The Role and Working Environment of Women in Engineering

Engr. Yin Yin Mya
Associate Professor
Department of Electrical Power Engineering
West Yangon Technological University

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Presentation Agenda

- Objectives
- Introduction
- Roles of women in engineering
- Working environment in engineering
- Challenges and barriers
- Safety, leadership, and policy aspects
- Sustainable development perspective
- Recommendations and conclusion

Objectives

- Understand the role of women in engineering
- Examine the working environment of women engineers
- Identify challenges and opportunities
- Propose strategies for inclusive engineering workplaces

Introduction

- Engineering plays a key role in national and global development
- Importance of gender diversity in engineering
- Women engineers contribute technical skills, innovation, and leadership
- Despite progress, challenges remain in roles and work environments


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Importance of Women in Engineering

- Diverse perspectives improve engineering solutions
- Women contribute to social, economic, and sustainable development
- Gender diversity enhances innovation and productivity

Women in Engineering: Global Overview

- Increasing participation of women in engineering education
- Lower representation in senior and leadership positions
- Variation across regions and engineering sectors

Regional and Developing Country Context

- Strong participation in the public sector and academia
- Limited opportunities in construction and site engineering
- Cultural and institutional challenges

Roles of Women in Engineering

- Design and planning engineers
- Construction and site supervision
- Operation and maintenance engineers
- Research, teaching, and innovation
- Management and policy-making roles

Technical Roles and Responsibilities

- Engineering design and analysis
- Project planning and implementation
- Quality control and system optimization

Women Engineers in Leadership

- Project managers and team leaders
- Decision-makers in organizations
- Role models and mentors for young engineers

Understanding the Working Environment

- Physical workplace conditions
- Organisational culture and policies
- Professional development opportunities
- Health, safety, and well-being

Workplace Culture in Engineering

- Respect and professional recognition
- Equal opportunities and fairness
- Team collaboration and communication

Physical Working Conditions

- Office-based engineering work
- Site-based and field engineering work
- Availability of gender-sensitive facilities

Challenges Faced by Women Engineers

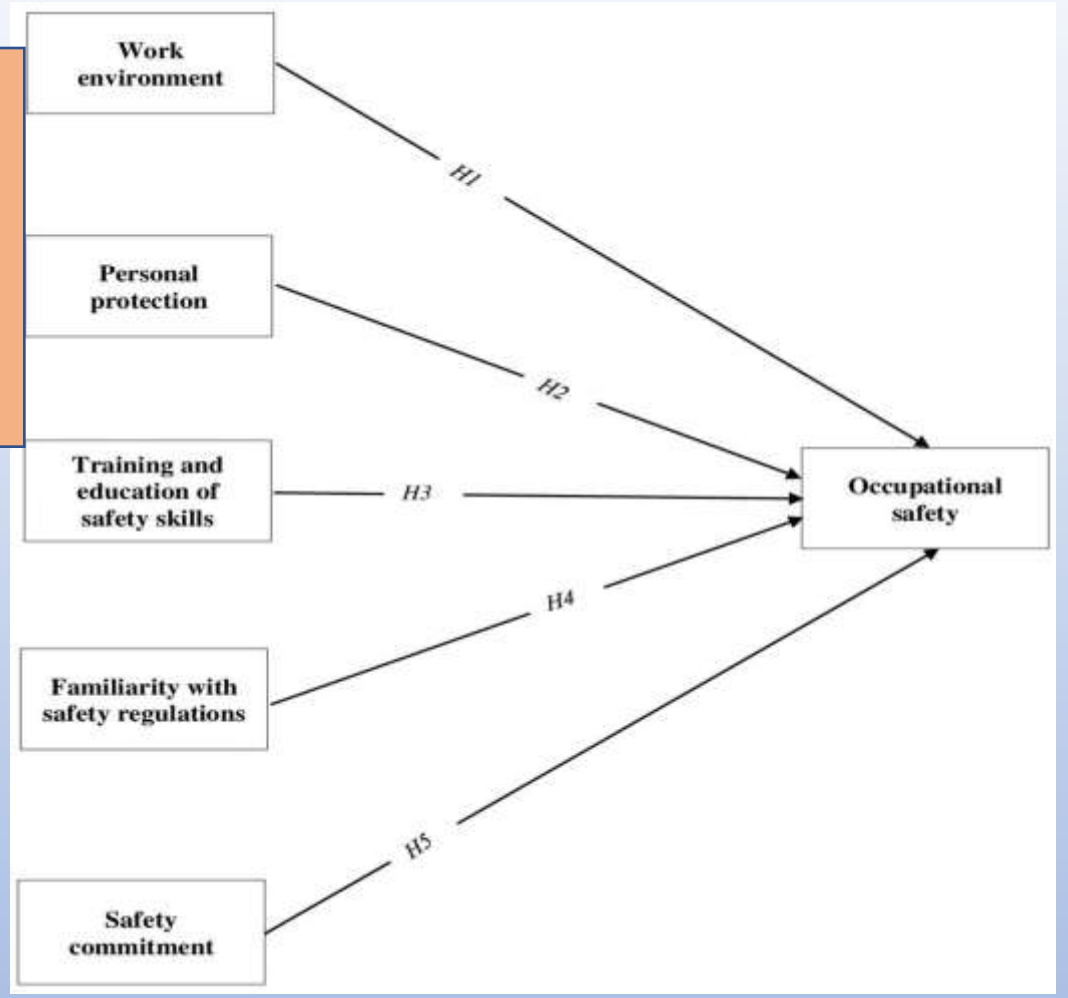
- Gender bias and stereotypes
- Limited career advancement opportunities
- Balancing professional and family responsibilities

