GENDER DIMENSIONS IN THE PLASTIC CRISIS AND A GLOBAL PLASTIC TREATY

A thought starter presented by Women Engage for a Common Future for the negotiations of a Global Plastic Treaty, 2023
Objective and background

Women Engage for a Common Future is an international network of women and civil organizations in over 70 countries, committed to building a healthy environment and advancing the human right to a healthy environment. The plastic crisis is high on our advocacy agenda. Plastic, as a material, as well as plastic products not only produce unmanageable amounts of waste and pollute the environment, but they are also a problem for human health. Plastics release mixtures of toxic chemicals throughout their whole life cycle. Women, pregnant women, and children are particularly susceptible to these toxic chemicals. At WECF we are approaching the plastic issue from an ecofeminist view, accounting for different groups of society affected differently by environmental (and plastic) pollution. Policy development needs to include an intersectional approach, with an understanding that persons that are subject to multiple forms of discrimination or marginalization need to be supported with targeted measures. The mitigation of the plastic crisis cannot be tackled without considering all genders and including everyone in the solution.

The plastic crisis we are facing is enormous and global in nature and is therefore urgently in need of a global solution. The United Nations Environment Assembly (UNEA) adopted resolution 5/14 “End plastic pollution: Towards an international legally binding instrument”. This entails the development of an international “legally binding instrument on plastic pollution, including in the marine environment with the ambition to complete the negotiations by end of 2024”.¹ WECF welcomes this unique and very important opportunity for a global legally binding UN plastics treaty as a commitment of countries and stakeholders to reduce and stop the negative environmental and health impacts of plastics Gender dimensions in plastics crisis have to be taken into account right from the beginning of the negotiations on a Global Plastic Treaty.

Plastics, oil and toxics

Plastics is a material that is produced synthetically and almost 100% from hydrocarbon compounds, thus made primarily from fossil resources (oil, coal and natural gas). Plastics contain chemicals, including polymers and additives, to give products specific properties. Many of the chemicals used are of major health and environmental concern.

Due to some of their properties, such as being lightweight and resistant to light, gases, and water, as well as being cheap to manufacture at current fossil fuel prices, plastics have become a material found in every aspect of our modern lives. From clothing to cosmetics to construction, plastic is used in every part of the world. Behind this stands an industry, primarily interested in ever-increasing production, and not in their global negative health and environmental impacts.² This has resulted in the global plastic pollution crisis.

A huge group of plastic products are produced for single use only. Single-use plastics are presented as increasing consumer convenience. Nearly 50% of all the plastic products being used end up in the trash within only a single month.\(^3\) Very concerning as well are microplastics, pieces of broken-down plastic particles that are smaller than 55 mm. They are either intentionally released to the environment by being added to products (e.g., cosmetic scrubs) or are generated by disintegration of plastic garbage. Meanwhile, microplastic have been found in human blood, and in the human placenta.\(^4\)

The mass production of plastic started to increase in the 1950s. About 460 million tons of plastics are produced annually.\(^5\) Forecasts predict that plastic production will triple until 2060.\(^6\) From all of the plastic that is being produced, only 9% will be recycled. Notwithstanding that, within the recycling process, harmful chemicals are also being reintegrated into products and the environment. Around 50% of all plastics are sent to landfills, and about 19% incinerated. The remaining 22% was disposed of in “uncontrolled dumpsites, burned in open pits or leaked into the environment”.\(^7\) Plastic waste is traded and shipped around the world, often with serious consequences for ecosystems and human health in the countries where it is dumped. A large number of people working at and living near this dumpsite are women.

Plastics released into the environment are transported by ocean currents and wind to every corner of the globe, with negative consequences for biodiversity and climate. Greenhouse gases from plastic-related production and disposal are also increasingly accumulating in the atmosphere and contribute to global warming.

A lot of people are employed in production and processing of plastic for the global market with dangerous health impacts for them. Along the entire life cycle of plastic production, use, and disposal, people are exposed to hazardous chemicals that arise in the processes or are deliberately added.\(^8\) Women are specifically affected due to biological reasons, gender-roles in chemical and plastic related industries and workplaces, including the informal waste sector. This has to be taken into account in policy development such as the global plastic treaty.

