/2018/violence-against-women-cause-consequence-inequality.html
[100] Alonso-Borrego, C., and R. Carrasco (2017), "Employment and the risk of domestic violence: does the breadwinner's gender matter?", Applied Economics, Vol. 49/50, pp. 5074-5091,
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[102] https://www.oecd-ilibrary.org/sites/b01a4f2f-en/index.html?itemId=/content/component/b01a4f2f-en
[103] https://www.oecd-ilibrary.org/sites/b01a4f2f-en/index.html?itemId=/content/component/b01a4f2f-en
[104] E4SEA. 2021. IDIs and FGDs with key stakeholders in Thailand, Indonesia, and the Philippines (2021).

Many FGD participants believe that different forms of harassment and bullying issues in their workplaces exist, although they did not report any direct or indirect experience in this area. FGDs with female engineers and geologists highlighted that verbal harassment occurs in many forms. Many female engineers perceive dirty jokes as "common" or "normal" in male-dominated environments and do not take such matters seriously. Some women, however, perceived dirty jokes as sexual harassment and felt threatened by such verbal communication. Although most energy sector workplaces already have reporting and grievance redress mechanisms in place, female employees hardly utilize these mechanisms to report incidences of sexual harassment for fear of either not being taken seriously or of undue repercussions including losing their jobs and opportunities for promotion. This results in women not utilizing the grievance mechanisms.

The Sexual Violence Eradication Bill was developed in Indonesia in 2019 but has not been enacted. However, the legal proceeding can be implemented through the current system, and perpetrators are punished in many cases. Nevertheless, the delay in enacting it into law impacts the human dignity of GBV victims and the sense of security of girls and women.

In Indonesia, national policies, strategies, and legal documents regarding GBV have been put in place, but implementation challenges remain.

RECOMMENDATIONS

Conservative traditions and socio-cultural values, including "face-saving" and "protecting the family reputation" in Asian culture, can sometimes hinder gender equality and sexual harassment dialogue. Therefore, it is essential to recognize and mitigate GBV, including all forms of harassment and violation. The awareness raising activities and dialogue on GBV should involve both men and women to improve societal relations and social trust.

Proactive communication and education on GBV are necessary at every level, especially in educational settings and workplaces, for the prevention and handling of various levels of harassment and violation.

There is a lack of comprehensive reporting and data collection systems and statistics on gender-based violence, harassment, and domestic violence incidents in the region, especially in Indonesia and Thailand. The Philippines has made more progress in data collection and reporting. However, data and statistics on GBV and domestic violence cases in the region are still sporadic.

Awareness raising on different forms of harassment, bullying, GBV, and advocating on reporting of such incidents should be carried out in energy sector workplaces.

Given the dominance of bullying, GBV, and domestic violence in the region, it is crucial to provide technical support on awareness-raising and training to both educational institutions and energy employers on ways to detect, prevent, record, and address all forms of harassment, bullying, GBV and domestic violence, including encouraging the victims to report such incidences to appropriate authorities.

Male engagement programs lessen the risk of GBV to project participants. Awareness raising is needed, but if it only targets women (not the perpetrators), it will not be effective. Programs need to work with men, who are often the gatekeepers of norms governing GBV and other discriminatory practices, to further women's participation and equality.

OPPORTUNITIES FOR USAID/RDMA TO COLLABORATE WITH REGIONAL ORGANIZATIONS TO PROMOTE GESI IN THE SEA REGION

With the ever-increasing global attention on gender equality, Southeast Asia has also seen several efforts initiated and implemented to advance gender equality.

Despite the progress made in the past decades, many Southeast Asian countries still struggle to break away from the culturally and historically ingrained beliefs and norms regarding gender roles, leaving women and girls with barriers to overcome in order to equally advance at the same pace and towards the same goals as men and boys.

Despite the progress made in the past decades, many Southeast Asian countries still struggle to break away from the culturally and historically ingrained beliefs and norms regarding gender roles, leaving women and girls with barriers to overcome in order to equally advance at the same pace and towards the same goals as men and boys.

