



WFEO / FMOI

The World Federation of Engineering
Organizations

Gender, Engineering & Climate Change

by

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Simple message:

*In order to create resilience to climate change, we need to utilise **all** of the options that we have, and understand the part that **every individual** can play in addressing the climate emergency.*

Here we look at the role of gender.

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- The international organization for the engineering profession
 - Founded in 1968
 - Under the auspices of UNESCO
 - 90+ national engineering institutions
 - Representing 30 million engineers
 - *Participation*
 - *Influence*
 - *Representation*

Four Areas of Significance Relating to Women and Climate Change



- Women are more **vulnerable** to the effects – both direct and indirect – of climate change
- Women are **Effective Actors** when it comes to climate change adaptation and mitigation
- New technology to address climate change needs to be **inclusive of all users** (including understanding the specific needs of women)
- **More women (and other forms of diversity) are needed** in the engineering industry to address climate change



Women's Vulnerability

- Women are **less able to adapt to climate change** events
- More vulnerable to the risks associated with **climate migration**
- More likely to have their **food security** disrupted
- More likely to bear the brunt of **caring responsibilities** caused by health or sanitation disruption
- More likely to suffer **gender based violence**



Malian refugees walk across arid terrain at Goudoubo camp, Burkina Faso, February 2020.

© UNHCR/Sylvain Cherkaoui

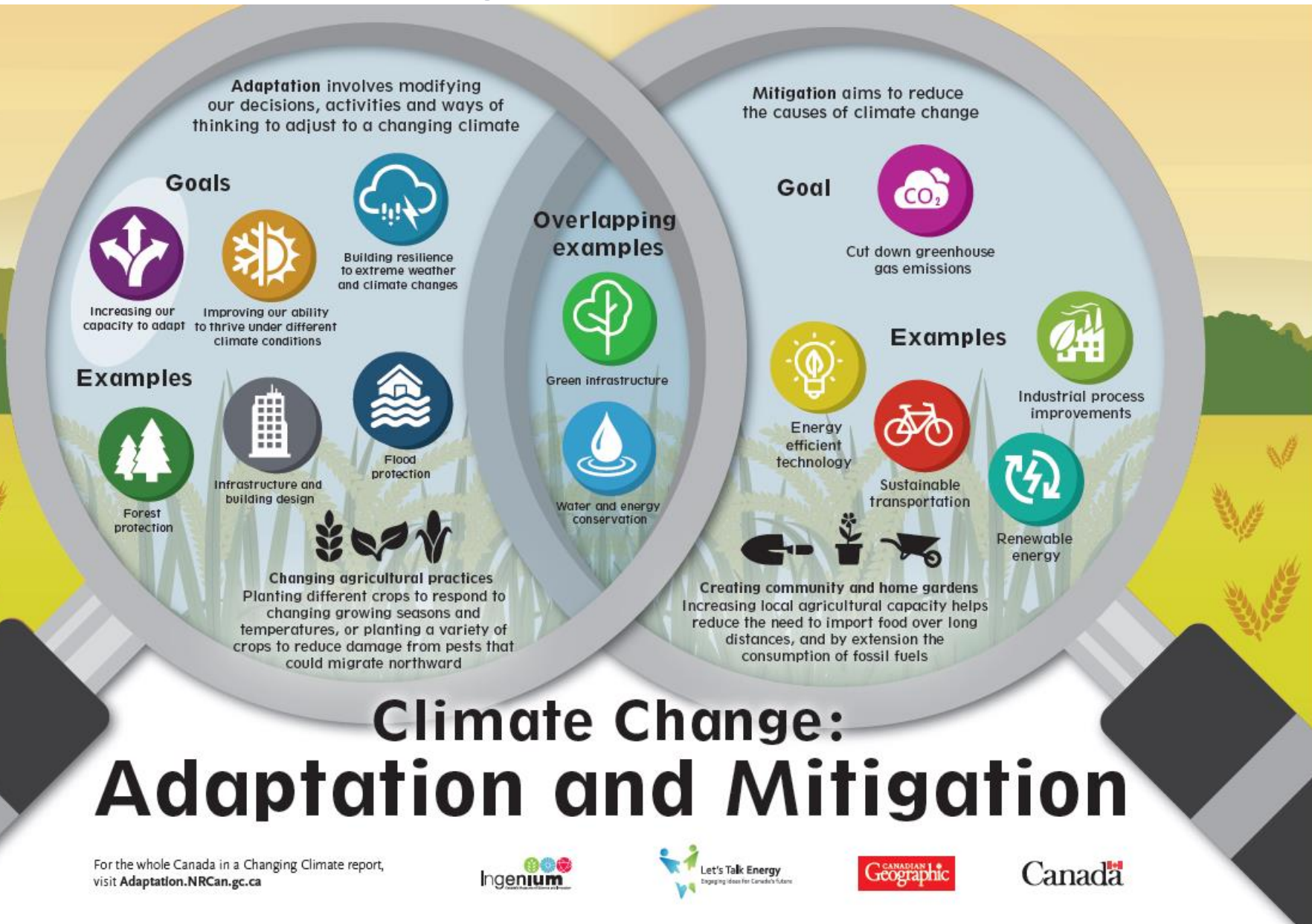


Women as Effective Actors

- Women and indigenous people have a part to play in bringing their **unique and often historical understanding** of their surroundings to play in **offering solutions** to climate change