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\(^7\) Grist. (2020, March 8). Fossil fuel companies are counting on plastics to save them. https://grist.org/climate/fossil-fuel-companies-are-counting-on-plastics-to-save-them/
Chemicals in plastics

Chemicals are an integral part of plastics. The production and processing of plastic uses chemicals that are harmful to both the environment and human health. They also prevent a safe circular economy.

The United Nations declares pollution to be the third major environmental crisis of our time, alongside climate change and the loss of biodiversity. An international research team found in early 2022 that there are too many synthetic hazardous and persistent chemicals in the environment, threatening entire ecosystems and human health. The pollution limit of our planet has been exceeded.⁹

On average, plastic products contain about seven per cent additives. These are chemicals such as plasticisers, fluorinated compounds, and brominated substances that give plastics certain properties. Properties that include increasing the strength of a plastic, making it more flexible, grease- and water-repellent and reducing possible changes caused by sunlight and flammability. By adding a wide variety of additives, plastics are a highly complex mixture of different chemicals whose cocktail effect is often not taken into account.

Over 13,000 substances have so far been associated with plastics, either known for use in plastic production or detected in plastic materials.¹⁰ Certain monomers and several chemicals are identified as being of major concern due to their high toxicity and potential to migrate / be released from plastics. Dangerous additives in plastic include plasticisers (phthalates), bisphenols (e.g., BPA, BPS, BPF), flame retardants, highly mobile poly- and perfluorinated alkyl substances (PFAS, also called "forever chemicals" due to their persistence), UV filters and heavy metals such as lead in PVC.

In case of menstrual health products, naturally mainly used by women, some of those products can contain 90 % of plastics, including all the chemicals listed.¹¹

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The most used chemicals in plastics: also, biocides, polycyclic aromatic hydrocarbons, and many other non-intentionally added substances (NIAS) are sources of concern

<table>
<thead>
<tr>
<th>Name</th>
<th>Abbreviation</th>
<th>Function</th>
<th>Health Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phthalate</td>
<td>DEHP, DBP</td>
<td>Plasticiser (for more flexibility, a lot are labelled as EDCs)</td>
<td>Affect on hormonal and reproductive health Decreased pregnancy and high miscarriage rates Associated with elevated blood pressure, obesity, elevated levels of triglycerides</td>
</tr>
<tr>
<td>Bisphenol</td>
<td>BPA</td>
<td>Plasticiser (plastic tableware, bottles, sportswear, CIGs)</td>
<td>Affect on reproductive health such as fertility and PCOS Affect on brain development increased in anxiety, hyperactivity, inattention, associated with breast, prostate, ovarian, and endometrial cancers</td>
</tr>
<tr>
<td>Alkylphenol</td>
<td>AP</td>
<td>Antioxidant (latex paints, pesticides, industrial cleaners, detergents, car products)</td>
<td>Mimic estrogen and disrupt reproductive systems linked to male infertility, low sperm count, and disrupted prostate development Associated with heightened risk of male and female breast cancers</td>
</tr>
<tr>
<td>Brominated Flame Retardants</td>
<td>BFRs</td>
<td>Reducing flammability in plastics (foam, electronic casings and wire coatings, textiles, furniture foams, carpets, building materials)</td>
<td>Affect brain development, disrupt thyroid and immune system functions Associated with increased risk of multiple cancers, and immune system damage</td>
</tr>
<tr>
<td>Perfluorinated Compounds</td>
<td>PFCs (PFAS &amp; PFOA as substitutes)</td>
<td>Widely used in water, stain-resistant clothing, food contact wrappers, lubricants, carpet treatments, paints, coolware, and as a dispersant in firefighting foams</td>
<td>Disrupting metabolism Affect on immune system, liver, and thyroid function After puberty, raise breast cancer risk associated with kidney, testicular, prostate, and ovarian cancers, and non-Hodgkin's lymphomas</td>
</tr>
<tr>
<td>UV Stabilisers</td>
<td>UV-5a</td>
<td>Chemical additives used to protect plastic building materials, automotive parts, waxes, and paints from deterioration through UV radiation</td>
<td>Disrupting endocrine function, Impeding normal development and inducing (Candidate for list for Substances of Very High Concern)</td>
</tr>
</tbody>
</table>

* Also, biocides, polycyclic aromatic hydrocarbons, and many other non-intentionally added substances (NIAS) are sources of concern

The deliberate addition of microplastics, e.g. in cosmetic products, also pose a major health risk that urgently needs to be better researched. As cosmetic products are more frequently used by women, they are being put disproportionately at risk.