To explore opportunities for E4SEA to expand its collaboration with key regional programs and organizations and potentially identify areas where RDMA could expand its programs in partnerships with them. E4SEA conducted desk research and an informal survey of various regional gender programs. Some of the programs reviewed as part of this assessment included initiatives of key regional entities such as the ADB, Asian Center of Energy (ACE), ASEAN Foundation, GIZ, UN Mission to ASEAN (YSEALI), Asia Foundation, UNESCO, Southeast Asian Ministers of Education Organization ASEAN (SEAMEO), ENERGIA, Global Women's Energy Network for the Energy Transition (GWNET), and other entities. Table 14 summarizes some of the notable organizations and gender programs in the region.

E4SEA has engaged with a number of the organizations listed in Table 14 to explore potential collaboration opportunities, and plans to engage with several more regional entities to discuss potential collaboration opportunities. The initiatives of the regional entities in Table 14 range from generating better evidence and data on gender equality in the region to working at the programmatic and policy levels to improve women's and girls' skills, networks, and access to financial and social services that will help them thrive. More importantly, this regional snapshot of GESI efforts in different sectors has reiterated the unique space within which E4SEA is working in the region in that it is the first regional GESI activity exclusively devoted to enhancing opportunities for women in the energy sector. Specifically, E4SEA is bridging the gap between tertiary educational institutions and energy sector employers, the two crucial stakeholders instrumental in enhancing women's participation in the energy sector.

While none of the programs being implemented in the region are exclusively at the nexus of energy and gender, many of the tools, research techniques, best practices, and findings from these programs have a bearing on E4SEA and activities that RDMA may initiate in the future. Simultaneously, E4SEA, being the first regional GESI activity exclusively devoted to enhancing opportunities for women in the energy sector and bridging the gap between tertiary educational institutions and energy employers, has a lot to offer other programs in the region. Therefore, there are many potential opportunities for RDMA to

leverage its programs with other regional programs to advance opportunities for women to enter and prosper in the energy sector.

TABLE 14: SUMMARY OF GENDER PROGRAMS BY REGIONAL ORGANIZATIONS TO ADVANCE GESI IN THE SEA REGION

INITIATIVE	ORGANIZATION	REGION/ COUNTRY	BRIEF DESCRIPTION	SOURCE
1. Gender Counts: East and Southeast Asia	United Nations Children's Fund (UNICEF)	East and Southeast Asia	• In 2019, UNICEF launched a quantitative assessment of gender inequality and its impact on girls and boys in low- and middle-income countries in East and SEA. • The assessment shows the impact of gender inequality on girls in boys in four main domains: health, education and transition to employment, protection, and safe environment. • The report provides recommendations on key gender equality indicators and calls for investments in rigorous data collection and research to fill in the identified data and knowledge gaps.	https://www.unicef.org/eap/reports/gender-counts-east-and-southeast-asia

2. Sustainable Economic Development through Technical and Vocational Education and Training (SED-TVET)	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)	Indonesia	• Running from 2010 to 2017, SED-TVET was implemented by GIZ in collaboration with the Indonesian Ministry of Education and Culture (MoEC).
			• The program promoted the awareness and importance of gender equality in the Indonesian education system and workforce, and fostered women and girls' participation in STEM through private sector engagement.
			• Various activities were implemented under SED-TVET:
			  ○ 'Gender Films' on topics such as "Indonesian Women in Science and Technology" and "Diversity Pays Off: The Importance of Diversity Management for Companies" were made widely available.
			  ○ 'SMK Girls Innovation Camp: Digital Fluency for Career Enhancement' where female students and teachers from participating vocational schools learned the basics of innovation and technology with direct engagement with Intel Indonesia and exposure to female role models in the STEM fields.
				https://gender-works.giz.de/gender-competition-2017/fostering-women-in-science-and-technology-through-collaboration-with-the-private-sector/