Challenges in Construction and Site Work

- Harsh working environments
- Safety and security concerns
- Lack of supportive facilities

Occupational Health and Safety

- Importance of safe working environments
- Gender-responsive safety measures
- Training and protective equipment



Policy and Institutional Framework

- Equal employment opportunity policies
- Anti-discrimination laws
- Family-friendly workplace policies

Education and Skill Development

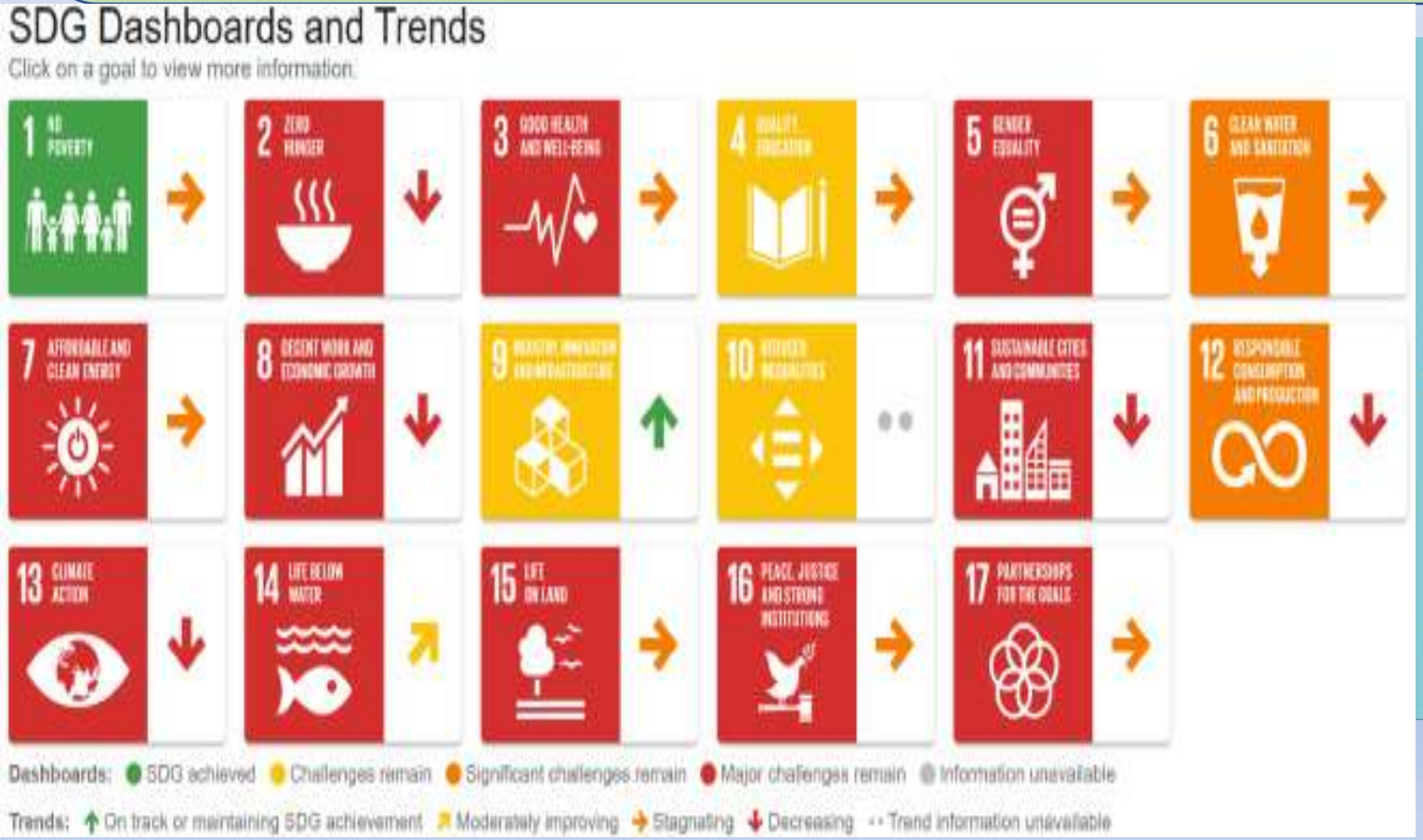
- Access to engineering education
- Continuous professional development
- Digital and green engineering skills