Chemicals of concern have been found in plastics across a wide range of sectors and products value chains, including toys and other children's products, packaging (including food contact materials), electronic equipment, synthetic textiles and related materials, furniture, building

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materials, medical devices, personal care and household products, and agriculture. They have been found in new produced products as well as in recycled products.\textsuperscript{13}

**Chemicals in plastics and health impacts**

Plastic is not only polluting the environment, it also poses risks to human health. From production, to consumption, recycling and disposal, at every stage of its life cycle, plastics have negative impacts on human health through harmful chemicals. This is also why a Global Plastic Treaty must consider the whole life cycle of plastic and also must have a strong health perspective approach.

Scientific data on the potential adverse impacts of about 7,000 substances associated with plastics, show that more than 3,200 of them have one or more hazardous properties of concern.\textsuperscript{14} This includes chemicals that are persistent and mobile in the environment and accumulate in the body, that are, among other things, carcinogenic, harmful to fertility and endocrine disruptors (EDCs), which means that they affect the hormone system, thus especially impacts women.

Toxic chemicals used in plastics can be released from those plastics products, by improper handling in industry, but also from open burning plastic waste dump sites. Plastic particles contaminate our water, soil, air, and food. They can enter the human body through ingestion and inhalation, while nanoparticles may also enter through the skin.\textsuperscript{15} There are concerns that plastics, in particular microplastics, can host microbial pathogens.\textsuperscript{16}

\begin{thebibliography}{14}


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A study showed that e.g., eggs laid by free range chickens next to dump sites and chemical production facilities were contaminated by very toxic chemicals. Chemicals that byproducts from reprocessing and recycling technologies.\footnote{18}

European biomonitoring studies (HBM4EU) found plastic typical chemicals such as Phthalates and PFAS in a high rate in children's and young people's bodies.\footnote{19}

Susceptibility to chemicals of concern in plastics can differ by gender, biological sex and age. Women, pregnant women, and children are particularly susceptible to the hazards of chemicals, due to their biological characteristics. Though men are also at risk. Recent research shows substantial detrimental effects on male fertility resulting from cumulative exposure to hazardous chemicals, many of which are associated with plastic.\footnote{20}

Hazardous chemicals in plastics and plastic products can cause diseases such as diabetes, obesity, breast cancer, testicular cancer, neurological damage, fertility problems or developmental disorders. Many of these diseases, especially those that are hormonally influenced, are on the rise. Particularly drastic is the decrease in worldwide fertility by more than 50% in the last 50 years\footnote{21} as well as the increase in hormonally influenced cancers. Genetic effects cannot explain this development, but everyday exposure to dangerous chemicals can.

\begin{itemize}
\item United Nations Environment Programme and Secretariat of the Basel, Rotterdam and Stockholm Conventions. (2023). op. cit
\end{itemize}
Health costs

It is estimated that in 2015 the health-related costs of plastic production exceeded $250 billion (2015 Int$) globally, and that in the United States of America alone the health costs of disease and disability caused by the plastic-associated chemicals PBDE, BPA and DEHP exceeded $920 billion (2015 Int$).

Gender dimensions and negative impact of plastics

As said earlier the health impacts of chemicals in plastics differ by gender, biological sex and age. This is due to biological reasons, gender roles & social factors, as well as type of products being used and consumption by individuals.

1. Biological Reasons

A person's biological gender also makes a difference for their health. Women may have different susceptibility to hazardous chemicals found in plastics connected to their reproductive cycles. Women have thinner skin, so chemicals can more easily be absorbed. Women detox more slowly, so toxins stay longer in our bodies. Women also have a higher proportion of body fat and therefore likely to store more environmental pollutants that bio-accumulate in fat tissue, such as Phthalates, often used in plastics. Accumulated chemicals with endocrine properties can interfere with the level of estrogen in the body and could lead to a greater risk of developing breast cancer. Plastics contain harmful chemicals, such as Endocrine Disrupting Chemicals (EDCs), which are linked to various diseases, such as Polycystic Ovary Syndrome (PCOS) or breast cancer.\(^\text{22}\)

Pregnant women transfer their accumulated chemical cocktail, to the next generation across the placenta during fetal development and by breastfeeding, even a long time after being exposed. Exposure during fetal development and early childhood can cause lifelong diseases, disabilities, and increase the risk of irreversible harm.