3. Accelerate	Asia Foundation	Indonesia, Malaysia	• The Asia Foundation, in collaboration with AT&T and Visa, are launching the 'Accelerate' program to equip 6,000 women-led micro, small and medium-sized enterprises in rural and remote areas in Indonesia and Malaysia with relevant and practical skills to run and grow their businesses. • The initiative leverages expertise from the private and NGO sectors to deliver online training to women on digital, financial literacy and relevant soft skills, as well as providing	https://asiafoundation.org/2022/02/08/asia-foundation-partners-with-att-and-visa-to-launch-accelerate-in-malaysia-and-indonesia/

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INITIATIVE	ORGANIZATION	REGION/ COUNTRY	BRIEF DESCRIPTION	SOURCE
			them with mentoring from the Foundation's and local trainers.	
4. Strengthening Technical and Vocational Education and Training (STVETP)	Asian Development Bank (ADB)	Lao PDR	• Through STVETP, ADB helped women break through gender barriers to male-dominated "blue collar" work in Lao PDR. • Several initiatives were implemented to achieve the project's goal, including imposing quotas for women and girls to join TVET courses that cover skills crucial to Lao PDR's workforce, allocating vouchers to impoverished and out-of-school women and girls, reserving dormitory spaces to draw women and girls in rural areas to attend TVET education, as well as conducting social marketing to attract women and girls' interest in TVET education. • The project also helped strengthening partnerships between TVET institutions and the private sector, resulting in TVET courses being more relevant to employable, in-demand skills, and a higher rate of TVET students landing jobs post-graduation.	https://www.adb.org/results/how-lao-pdr-using-tvet-break-gender-barriers-work
5. Assessing Gender-Sensitivity in Thai Public Media	United Nations Educational, Scientific and Cultural Organization (UNESCO)	Thailand	• The project was launched as a follow-up action to the Global Forum on Media and Gender convened by UNESCO in 2013 in Bangkok, Thailand. • The Thai Public Broadcasting Service (Thai PBS), with the support of the International Programme for the Development of Communication, implemented this project by applying UNESCO's Gender-Sensitive Indicators for Media (GSIM) application, a tool by which media companies can assess gender sensitivity and help the organizations plan for and monitor their progress towards increased gender equality within their organizations and through media portrayal and content.	https://en.unesco.org/news/improving-gender-equality-and-through-media-thailand
6. Women's Economic Empowerment (WEE) Program	ENERGIA	Indonesia	• Running between 2014 and 2018, ENERGIA promoted women empowerment via developing women-owned renewable energy enterprises. The program was implemented in seven countries: Indonesia, Kenya, Nepal, Nigeria, Senegal, Tanzania, and Uganda. • Under the WEE umbrella, ENERGIA supported Kopernik, a poverty reduction non-profit, in launching their program in Indonesia under the name "Wonder Women". Wonder Women equipped women entrepreneurs in rural and remote areas in Indonesia with necessary skills to become successful micro-entrepreneurs in clean energy technology businesses. The program also offered leadership training and mentoring support to further strengthen the chance for growth and success.	https://energia.org/assets/2019/01/Supporting-Last-Mile-Women-Entrepreneurs.pdf