- A greater inclusion of indigenous communities and indigenous women further **validates the significance of their knowledge**.
- Women are the **gatekeepers** of home, family, home finance, cooking, resource collection, and caregiving and as such are very **influential** in these areas
- Women are responsible for many of the **purchasing decisions**, and so their choices matter to sustainability
- Women **reinvest** a much larger proportion of their earnings into the **home, and the education** of their families
- Women are often the **educators** of future generations, and so are highly influential in inspiring action

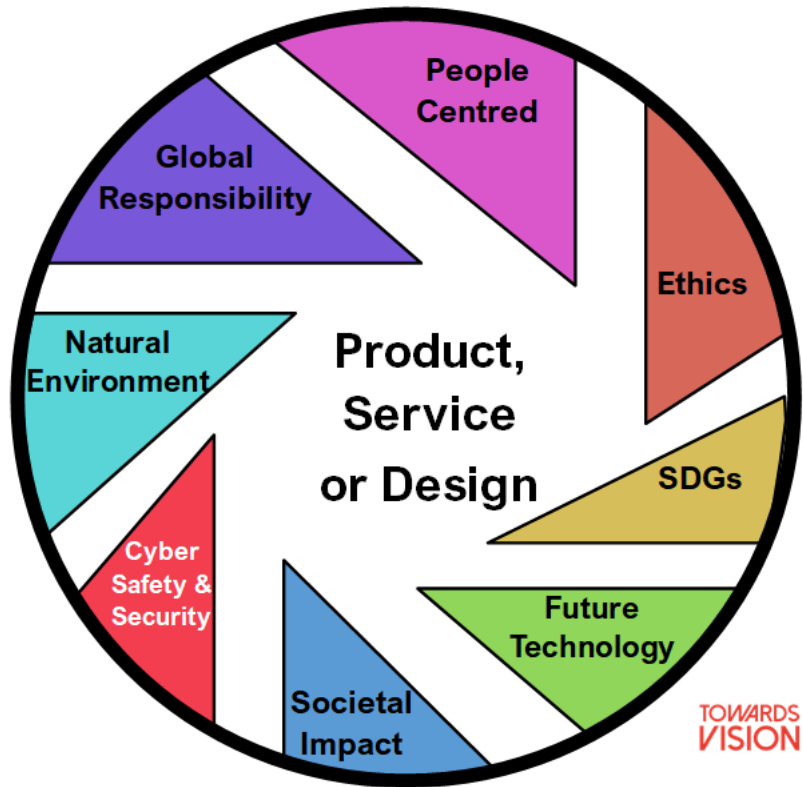


Use of Technology – either to replace existing technology, or drive behaviour change



Inclusive Technology

Inclusive Engineering Framework



New Technology will have a huge role to play in finding climate solutions.

Ensuring that technology is developed through inclusive design techniques is key to addressing inequality and ensuring accessibility and buy-in from all user groups.

Inclusive Engineering Design ensures that engineering products and services are accessible and inclusive of all users, and are as free as possible from discrimination and bias.



The Gender Perspective

Sustainable Development Without Gender Equality

Making Innovation and Technology Work for Women

When more women work, economies grow and families benefit. Empowering women to work has benefits not just for the individuals, but also for the wider economy. If women were to play an identical role in labour markets to that of men as much as 25% could be added to global annual GDP by 2025. Across the world, women currently face barriers to economic growth. In some regions, women's labour force participation rates are 40-50% compared to a rate of 70% for men, and women account 80% of the income loss in their families, while men account only 20% on average. So, as well as providing a boost for the economy, supporting women to work can improve income, food, health and education outcomes for their children too.