2. Gender Roles & Workplace & Plastics

Some sectors and professions with high risks of exposure to chemicals typically used in plastics typically used in plastics are dominated by female workers. This includes care workers, cleaners, and healthcare professionals, as well as service professions such as beauty salon workers and hairdressers. Furthermore, plastic intensive industries such as the textile-, plastic- or electronic industries have a high proportion of female workers as well.

Textile industry for example uses a huge number of plastics. The dyeing processes alone can require up to 1,600 (16 hundred) different chemicals including formaldehyde, phthalates, PFCs and others. 80% of the 75 million people working in the textile industry are women – mainly between the ages of 18 and 35. Some negative health effects from this exposure are

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especially affecting women. Studies have found that women in the textile industry have a higher risk of developing breast cancer\textsuperscript{23}, and an elevated risk of an aborted first pregnancy.\textsuperscript{24}

Occupational health and safety risks for women are often underestimated because tests and standards are mainly based on men. This is one reason why protective measures for women are often inadequate or missing.

Very concerning is the increased number of mainly unskilled women, working in the informal sector, for example dealing with plastic waste without any protective measures. A recently published study from WECF, taking place in Kenya, shows the severe health impacts from living and working on one of the world’s largest dumpsites. Especially women waste pickers breathing in toxic fumes from open burning of plastic waste are in or faced with bad health situations.\textsuperscript{25}

3. Consumption & Plastics

“The way that women and men consume and use plastics products is gendered, from the types of products they are buying [...] to their power to change these patterns”.\textsuperscript{26} Two specific product examples are menstrual products and cosmetics.

First, menstrual health items are typical female products. Conventional sanitary pads are made from up to 90% crude oil-sourced plastic and may contain Bisphenol A or other Bisphenols. Tampon applicators often contain phthalates. Both are endocrine-disrupting and linked to the development of numerous diseases in women.

Second, gender roles, and related social and cultural pressure make women and young girls the number one users of cosmetics and personal care products – women use double the number of products compared to men. Next to other toxic chemicals, cosmetics have also been found to contain microplastics. Microplastics meanwhile have been found e. g. in the placenta and in human blood.\textsuperscript{27}

Gender perspectives to achieve change

\textsuperscript{23} Crouse, D. L., et al., (2010). Postmenopausal breast cancer is associated with exposure to traffic-related air pollution in Montreal, Canada: a case–control study. Environmental health perspectives, 118(11), 1578-1583


In regard to consumption patterns, social factors and gender roles have a big influence. Daily household decision of what to buy is still mainly made by women. This includes several necessities such as food, clothes or products generally needed around the house. Women have the power to influence the market. Women can most often decide if they buy a certain plastic product or not. With persisting gender-roles, women are the main caretakers of their families, and in particular of their children; thus, also shaping the consumption behaviors of future generations. However, often knowledge of the potential harm of chemicals in plastic products is missing. It is almost impossible to make informed consumption decisions. Consumers are often not aware that plastics in general could threaten human health, and labelling of ingredients is mostly not available. Thus only a few people are aware of the negative health effects from plastics or the high number of harmful chemicals in plastics when shopping. Furthermore, downstream users and retailers themselves do not know what’s in their products.

To enable informed decisions, transparency of hazardous chemicals in plastic materials along the entire life cycle is crucial. The global treaty must include binding, harmonized reporting requirements that make information accessible on ingredients, polymers, additives and processing aids in plastics and plastic products for all consumers.

**Plastic crisis & women’s expertise**

Women and men are differently impacted by the plastic crisis, and especially from chemicals of concern that are used in plastics. To solve the plastic crisis, taking into account women’s expertise, perspectives, exposure and needs are crucial. But at the same time, women and non-binary persons are underrepresented in leadership positions of companies and scientific research, thus lack power in decision making bodies to bring in their views. Developing gender-responsive policies is necessary to improve women’s environment and living conditions, especially approaching the plastic crisis, but they presently lack the means to do so.