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INITIATIVE	ORGANIZATION	REGION/ COUNTRY	BRIEF DESCRIPTION	SOURCE
7. Weaving Leadership for Gender Equality (WAVES)	Center for People and Forests (RECOFTC)	Cambodia, Indonesia, Lao PDR, Myanmar, Nepal, Thailand, and Viet Nam	• WAVES is a three-year initiative funded by the Swedish International Development Cooperation Agency. The initiative promotes gender equality in governance, management, and use of forest landscapes and resources in the Asia-Pacific region. • To achieve its goal, WAVES built a network of gender leaders from across seven countries: Cambodia, Indonesia, Lao PDR, Myanmar, Nepal, Thailand, and Viet Nam. These leaders work in various disciplines both in the public and private sectors; and the majority of them are women. • WAVES equipped its gender leaders with leadership skills and provided them with regular mentoring and psychological support, allowing them to spearhead and lead gender equality efforts in policies, investments, and action.	https://www.recoftc.org/projects/WAVES/waves-weaving-leadership-gender-equality
8. Southeast Asia Women (SEA Women) Initiative	Young Southeast Asia Leaders Initiative (YSEALI) Women's Leadership Academy Alumni Network UN Mission to ASEAN	Southeast Asia	• SEA Women educates, connects, and empowers women across the Southeast Asia countries to tackle regional and global challenges. • The initiative's members are experts and leaders advocating and making changes in various sectors and fields, including energy and environment, education. healthcare, human rights, and science and technology. • SEA Women provides a platform for women leaders to collaborate and exchange mentoring support to one another.	http://southeastasiawomen.org/
9. Leadership and Mentorship Programs	Wedu	Southeast Asia and Global	• Wedu offers leadership development and mentoring programs, as well as funding for education opportunities to nurture women changemakers around the world. • A partnership between Wedu and the International Rescue Committee (IRC) in Thailand helped empower women and girl refugees from Myanmar through leadership and mentorship opportunities, supporting them to set goals and plan small steps towards their aspired future. • "Women Rise Fellowship" in Cambodia supported 20 high impact women leaders, particularly those working in health, education and GBV, to improve their leadership skills and capability to drive changes through their work. Other initiatives in Cambodia include trainings and mentorship sessions to promote and advance women's leadership in the STEM fields.	https://www.weduglobal.org/community-journeys/
10. Safe and Fair: Realizing women	International Labour Organization (ILO) and United	Southeast Asia	• As part of the global Spotlight Initiative to eliminate violence against women and girls between the European Union and the UN, Safe and Fair runs from 2018-2022 to ensure	https://asiapacific.unwomen.org/en/focus-areas/end-violence-

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migrant workers' rights and opportunities in the Association of Southeast Asian Nations (ASEAN) region	Nations Entity for Gender Equality and the Empowerment of Women (UN Women)		safe and fair labor migration for women in the ASEAN region. • The initiative works towards its goal by (i) improving the frameworks related to labor migration and ending violence against women; (ii) improving migrant worker's access to information, services, as well as opportunities for them to network and organize; (iii) raising awareness and promoting better understanding of the contribution of women migrants.	against-women/safe-and-fair
11. Gender Transformative and Responsible Business Investment in South-East Asia (GRAISEA) Program	Oxfam	South and Southeast Asia	• GRAISEA's goal is to improve the livelihoods of women and men small-scale producers in South and Southeast Asia. It ran from 2015 - 2018, and was implemented in Indonesia, Vietnam, Thailand, Cambodia, Philippines, Myanmar, Pakistan, and regionally at the ASEAN level. • The program aims to achieve win-win propositions - wins for communities, for women and men small-scale producers, and for larger businesses. Through multi-stakeholder cooperation, the program worked towards its goal by (i) developing an evidence base and implementing advocacy efforts to promote responsible and gender equitable practices amongst key stakeholders; (ii) developing environmentally and economically responsible and gender-transformative value chains that benefit men and women small-scale producers; (iii) promoting gender-transformative and responsible practices and policies and getting them adopted by companies; and (iv) promoting responsible and inclusive investments by financial institutions and investors.	https://asia.oxfam.org/policy-paper/win-win-win-influencing-gender-transformative-businesses-south-and-south-east-asia
12. Southeast Asia Gender Initiative	Organisation for Economic Co-operation and Development (OECD)	Southeast Asia	• The goal of this initiative is to develop better understanding of the existing gender equality landscape in SEA to be able to identify gaps and how OECD's partnerships with regional stakeholders can address them.. • Their initial proposed areas of focus include (i) comparative regional data-gathering and analysis to provide recommendations on gender equality in public life in SEA (joint with UNDP); (ii) development of regional networks of women entrepreneurs; and (iii) regional analysis applying the Social Institutions and Gender Index (developed by the OECD Development Center; the index measures discrimination against women in social institutions across 180 countries) to understand the relationship between relevant social institutions and core development outcomes of the ASEAN member countries.	https://www.oecd.org/southeast-asia/regional-programme/networks/southeast-asia-gender-initiative.htm