Access to Microfinance

Traditionally, women have been disadvantaged in access to credit and financial services, as banks often focus on men and formal businesses. The challenge often lies in reaching small businesses and women making a growing segment of the informal economy, representing up to 80% of the global market.

The global women's microfinance business alone, benefiting with rising business school enrolment and some 40 million women, has grown from a niche market to a major force in the global financial system. More income generated by women entrepreneurs in other fast-growing sectors like education, particularly benefiting girls' educational opportunities, has led to a growing number of women-owned businesses, and women's energy access as entrepreneurs to develop their own businesses.

Role as an Engineer?

Gender Equality Frameworks and Equality Impact Assessments to designs are suitable for all. A diverse and inclusive engineering sector which ensures the participation of women, and under-represented groups, and which has a range of applicants.

Initiatives and programmes that work for women and girls, such as women in leadership, decision-making processes, and ensure participation from women's groups throughout planning, implementation and evaluation of programmes.

Research to measure the impact of technologies on women and girls, and use the Inclusive Data Charter to ensure responsible budgeting.

The gender perspective in all areas of research and innovation, and the importance of buy-in by system gatekeepers on the uptake of solutions.

It has been developed by the Women in Engineering Committee of the World Federation of Engineering Organizations (WFEO).

SUSTAINABLE DEVELOPMENT GOALS

#Engineering4All

WFEO The Committee on Women in Engineering

UN Women

The Gender Perspective

70% of the World's Poorest are Women

1 on poverty

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The Gender Perspective

To achieve equality we need to understand the perspectives of women and girls

5 on gender equality

Goal 5 to achieve gender equality has targets which include:

- elimination of gender discrimination and all forms of violence and harmful practices against women and girls;
- recognition of unpaid care and domestic work;
- full participation in leadership and decision-making processes;
- universal access to sexual and reproductive health and rights.

Target 5b also states that we must enhance the use of enabling technologies, in particular information and communication technologies, to promote the empowerment of women.

What's My Role as an Engineer?

Engineering and technology can be a powerful and responsible force for furthering the future. As engineers, we have a role to play in:

- developing a diverse and inclusive engineering sector;
- offering equality of opportunity to girls and women in engineering and technology;
- ensuring that gender equality and women's rights are integrated into our business strategies;
- building capacity and include women in leadership and decision-making processes;
- use of inclusive design frameworks and equality impact assessments to ensure that designs are suitable for all;
- invest in policies and programmes that work for women and girls;
- ensure that meaningful participation from women's groups throughout planning, implementation and evaluation of programmes;
- use data and research to measure the impact of technologies on women and girls;
- disseminate data, and use the Inclusive Data Charter;
- apply gender responsible budgeting;
- harness the importance of gender in all areas;
- utilize existing guidance on gender sensitive research when working in humanitarian situations and conflict zones;
- Create a world that is inclusive of all where no-one is left behind.

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The Gender Perspective

WASH be successful girls' WA

6 on clean water and sanitation

When safe drinking water and safe sanitation and hygiene are available, the number of women and girls who are able to work and study increases. This is because they are able to avoid the time and cost of collecting water and the health risks of using unimproved sanitation facilities. WASH interventions can also help to reduce the burden of disease, which is a major barrier to women's and girls' economic and social participation.

Strengthening Meaningful Participation

The responsibility for women and girls to be involved in decision-making and design of WASH interventions is a key principle. It is important that household members play a role in decision-making on WASH interventions, including the selection of technologies, materials, and the location of facilities. This is particularly important for women and girls who are responsible for water collection and sanitation.

Transforming Infrastructure and Service Delivery

Safe water and household level WASH services have the greatest health benefits and lowest costs, extending the reach of water grids to underserved communities is an important step towards universal access to WASH services. The availability of safely managed sanitation facilities in public spaces, such as community toilets, can also improve women's and girls' access to WASH services. The need for private sector to carefully balance profit and social responsibility is also important.

Improving Data on Gender and WASH

The lack of consistently measured gender-relevant and disaggregated WASH data is a major barrier to understanding the needs of women and girls. It is important that household members play a role in decision-making on WASH interventions, including the selection of technologies, materials, and the location of facilities. This is particularly important for women and girls who are responsible for water collection and sanitation.

