

# FEDERATION OF MYANMAR ENGINEERING SOCIETIES



## WOMEN ENGINEERS CHAPTER

### **Empowering Women in Engineering for Sustainable Development (Driving Inclusive Solutions for a Greener Future)**

Presented By

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(Fed-MES)

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9.11.2024

Saturday

# Outlines of Presentation

- ❖ Introduction
- ❖ Role of Women in Engineering for Sustainable Development
- ❖ Current Landscape and Representation of Women in Engineering
- ❖ Challenges and Barriers to Women's Participation
- ❖ Empowering Initiatives and Policies
- ❖ Case Studies: Women Engineers Leading Sustainable Projects
- ❖ The Impact of Women in Engineering on Sustainable Development Goals
- ❖ Future Vision and Call to Action
- ❖ Conclusion

# Introduction

## Why Empower Women in Engineering for Sustainability?

- Importance of gender diversity in achieving sustainable development goals (SDGs)
  - Overview of women's unique contributions to engineering and sustainability
  - How empowering women can lead to innovative, inclusive, and resilient solutions
- 
- ❖ Sustainability Challenges: Climate change, renewable energy, smart infrastructure, and resource management require innovative engineering solutions.
  - ❖ The Role of Diversity: Women bring fresh perspectives, innovation, and diverse approaches to problem-solving in engineering fields.
  - ❖ Underrepresentation in Engineering: Despite progress, women remain underrepresented, limiting their impact on sustainable development.
  - ❖ Empowering Women = Stronger Solutions: Gender diversity in engineering fosters more inclusive, effective, and sustainable solutions for global challenges.

**#17: Partnerships to achieve the Goal:** GPOC and its Foundation would be a strong global partner to achieve these goals and freedoms

**#16: Peace and Justice Strong Institutions:** the suggested GPOC Foundation would be such a partnering institution, which would strengthen gender and individual rights and justice

**#15: Life on Land:** GPOC would have indirect positive impact, with its more ecological structure, compared to paper records or centralised PHRs

**#14: Life Below Water:** GPOC would have indirect positive impact in the same way as #15.

**#13: Climate Action:** GPOC is more environmentally protective according to world leaders

**#12: Responsible Consumption & Production:** GPOC is likely more environmentally responsible

**#11: Sustainable Cities & Communities:** GPOC is likely more protective of the environment

**#10: Reduced Inequality:** patient empowerment, health education and co-ownership with GPOC would reduce inequality

**#9: Industry, Innovation & Infrastructure:** GPOC would contribute as a platform in the innovative eHealth, AI in healthcare industry, research and development

**#1: No Poverty:** Patient health empowerment with GPOC and improved health could decrease poverty, and monitor economic effects on health

**#2: Zero Hunger:** the tracing and monitoring of global malnutrition and medical consequences would be facilitated with GPOC, and provide early warnings for population at risk

**#3: Good Health & Well-being** would increase with the interaction, mobility, research, distributed medical AI applications and patient co-ownership of GPOC

**#4: Quality Education:** Health, patient education, and medical research, would increase with GPOC

**#5: Gender Equality:** GPOC increases individual patient empowerment and "would help in the fight against FGM" according to an international NGO

**#6: Clean Water & Sanitation:** diseases caused by the lack of these could be easier to track with GPOC

**#7: Affordable & Clean Energy:** a decentralised GPOC would be more energy efficient than current solutions

**#8: Decent Work & Economic Growth:** GPOC economic model monitors & identifies true costs of healthcare, and gives early warnings.





**5 GENDER EQUALITY**



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To achieve gender equality and empower all women and girls



**SUSTAINABLE DEVELOPMENT GOALS**

- **Achieve gender equality and empower all women and girls.** Gender equality is not only a fundamental human right, but a necessary foundation for a peaceful, prosperous and sustainable world.
- There has been progress over the last decades, but the world is not on track to achieve gender equality by 2030.