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INITIATIVE	ORGANIZATION	REGION/ COUNTRY	BRIEF DESCRIPTION	SOURCE
13. The ASEAN Women Entrepreneurs' Network (AWEN)	ASEAN	ASEAN member countries	• AWEN is a regional network of women entrepreneurs that exists to accelerate their development and networking opportunities. • AWEN's purposes include (i) creating a regional knowledge sharing forum for ASEAN women entrepreneurs; (ii) assisting ASEAN women entrepreneurs to improve necessary skills for their businesses; (iii) supporting ASEAN women entrepreneurs to gain better access to financial and social protection services; (iv) helping women who are starting businesses; and (v) fostering links with international and regional networks/organizations of women entrepreneurs.	https://www.asean.org/wp-content/uploads/images/2013/resources/publication/2012%20-%20Women's%20Entrepreneurs%20(Dec).pdf
14. SEAMEO STEM-ED	Southeast Asian Ministers of Education Organization	SEA Countries	• SEAMEO has 26 specialist institutions located in Southeast Asian countries that undertake training and research programs in various fields of education, science, and culture. Each Regional Centre has a Governing Board composed of senior education officials from each SEAMEO Member Country. The Governing Board reviews the Centers' operations and budget and sets their policies and programs. • The goal of the STEM-ED Centre is to strengthen K-12 competencies and inspire learners in STEM careers in 11 SE Asian countries, targeting schools, learners, resources, tools, and platforms. • E4SEA has held discussions on potential collaboration with two SEAMEO Centers: 1) SEAMEO Regional Centre for Sufficiency Economy Philosophy for Sustainability, THAILAND (SEAMEO SEPS) and 2) SEAMEO Regional Centre for Science Technology Engineering and Mathematics Education, THAILAND (SEAMEO STEM-ED).	https://www.seameo.org/w5 https://www.seameo.org/search/117#edu
15. Women in Wind Global Leadership Program	Global Women Global Women's Network for the Energy Transition (GWNET)		• GWNET's work focuses on: o Networking: facilitating connections among women working in the fields of renewable energy and energy efficiency to advance the energy transition, through events and the Women in Energy Expert Platform. o Advocacy: generating and disseminating information on the role of women in the energy transition as well as organizing conferences, seminars, and workshops which foster discussions and promote gender-sensitive action around the energy transition. o Mentoring: leading the development of several regional and global women mentoring programs as well as the matchmaking of mentors and mentees within the sustainable energy sector.	http://www.globalwomennet.org https://www.globalwomennet.org/wp-content/uploads/2019/03/GWEC-GNET-Women-in-Wind-Announcement-1.pdf