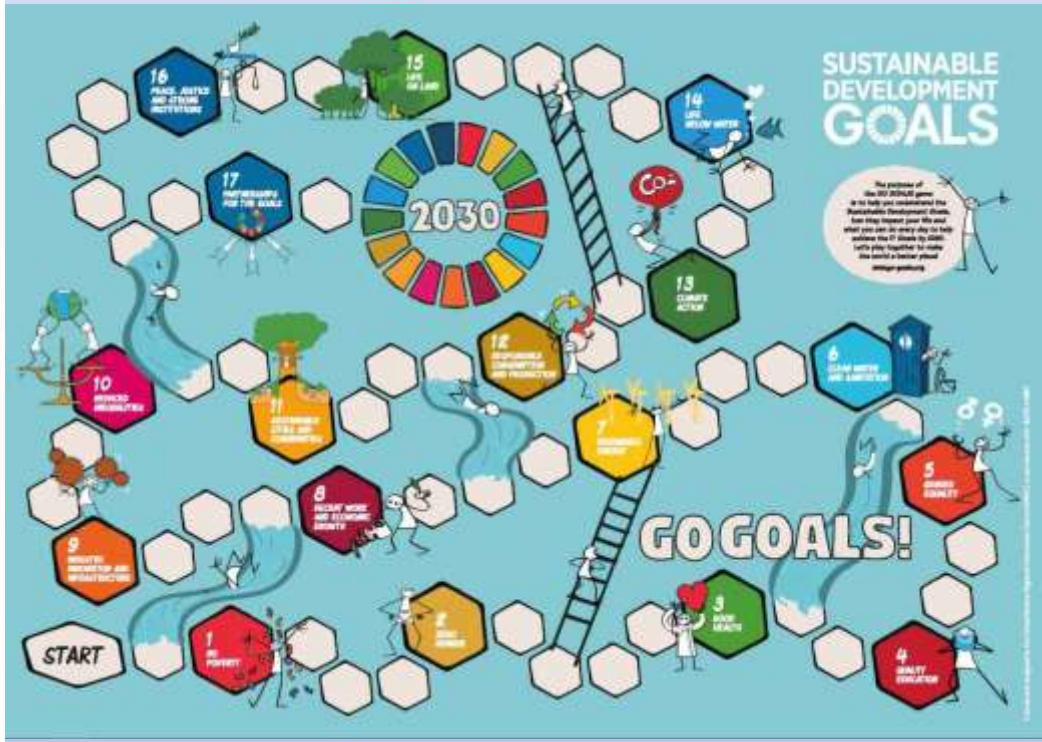
Technology and Flexible Work

- Digital tools enabling remote collaboration
- Flexible work arrangements
- Opportunities for innovation

Women Engineers and Sustainable Development

- Contribution to Sustainable Development Goals (SDGs)
- Green energy and environmental engineering
- Community-centred engineering solutions





The Role of Engineering in SUSTAINABLE DEVELOPMENT GOALS

Engineers build and develop basic infrastructure (roads, railways, telecommunications) without which no economy or country can thrive.

Agricultural, mechanical, and chemical engineers mechanized agriculture and food production and increased productivity.

Biomedical engineers use robotics, computer vision, and AI to improve global health by eradicating numerous diseases.

Engineers are facilitating education delivery by creating new technologies relying on fast communication (e.g., online learning tools). Wi-Fi is one such technology.