**SDG 9: INDUSTRY, INNOVATION & INFRASTRUCTURE**



**9 INDUSTRY, INNOVATION AND INFRASTRUCTURE**



**PROSPERITY**

We are concerned citizens

 <b>7 AFFORDABLE AND CLEAN ENERGY</b>	 <b>8 DECENT WORK AND ECONOMIC GROWTH</b>	 <b>9 INDUSTRY, INNOVATION AND INFRASTRUCTURE</b>	 <b>10 REDUCED INEQUALITIES</b>	 <b>11 SUSTAINABLE CITIES AND COMMUNITIES</b>
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# Role of Women in Engineering for Sustainable Development

## ❖ Building a Sustainable Future through Engineering

- How engineering fields contribute to sustainable development (e.g., green energy, waste reduction, sustainable infrastructure)

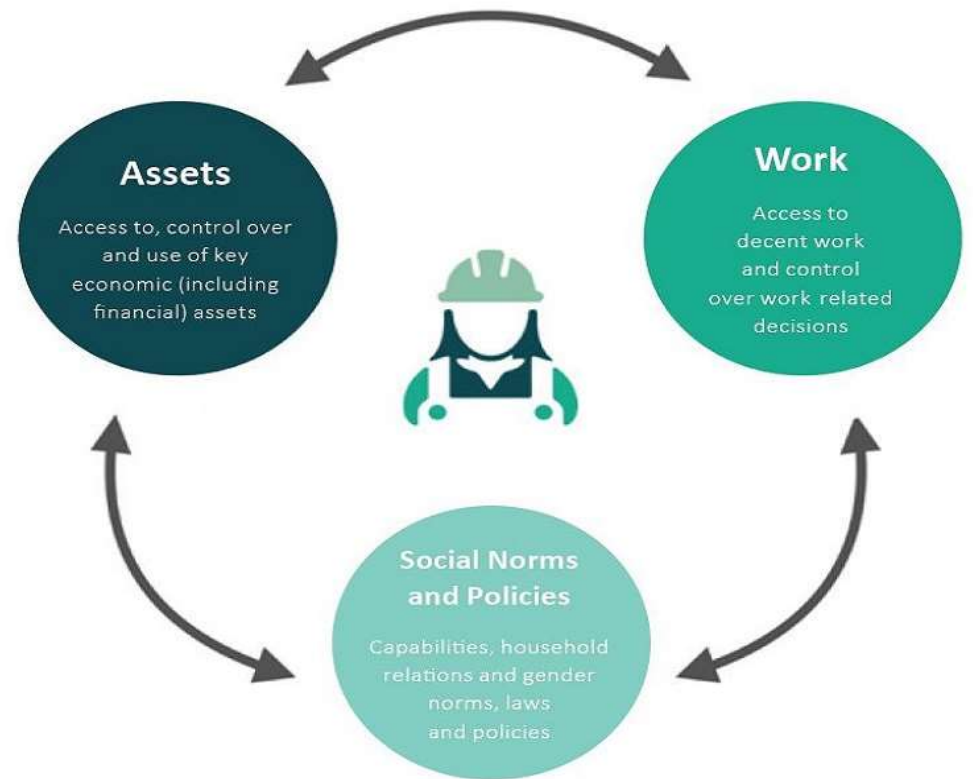


- Women's role in addressing challenges like climate change, resource scarcity, and energy efficiency
- Highlighting the link between women's participation in engineering and better environmental outcomes
- Women are under-represented in engineering, yet they are needed to develop inclusive solutions.
- They provide much manual labour in African countries, so they are better placed to provide gender-responsive insights.
- More women engineers would mean more role models for future generations.

Women represent half of the world's population, need the same resources and face the same global challenges – often at a disadvantage – as the other half.

- And yet, far fewer women are involved in designing and developing smart, sustainable technology-based solutions that would allow us all to live better lives.