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			○ One of the programs under GWNET and the Global Wind Energy Council (GWEC) is the Women in Wind Global Leadership Program. The program is designed to accelerate the careers of women in the wind industry, support their pathway to leadership positions and foster a global network of mentorship, knowledge-sharing, and empowerment. In the SEA region, GWNET is engaged in Indonesia, the Philippines, Thailand, and Vietnam.	
16. Just Transition	Friedrich Ebert Stiftung (FES)	SEA Countries	• FES's regional program on climate and energy in Asia seeks to advocate for a Just Transition in the energy and mobility sector. The project actively discusses the role of women and other genders in shifting from fossil fuels to renewable energy across the region.	www.fes.de https://asia.fes.de/our-work/climate-change-energy-and-the-environment
17. New Energy Ecosystem Mapping, Philippines SolarSTEP, Thailand Vietnam Energy Accelerator Program	New Energy Nexus (NEX)	SEA Countries	• New Energy Ecosystem Mapping is a project initiated by New Energy Nexus in collaboration with different energy and innovation stakeholders in the Philippines. The project aims to produce an interactive ecosystem map, documents and database of various key players and indicators in the Philippine new energy landscape, that include renewable energy and energy-smart technologies. • The Solar SMEs Training and Entrepreneurship Program, or Solar STEP, is a 12-week business acceleration program for Solar Energy SMEs in Thailand to thrive with innovation, business strategies, and entrepreneur networks. • The Vietnam Energy Accelerator Program provides in-depth business support services to outstanding startup teams working on innovative energy sector ventures.	Philippines - New Energy Nexus: https://www.newenergynexus.com/programs/philippines/?msclkid=b94124b9b95b11ecb1557ec470d3f9ce Thailand - New Energy Nexus: https://www.newenergynexus.com/programs/thailand/?msclkid=d6f11d8eb95b11ecb1a23b77a1f4261f Vietnam - New Energy Nexus: https://www.newenergynexus.com/programs/vietnam/?msclkid=e2797a00b95b11ecadc496eb23c159ee
18. WePOWER South Asia	ADB/World Bank		• The WePOWER network supports women throughout South Asia, including partnerships with energy companies. The five pillars of WePOWER are STEM Education, Recruitment, Professional Development, Retention, and Policy and Institutional Change.	https://collaboration.worldbank.org/content/sites/collaboration-for-development/en/groups/the-wepowernetwork.html

OVERALL REGIONAL CONCLUSIONS

ASEAN countries have made significant progress in promoting gender equality in the last few decades. For example, the Philippines has reached the highest rank in closing the gender gap in SEA, followed by Lao PDR, Singapore, Thailand, Vietnam, and Indonesia. In 2020, ASEAN member countries demonstrated their commitments toward gender equality and the advancement of women's rights by consolidating the ASEAN Gender Mainstreaming Strategic Framework (GMSF).

Among the ASEAN middle-income countries, Indonesia, the Philippines, and Thailand have narrowed their gender gaps in three of the four sub-indices, including 1) economic participation and opportunity, 2) educational attainment, and 3) health and survival, but have regressed on political empowerment of women. Regarding gender equality in the energy sector, there is an overall increase in the percentage of women employees and women in senior leadership positions compared to 10-15 years ago. Still, the energy sector remains male-dominated in the region. There are socio-cultural, institutional, and legal factors leading to lower enrollment of women in STEM studies and the workforce, resulting in fewer women employed in the energy sector.

Socio-cultural norms on traditional gender roles persist in the region and influence the career choices of young women and men. Although these attitudes are changing among the new generations, decisions on higher education and career choices are very much influenced by parents. In most cases, parents expect their daughters to work in a safe environment, traditionally considered 'suitable' for women. However, the study finds that many parents support their daughters choosing STEM studies and careers in the energy sector.

For high school students, teachers, and parents, the lack of career advice and role models of women in the energy sector is another hindering factor. Despite increasing demand for women in the energy sector, especially in renewable energy, information on the growing opportunities is not widely available to female students. Tertiary educational institutions do not have enrollment policies that discriminate against gender in STEM fields. Still, there have not been sufficient efforts to reach out to and engage female students in STEM.

Young people in an energy exporter country with abundant energy resources like Indonesia see more prospects in energy-related education and careers than those in energy importing countries such as Thailand. Regional findings from primary research on the student life cycle reflect that most female STEM students chose their program of study based on their interest and their entrance examination scores. In some STEM studies, such as environmental science and geology, the ratio of female to male students is about equal in most universities. Although most students are not aware that the universities have explicit policies to promote gender equality, male students do not feel that any discrimination against female students exists regarding access to learning facilities or participation in extracurricular activities.

Intellectually, there are no significant differences in academic performance between male and female students. However, female students may be perceived as less competent in technical operations that require physical strength. Dropouts among female STEM students are associated with low levels of academic performance and limited access to financial support. During a financial crisis, parents are more likely to support their sons than daughters to continue their education.