So What Can We Do as Engineers?

- Develop a diverse and inclusive engineering sector;
- Offer equality of opportunity to girls and women in engineering and technology;
- Ensure that gender equality and women's rights are integrated into our business strategies;
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Examples of the use of technology to empower women & girls, and to ensure that they have equal access.

<http://www.towardsvision.org/the-gender-perspective-in-engineering.html>

WFEO

The Committee on Women in Engineering

Women's Role in Creating Climate Change Solutions

- Getting more diversity in the engineering and technology sectors is a key milestone on the pathway to creating inclusive solutions to climate change.
- Many interventions take place to address this.
- The Women in Engineering Committee of WFEO has committed to action as part of the UN Women 'Action Coalition for Technology and Innovation for Gender Equality'



The Beijing Platform for Action

The 1995 Beijing Platform for Action was the most visionary agenda for the empowerment of women and girls, everywhere.

It was adopted by 189 governments committed to taking strategic, bold action in 12 critical areas of concern: poverty, education and training, health, violence, armed conflict, economy, power and decision-making, institutional mechanisms, human rights, media, environment, and the girl child.



Generation Equality



In 2020, systemic barriers still hold women back from equal participation in all areas of life.

Progress has been slow for the majority of women and girls in the world, and not a single country can claim to have achieved gender equality.

Generation Equality has been established to accelerate change, and the 5 **Action Coalitions** are part of this plan.



Our Commitment



TECHNOLOGY & INNOVATION FOR GENDER EQUALITY

1 By 2026, **reduce by half the gender digital divide** across generations by accelerating meaningful access to digital technologies and universal digital literacy.

2 By 2026, **increase investments towards feminist technology and innovation by 50%** to support women's leadership as innovators and better respond to women and girls' most pressing needs.

3 By 2026, **double the proportion of women working in technology and innovation** by setting up new networks and benchmarks to transform innovation ecosystems.

4 By 2026, a majority of countries and tech companies demonstrate accountability by implementing policies and solutions against online and tech facilitated GBV and discrimination.

3 By 2026, ***double the proportion of women working in technology and innovation***, by setting up new networks and benchmarks to transform innovation ecosystems.



WFEO Commitments

- Use our membership of almost 100 national members to drive change in the engineering sector
- Charter – **the EGALITE charter** – to signal this commitment
- A campaign for **gender disaggregating statistics** within the Professional Engineering communities (the Gender Equality Scorecard)
- **Build networks**
- **Mentor** the next generation of women engineers
- Encourage **entrepreneurs**
- Champion the role of women and need for **gender lens in technology**

Engineering for Sustainable Development



**World Federation of Engineering Organisations –
A Charter for Equity, Diversity & Inclusion**



***A Commitment to
Equity, Diversity
& Inclusion***

The members of the World Federation of Engineering Organisations pledge to commit to the following aims and actions to create a more diverse, equitable and inclusive engineering industry. Organisations that sign up to this pledge are committing to driving equity, diversity & inclusion within their sector and providing fair treatment of and opportunities for women and under-represented groups to succeed at the highest levels, and to ensure diversity at all levels across the industry.

The EGALITE Charter:

- **Equity.** We commit to ensuring that all members of our profession have equitable experiences and opportunities to succeed, are treated fairly and with respect, feel safe, and are free from harassment and discrimination.
- **Growth.** We commit to growing our diversity to ensure that we have representation in line with our regional population in all areas and at all levels, including in our governance, on committees, panels, and recruitment boards, and to create an inclusive culture where all employees are able to thrive and progress equally.
- **Accountability.** We will be accountable for progress, create a plan of action including measurable targets, and will publish our results.
- **Leadership.** We will visibly support these commitments at senior level, leading by example, and reflect these commitments in our actions, communications, publications, and reporting.
- **Indicators.** We will measure disaggregated data, comply with industry-wide initiatives to compile global data, and use this data to inform action.
- **Training.** We will put relevant training in place for our members and employees to reflect our commitment to Equity, Diversity and Inclusion.
- **Everywhere.** We will ensure that our EDI commitments are reflected in all parts of our organisation, and at every level, including in the engineering products, services and outputs that we produce.