# Initiatives aimed at promoting gender equality in construction



**overcoming the impacts of climate change on women in agricultural supply chains**



# Current Landscape and Representation of Women in Engineering

## ❖ Women Engineers Today

- Current statistics on women in engineering fields, including sustainable-focused areas like environmental engineering, energy, and urban planning
- Representation gaps and regional perspectives, particularly in areas like ASEAN



Wind Farm Engineers carrying out a site audit



# Women in Engineering: A Growing Force

- ❖ The Women Engineers Chapter was established on 2nd April 2013 as a part of the Federation of Myanmar Engineering Societies.
- ❖ Federation of Myanmar Engineering Societies-Women Engineers (Fed. MES-WE) is formed by a group of women engineers from Technological Universities, as well as the public and private sectors.
- ❖ These founding members saw the need to set up a venue for supporting the academic and professional careers of women engineers, helping them become effective and up-to-date, and coordinating with other women engineer organizations around the world.

# Federation of Myanmar Engineering Societies Women Engineers Chapter (Fed.MES-WE) (2019-2024)

1	Patron	Daw Si Than	15	Member	Daw Than Than Win
2	Advisor	Dr. Khin Sandar Tun	16	Member	Daw Chaw Su Su Aye
3	Advisor	Dr. Oo Oo Khin	17	Member	Dr. Kyaing
4	Advisor	Daw Kyi Kyi Pyone	18	Member	Daw Su Su Hlaing
5	Advisor	Daw Hla Oo Nwe	19	Member	Daw Khin Swe Oo
6	Chairman	Daw Htay Htay Win	20	Member	Daw Khin Aye Myint
7	Vice Chairman	Daw Mya Mya Win	21	Member	Daw Aye Aye Khaing
8	Secretary	Daw Yin Yin Mya	22	Member	Daw Ei Ei Shein
9	Joint Secretary	Dr. Pwint Thandar Kyaw Kyaw	23	Member	Daw Lei Lei Win
10	Treasurer	Daw Myat Myintzu	24	Member	Daw Khin Htay Myint
11	Joint Treasurer	Daw Wine Tone Chit	25	Member	Daw Yin Yin Swe
12	Auditor	Daw Thi Thi Soe	26	Member	Daw Yee Yee Win
13	Joint Auditor	Daw Win Mon Mon Lwin	27	Member	Dr. Thida Tun
14	Publicist	Daw Sandar Myint			

# CAFEO 35, 2017 Bangkok, Thailand



# Annual General Meeting 2017



Honoring Event to International Women's Day, Donation to Mingalar Parahita Gayhar,

# 5th International Industrial Technology and Machinery Show 2018 Nay Pyi Taw



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### Programme

Festivities Hall, 3rd Floor, Fed.MES Building	
08:30	Registration
09:00	Opening Ceremony Speech by special guests Welcome Speech Photo Session
09:15	Coffee Break
09:30	Session 1 Dr. Marlene Kargo, President World Federation of Engineering Organizations (2017-2019)
09:45	Session 2 Prof. Chao-Li Wu, Chair International Network of Women Engineers and Scientists (Asia and Pacific) Network (2018-2020)
10:00	Session 3 Women Engineers Chapter Federation of Myanmar Engineering Societies
10:15	Break
10:30	Panel Discussion 1 "The Role of Women in Engineering to advance the UN Sustainable Development Goals (SDGs) and Myanmar Sustainable Development Plan (2018 - 2030)"
11:15	Coffee Break
11:30	Panel Discussion 2 "Taking challenges as opportunities by Myanmar Women Engineers to stay ahead in their profession"
12:00	Closing Ceremony Banquet Hotel, Yangon
02:00	Open Office



FEDERATION OF MYANMAR ENGINEERING SOCIETIES (Fed.MES)



THE FIRST MYANMAR WOMEN ENGINEERS SUMMIT 2020

Theme: GENDER, ENGINEERS AND MYANMAR

17th January 2020  
Fed.MES Building, Hlaing Universities' Campus, Hlaing Township, Yangon, Myanmar



World Water Day 2019



Technical Seminar

# Challenges and Barriers to Women's Participation

## ❖ Barriers Women Face in Engineering

- Gender biases, limited mentorship, and underrepresentation in leadership roles
- Cultural and societal barriers specific to different regions, such as ASEAN
- The “leaky pipeline” effect, where women leave STEM fields at higher rates



# Korea-ASEAN Women in STEM Forum at BEXCO, Busan



# WOMEN IN LEADERSHIP



Peace agreements are **35% more likely to last at least 15 years** if **WOMEN LEADERS** are engaged in their creation and execution.