We continuously strive to ensure that women have the proper access to technology and thrive in engineering.

Civil and environmental engineers have saved billions of lives through technologies designed to provide clean water and proper sewage.

Sustainable energy is accessible to everyone. Thanks to engineers developing low-cost renewable energy solutions, including wind, solar, wave, and geothermal energy.

Engineering innovations led to the Industrial Revolution, which enabled the economic growth and prosperity of developing countries. Engineering is an essential enabler of economic growth.

Civil, mechanical, and electrical engineers are responsible for infrastructure design, construction, and maintenance (e.g., roads, transport, communication, water supply, and energy).

Engineers and engineering help us enable proper and equal access to housing, food, health, and decent living. New technologies and innovations facilitate infrastructure development.

Engineering contribute toward developing resilient and sustainable cities and communities. Engineers helps manage energy and water resources. We are crucial in providing access to affordable housing and public transport.

Various engineering disciplines help efficiently manage mining resources, process essential minerals, generate energy from renewable resources, and ensure the effective use of water resources and agricultural production.

Mining, civil, mechanical, electrical, and environmental engineers help efficiently process and manage resources and generate energy from renewable resources. They are now working on solutions to mitigate emissions.

Marine engineers implement solutions to address the degradation of fisheries, the pollution of oceans, and the effective use of resources, including wave energy and oil and gas exploration.

Engineers play an essential role in managing biodiversity. Engineering solutions are leading us to the responsible use of forestry resources and the preservation of habitats.

We embrace the values of diversity and inclusion, sustainable practices, and ethical engineering. We understand that these components are essential for delivering safe and sustainable engineering solutions.

We realize that partnerships are essential in advancing the SDGs, whether within engineering disciplines or across national and international engineering institutions involving government, industry, and universities.

World Federation of Engineering Organizations
Fédération Mondiale des Organisations d'Ingénieurs

WGIC
World Geospatial Industry Council

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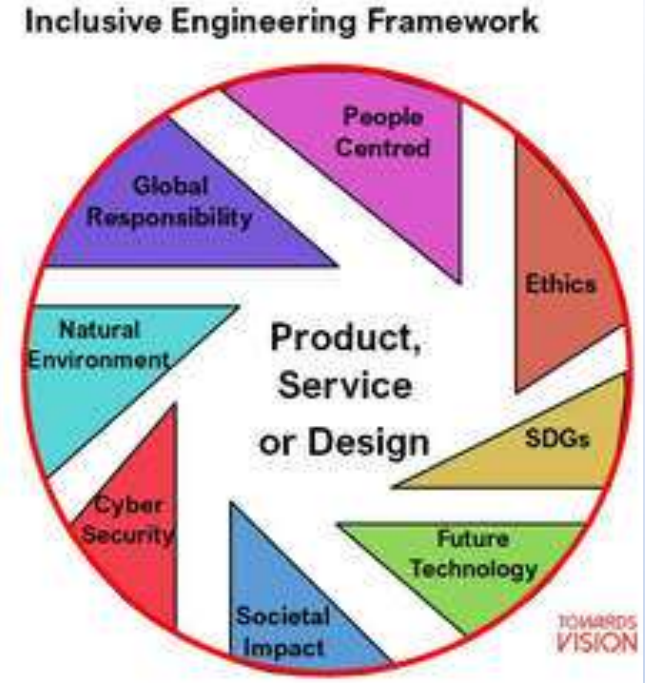
Benefits of Inclusive Working Environments

- Improved innovation and productivity
- Higher employee satisfaction and retention
- Positive organizational reputation



Best Practices and Success Factors

- Inclusive organisational policies
- Mentorship and networking programs
- Leadership training for women engineers

Recommendations for the Engineering Industry

- Promote inclusive workplace culture
- Ensure equal career progression opportunities
- Strengthen safety and welfare measures

Recommendations for Institutions and Academia

- Encourage girls to pursue engineering
- Provide role models and mentorship
- Strengthen industry-academia collaboration

Recommendations for Policymakers

- Develop gender-responsive policies
- Support women engineers and entrepreneurs
- Monitor and evaluate gender equity outcomes

Future Outlook

- Growing demand for engineers globally
- Opportunities in digital and sustainable sectors
- Women as leaders of engineering transformation

Conclusion

- Women play a vital role in engineering development
- Supportive working environments are essential
- Collective action is needed for inclusive engineering

Thank you for your attention