Government and tertiary education policies and programs are not sufficiently up to date in producing graduates with 21st-century skills. There is a mismatch between what graduates obtain from higher education and the basic skills needed for the rapidly changing global and regional economy and the job market. For example, in terms of ASEAN governments' policies on energy transition, not many universities and vocational schools offer specific curricula to support renewable energy (RE) growth. This job market is expected to proliferate as the countries in the region transition towards RE and decarbonization.

Despite the increasing number of female graduates in STEM, including energy-related programs, employment opportunities for women in the energy sector are still limited. This is especially the case in conventional energy, where employers prefer to hire male engineers. Even in a country with relatively fewer gender barriers like Thailand, unconscious gender biases exist widely. Male candidates tend to be selected for jobs traditionally defined as "male jobs". On the other hand, in Indonesia and the Philippines, there is a growing trend of recruiting women in the transitioning energy sector. The emergence of RE in the region offers more employment opportunities for women in engineering and technical areas, as these do not require as much physical strength and challenging working conditions traditionally associated with conventional energy.

Senior leadership positions in the energy sector are still male dominated but the proportion of women in senior leadership is increasing in the region, with Thailand ahead of many countries including Indonesia and the Philippines. Many of these women in senior leadership positions have a finance and accounting background, not a STEM background. Therefore, there is an opportunity to encourage girls and women to pursue both STEM and non-STEM studies to increase women's participation and advancement in the energy industry. It is commonly perceived that women's leadership can bring new outlooks and diverse perspectives to the organization and enhance overall business performance. Women in energy workplaces are recognized as excellent communicators and negotiators due to their soft skills.

Most energy companies surveyed in the primary research do not have an explicit gender equity and gender equality policy. However, they have an overarching non-discrimination policy applied to recruitment, compensation and benefits, retention, and promotion practices. Presently, most women in the energy sector are employed in administrative, HR, and finance areas rather than in STEM roles. Historically, the conventional energy sector workplaces were not initially designed for women. Going forward in the energy transition of the SEA region, the diversifying energy sector workplaces should be "co-designed" by women to attract and increase women's participation and advancement. Globally, more women are in the RE sector than the conventional energy sector. As more and more engineering work can be operated through remote sensing of field data, women can work on data processing from behind the desk or in an office environment and, as always, effectively manage technical and engineering jobs.

Global standards and national stock market requirements encourage multinational energy companies to take proactive action in advancing gender equality in their governance models and approaches to running their businesses. In Indonesia, for example, several networks of women engineers and energy professionals have been established and are actively operating at the national level. In Thailand, there is an Association of Private Power Producers, currently chaired by a woman who is also a former CEO of a prominent energy company.

In most countries in the region, to varying degrees, women's rights and gender equality are addressed in the constitution, organic laws, and public policies. Relevant committees and implementation mechanisms are also in place although with a varying degree of enforcement and effective operations. For example, compared with Thailand and Indonesia, the public sector in the Philippines has made outstanding progress in gender mainstreaming across public organizations, including the development and use of the Gender Mainstreaming Toolkit (GMT) for the energy sector.

Finally, while the ASEAN region has made progress in all areas of gender equity and gender equality, considerable work is still needed to reverse the traditional and cultural biases and practices among universities, vocational education institutions, and the energy industry.

Strong gender-energy networks, aggressive and targeted interventions, strong partnerships, and a persistent commitment to harness the benefits to both the community and the economy are needed to achieve the goal of gender equity and gender equality in the energy sector for the economy as a whole.

Forming strong and impactful regional partnerships with common goals and commitments to 1) enhancing opportunities for women in the energy sector, 2) creating gender-inclusive and gender-equitable governance culture and corporate management, and 3) delivering overall economic and social benefits in the SEA are needed. To this end, RDMA has a unique opportunity to leverage its program with regional partners to advance the Administration's gender strategy and facilitate just transition of the energy sector.

Strong gender-energy networks, aggressive and targeted interventions, strong partnerships, and a persistent commitment to harness the benefits to both the community and the economy are needed to achieve the goal of gender equity and gender equality in the energy sector for the economy as a whole.

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