Countries with a greater proportion of **WOMEN AMONG TOP DECISION-MAKERS** in legislatures **have lower levels of income inequality.**



Countries with a greater share of **WOMEN CABINET MINISTERS** exhibit **greater levels of confidence in their national governments.**

20-30%



Increasing access to resources and **WOMEN'S LEADERSHIP IN AGRICULTURE** could **increase agricultural yield by 20-30%.**



When women hold more executive leadership positions, their companies are more profitable. Companies in the top-quartile for **GENDER DIVERSITY ON EXECUTIVE TEAMS** are **21% more likely to outperform the national average.**

When more women leaders hold **CABINET POSITIONS**, there is a trend toward **increased spending on health services.**



**WOMEN'S DECISION-MAKING OVER LAND** and household income **improves access to education and healthcare for their families.**



# Challenges Women Face in Engineering

- ❖ **Cultural and Social Norms:** Traditional gender roles and family expectations often limit women's participation in engineering.
- ❖ **Lack of Role Models:** Few women in leadership positions in engineering make it difficult for younger women to find mentors and inspiration.
- ❖ **Limited Access to Education:** Women from rural areas face barriers to STEM education and technical training.
- ❖ **Workplace Discrimination:** Gender bias affects hiring, promotions, and pay. Women often face inadequate support systems, such as flexible work hours or maternity leave.
- ❖ **Underrepresentation in Leadership:** Women are underrepresented in senior management roles, limiting their influence over key decisions.
- ❖ **Workplace Safety and Comfort:** Some engineering sectors, like construction, present unsafe or uncomfortable conditions for women.
- ❖ **Balancing Career and Family:** Women often struggle to balance professional growth with societal expectations of family responsibilities.
- ❖ **Overcoming these challenges requires improved education access, workplace policies, and promoting women's leadership in engineering fields.**



# Workplace Equity: Navigating Challenges Faced by Women Engineers



# Empowering Initiatives and Policies

## ❖ Supporting Women in Engineering for Sustainability

- Organizations and programs (e.g., UN Women, Society of Women Engineers) providing resources, mentorship, and support
- Company and government policies promoting gender diversity and supporting women's growth in engineering roles
- ASEAN-specific programs encouraging women in STEM and sustainable development

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**Silver Sponsor**



**Programme**

Function Hall, 3<sup>rd</sup> Floor,  
Fed.MES Building

08:00	Registration
09:00	Opening Ceremony Speech by special guest Welcome Speech Photo Session
10:15	Coffee Break
10:45	Keynote 1 Dr. Marlene Kango, President World Federation of Engineering Organisations (2017-2019) Keynote 2 Prof. Chia-Li Wu, Chair International Network of Women Engineers and Scientists (Asia and Pacific Nations Network (2018-2020)) Keynote 3 Women Engineers Chapter Federation of Myanmar Engineering Societies
12:15	Lunch
1:15	Panel Discussion 1 "The Role of Women in Engineering to advance the UN Sustainable Development Goals (SDGs) and Myanmar Sustainable Development Plan (2018 - 2030)"
2:45	Coffee Break
3:00	Panel Discussion 2 "Taking challenges as opportunities by Myanmar Women Engineers to stay ahead in their professions"
4:30	Closing Ceremony
4:00	Gala Dinner

**FEDERATION OF MYANMAR ENGINEERING SOCIETIES (Fed.MES)**

**THE FIRST MYANMAR WOMEN ENGINEERS SUMMIT 2020**

**Theme: GENDER, ENGINEERS AND MYANMAR**

17<sup>th</sup> January 2020

Fed.MES Building, Hlaing Universities' Campus,  
Hlaing Township, Yangon, Myanmar



## Empowering Women in Engineering

- Embracing diversity in the built environment is not just the right thing to do, it's the smart thing to do.
- By promoting diversity and **inclusive practices**, we can create a more innovative, successful industry that benefits everyone.