This charter is part of the Commitment made by the World Federation of Engineering Organisations Women in Engineering Committee to apply engineering to address the Sustainable Development Goals. The Commitment is made to the UN Women Generation Equality Action Coalition on Technology and Innovation for Gender Equality. <https://commitments.generationequality.org/en/action-coalition>





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

WFEO Declaration on Climate Emergency

The World Federation of Engineering Organizations (WFEO) is the peak body for engineering globally, bringing together national engineering institutions from some 100 nations and representing more than 30 million engineers. The members of WFEO are the main national and regional professional engineering institutions of the world. WFEO is a member of the United Nations Scientific and Technological Community Major Group and has an official Associate status with UNESCO.

Considering that:

The crises of climate breakdown are the most serious issues of our time. Our major infrastructure systems of transport, energy, water, waste, telecommunications and flood defences play a major part, accounting for a vast portion of energy-related carbon dioxide (CO₂) emissions whilst also having a significant impact on our natural habitats.

Our primary purpose has always been progressing and enhancing the societal well-being. While we have seen major improvements to practice over the last 20 years, for everyone working in the construction and infrastructure industries, it has now become clear that meeting the needs of our society without breaching the earth's ecological boundaries will demand a paradigm shift.

Together with WFEO Member Organisations, Associates and Partners in engineering, we will all need to commission and design buildings, cities and infrastructure systems as indivisible components of a larger, constantly regenerating and self-sustaining system in balance with wider society and the natural world. We are committing to strengthen our working practices and to create engineering outcomes that have more-positive impacts on the world around us.

Accordingly, we declare that we will strive to:

1. Continue to raise awareness of the climate emergency and the urgent need for action amongst WFEO National Member Engineering Organisations and WFEO Partners, all stakeholders within the National Members and with Governments.
2. Extend the sharing of knowledge and research to these ends on an open source basis to promote and incentivise capacity building in the areas of climate change mitigation and adaptation.



United Nations
Educational, Scientific and
Cultural Organization



World
Engineering Day

Engineering
For A Healthy Planet
4 March 2021



#WorldEngineeringDay
on.unesco.org/EngDay
worldengineeringday.net



Recommendations from WFEO UNESCO report

1. **Education.** Remove discrimination and barriers to **education** and progression for girls and women
2. **Accountability.** Set targets, measure, report and allocate accountability
3. **Embed.** Embed the gender dimension in our systems, training, accreditation, policy, standards, procurement, decision making. Use of procurement levers and legislation to enable and promote and facilitate EDI and climate change drivers
4. **Structural Enablers.** Gender pay gap reporting; shared parental leave; inclusive and accessible working conditions
5. **Leadership.** Inclusive culture; enabling systems such as recruitment and promotion; positive action for change.
6. **Inclusive Engineering Outcomes.** Include all stakeholders; intentional; responsible; systems thinking; ethical; use of technology to reverse inequality
7. **Multi-disciplinary.** Social and behavioural science also included
8. **Finance.** Provide funding to facilitate these goals, and not rely on charity and voluntary sectors to drive change. Fund women entrepreneurs. Invest ethically.
9. **Listen and Take Action.**



Recommendations

		Vulnerability	Effective Actors	Use of Technology	Women as Technologists
1	Education	✓	✓		✓
2	Accountability	✓		✓	✓
3	Embed			✓	✓
4	Structural Enablers	✓			✓
5	Leadership			✓	✓
6	Inclusive Engineering Outcomes	✓	✓	✓	✓
7	Multi-disciplinary			✓	✓
8	Finance	✓		✓	✓
9	Listen and Take Action	✓	✓	✓	✓



Five Actions for COP26 Leaders

- 1. Fund Education for Women and Girls.** Continue to concentrate efforts and funding on the education of women and girls, as championed at the recent Global Education Partnership (GPE) conference in London.
- 2. Mainstream Gender in Decision Making.** Embed the gender dimension in all decisions, policies and actions, and measure and report gender disaggregated data. Include women's voices in all decision making activities
- 3. Increase Structural Enablers for Equality.** Push further on structural enablers such as shared parental leave; inclusive and accessible working conditions; gender and ethnicity pay gap reporting
- 4. Drive Sustainable & Inclusive Culture.** Use the power of policy, legislation and procurement to drive social justice, equality and inclusion in our communities and technology sectors.
- 5. Inclusive Technology/Holistic Solutions.** Ensure a 'just' technology transition which is inclusive of everybody



The world's engineers
united in rising to
the world's challenges.
For a better, sustainable
world.



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