## Promoting Collaboration and Partnerships



- Overall, collaboration and partnerships are key to promoting diversity and inclusion in the built environment.
- By working together, industry associations, educational institutions, and government bodies can create a more inclusive industry that promotes the participation and advancement of underrepresented groups.



## ➤ Empowering Women Engineers: Key Strategies

- ❖ **Promoting STEM Education:** Enhance access to STEM education for girls and women, particularly in rural areas, through scholarships and awareness programs.
- ❖ **Mentorship and Role Models:** Establish mentorship programs that connect young women engineers with successful female professionals to provide guidance and inspiration.
- ❖ **Workplace Inclusion:** Encourage gender-sensitive policies in engineering firms, such as flexible work hours, maternity leave, and anti-discrimination measures.
- ❖ **Leadership Development:** Provide leadership training and opportunities for women to take on managerial roles in engineering sectors.
- ❖ **Networking Opportunities:** Create platforms like the Women Engineers in Fed-MES to build professional networks, share knowledge, and offer support.
- ❖ **Advancing Digital and Green Solutions:** Encourage women engineers to participate in Myanmar's growth through digital transformation, smart engineering, and sustainable energy projects.
- ❖ **These strategies are essential for empowering women engineers to contribute meaningfully to Myanmar's technological and sustainable future.**

# Empowering the Next Generation: Women in Engineering Education



# Case Studies: Women Engineers Leading Sustainable Projects

## ❖ Success Stories in Sustainable Engineering

- Case studies of successful women-led engineering projects in sustainable energy, urban planning, or waste management
- Emphasis on projects from ASEAN or developing regions that benefit communities and support sustainable goals
- How these projects contribute to SDGs, like clean energy (SDG 7) and sustainable cities (SDG 11)



# Women Engineers Leading Sustainable Projects

- ❖ **Renewable Energy Leadership:** Women engineers are playing key roles in designing and managing solar, wind, and hydropower projects, contributing to Myanmar's shift towards green energy.
- ❖ **Sustainable Infrastructure Development:** Female engineers are leading the development of eco-friendly infrastructure, including energy-efficient buildings and sustainable transport systems.
- ❖ **Environmental Conservation:** Women are actively involved in engineering projects that focus on water management, waste reduction, and environmental protection, promoting sustainability in local communities.
- ❖ **Green Technology Innovation:** Many women engineers are at the forefront of innovative green technologies, helping Myanmar adopt smart engineering solutions that reduce environmental impact.
- ❖ Women engineers in Myanmar are crucial in leading sustainable development projects and driving progress towards a greener and more resilient future.

# Techno Hill | Micro-grid projects in Myanmar



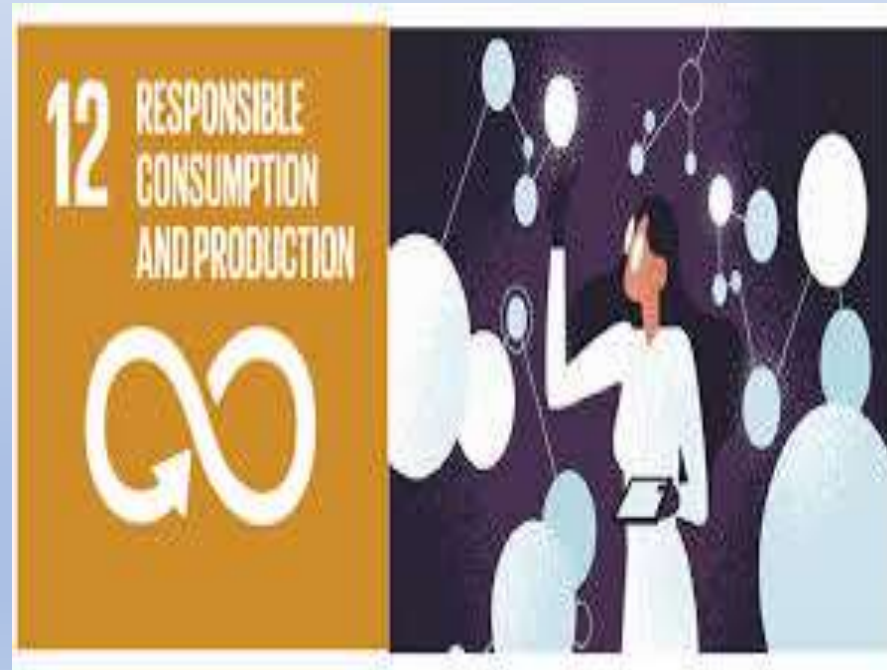




# The Impact of Women in Engineering on Sustainable Development Goals

## ❖ Women Engineers Powering the SDGs

- The specific SDGs that benefit from increased participation of women in engineering, such as climate action (SDG 13), responsible consumption (SDG 12), and gender equality (SDG 5)



# 'Gender Equality in the STEM Workforce.'



Source: The 8<sup>th</sup> International STEM Education conference 2023.

# Future Vision and Call to Action

## ❖ Empowering Women Engineers for a Sustainable Tomorrow

- Vision for greater gender diversity in sustainable engineering fields
- Encouragement for institutions, governments, and companies to support women in engineering
- Call to action for audience members to advocate for policies that empower women and promote sustainability
  - ❑ Empowering women in engineering is important for a sustainable future because their contributions are crucial to building a viable future.
  - ❑ Women engineers are involved in designing autonomous vehicles and creating renewable energy sources.



# The Strategy of the Fed.MES-WE

- ❖ Encourage female students to pursue engineering studies leading to engineering careers for our country's infrastructure development.
- ❖ Encourage women engineers to continue engineering practice.
- ❖ Support women engineers throughout their engineering careers and celebrate the achievements of women in engineering

## MISSION

- ❖ The mission of Fed.MES-WE is to build a large network connecting women engineers, to embrace and deliver the results of living on purpose based on courage and joy.

## VISION

- ❖ To encourage women engineers to remain in the engineering practice
- ❖ To support the professional development of women engineers
- ❖ To encourage and celebrate the achievements of women engineers and ultimately leaders
- ❖ To profile inspirational women engineers of exemplary models inspiring next generation

# Best Practices for Supporting Women Engineers

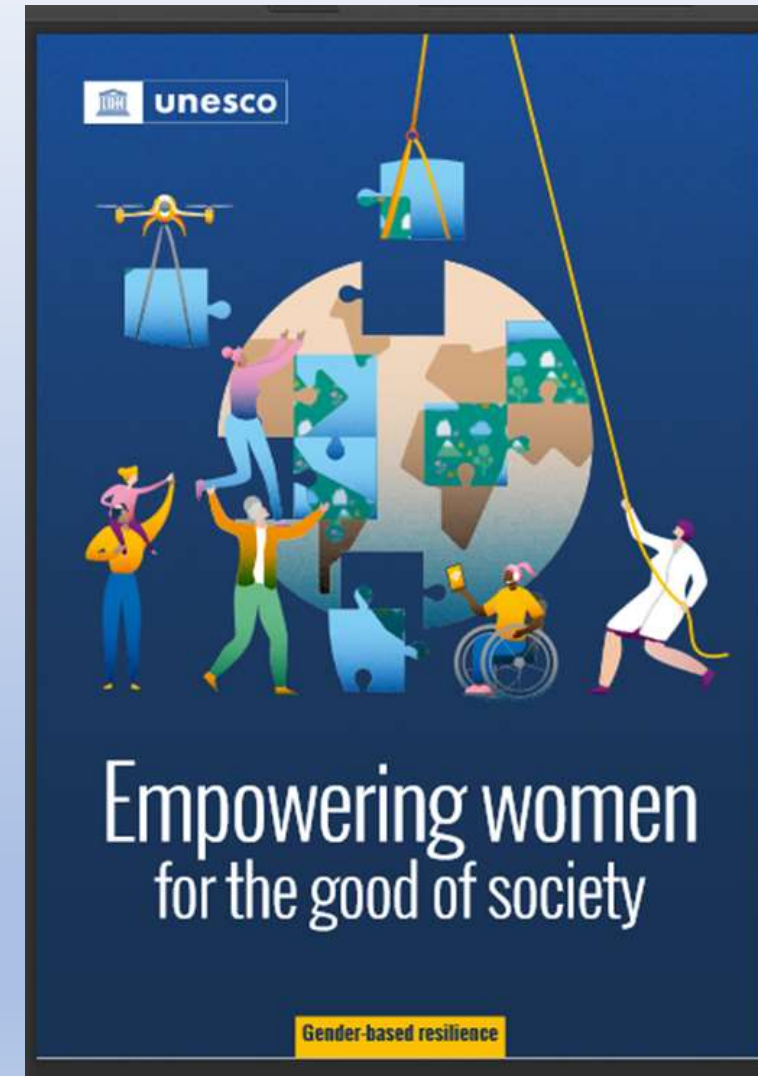
- ❖ **Promote STEM Education:** Encourage girls to pursue STEM through scholarships and awareness programs, especially in rural areas.
- ❖ **Mentorship Programs:** Establish mentorship networks where experienced female engineers guide and inspire younger women.
- ❖ **Inclusive Workplace Policies:** Implement gender-friendly policies like equal pay, maternity leave, and flexible work hours.
- ❖ **Networking and Development:** Create platforms for women to network, collaborate, and access professional development opportunities.
- ❖ **Leadership Opportunities:** Provide leadership training and promote women to management roles in engineering.
- ❖ **Encourage Participation in Sustainable Projects:** Support women in leading green and digital engineering projects for sustainable development.
- ❖ **Combining education, mentorship, and inclusive policies will empower women engineers and foster gender equality in Myanmar's engineering sector.**

# The Future of Women in Engineering

- ❖ **Growing Opportunities in STEM:** With increased access to STEM education, more women are entering engineering fields, driven by scholarships and awareness programs.
- ❖ **Leadership in Sustainability:** Women are playing a vital role in leading green energy and sustainable development projects, contributing to Myanmar's eco-friendly future.
- ❖ **Digital Transformation:** Women engineers are poised to lead Myanmar's digital transformation, participating in smart engineering and innovative technologies.
- ❖ **Supportive Networks and Policies:** Growing support through organizations like the Women Engineers in Fed-MES of Myanmar (WE-Fed-MES), mentorship programs, and gender-inclusive workplace policies are shaping a more inclusive future.
- ❖ **Challenging Gender Norms:** Women are increasingly breaking traditional stereotypes, taking on leadership roles, and inspiring the next generation of female engineers.
- ❖ The future is promising for women in engineering in Myanmar, with growing opportunities in sustainability, digital transformation, and leadership roles.

## Conclusion

- Recap the importance of empowering women in engineering for a sustainable future
- The role of diversity in fostering innovation and sustainable solutions
- Final inspiring message or quote on women's potential to drive sustainable progress
- ❖ essential for achieving sustainable development goals.
- ❖ Promoting access to education, mentorship, and leadership opportunities can harness the full potential of women engineers.
- ❖ unique perspectives and innovative solutions are vital in addressing environmental challenges and driving industry-sustainable practices.
- ❖ To challenge gender norms and implement supportive policies, pave the way for a more equitable and resilient future.
- ❖ **The active participation of women in engineering not only enhances economic growth but also fosters inclusive communities, ensuring a sustainable tomorrow for all.**





Thanks You So Much For Your Attention