Gender equality is a human right. The implementation of SDG 5 within the negotiations of the plastics treaty and its implementation is required, ensuring women’s full and equal participation and providing opportunities to incorporate gender considerations into decision-making.

**Policy recommendations for a Global Plastic Treaty**

We must end the unsustainable production, use and disposal of plastics. Existing evidence shows that gender dimensions and chemicals in plastics must be part of the global action on
ending plastic pollution, to protect human health and the environment, and transition to a toxic-free and sustainable circular economy.

A Global Plastic Treaty must include, amongst others, the following aspects:

1. Provide concrete goals to immediately and significantly reduce global plastic production, to stop more plastics entering into the environment. Current predictions assume that plastic production will triple by 2060. Therefore, we need concrete goals to reduce plastic production now.
2. Promote a shift to refill- and reuse-based economies, including providing non-plastic, safe, non-toxic alternatives.
3. Phase-out all harmful chemicals / additives, including hazardous polymers, used in the life cycle of plastics. These chemicals should be identified with science-based criteria, building on criteria already identified under other multilateral environmental agreements, including the precautionary principle.
4. Require transparency about chemicals in plastic for regulators, consumers, and other users of products. Only with this information we will be able to create change within the plastic life cycle.
5. Support a just transition for workers across the plastics supply chain, prioritizing waste pickers who collect approximately 60% of all plastics that are collected globally.
6. Introduce a strong health approach into the treaty.
7. Robust financing mechanism, including the implementation of the “polluter pays” principle for plastic waste management, and for addressing the health and environmental costs throughout the entire plastics life cycle.
8. No false solutions, such as toxic plastic recycling. "Advanced" or chemical "recycling" are not environmentally-, healthy, or resource-friendly solutions.
10. Basic key principles: Principles, including the precautionary principle, the polluter pays principle, gender equality and human rights should inform the provisions of the treaty, and should guide implementation and interpretation of the treaty.
11. Taking Gender Dimensions into account in the treaty negotiations from the beginning.

A Global Plastic Treaty must take Gender Dimensions into account from the beginning

As an ecofeminist network and based on the findings on the specific vulnerability shown above WECF calls for a strong gender approach and for promoting gender equality in a Global Treaty to end plastic pollution to achieve a meaningful, inclusive and ambitious agreement. A clear commitment and strategy for gender equality must be included in a Global Treaty on plastics. So far, the option paper provided by the INC secretariat only mentions the gender equality as principle.

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The following aspects should be included in INC discussions on a global plastic treaty:

- Strategies for promoting gender equality. Such a discussion should take into consideration the following issues:
  - Establishing the promotion of gender-equality as a priority for lead decision makers and providing capacity building for delegation members on the issue
    - Establishing a Gender Action Plan (GAP) following the Minamata Convention, the BRS Convention, and other MEAS for the promotion of gender equality in the plastic treaty. This GAP should take into account a strong and equal role of women in the global treaty, financing of actions that aim at promoting gender equality and women empowerment, specific gender responsive measures for protecting women from negative impacts from plastics (in particular pregnant and nursing mothers), and capacity building and awareness raising for women.
  - Establishing of Gender Focal Points (GFPs) at international, regional and national levels. The GFP is the key staff member within an organization responsible and accountable for gender mainstreaming strategy and building capacities among his or her colleagues for incorporating gender into organizational management and processes.
  - Ensuring finance mechanisms are gender-responsive and implementation of the treaty is based on gender-analysis and promotes gender-equal solutions and decision making.
  - Strategies for improving access to justice and compensation for impacted groups including women who have suffered detrimental effects from unsound management of plastics.

We strongly emphasize the urgent need to address the situation of women in all their diversity, and gender-equality measures within the governance and operational process to ensure that the future Global Plastic Treaty framework guarantees human rights of all women and girls as required under UNEA resolution 4/17., 2019.31

Gender equality, women’s empowerment, and the integration of women’s needs, capacities and knowledge are crucial for a healthy planet and healthy people and must be an integral part of the future framework for the sound management of chemicals and waste.

Disclaimer

This paper discusses the different effects of chemical exposure on people with female versus male bodies. When using terms e.g. “women”, it should be noted that unless otherwise stated this describes those with female bodies because currently there is a lack of data regarding trans and intersex people in the European Union. We recognize this gap in the research and in using the terms women, men, female, male we make no assumption about the gender identity of individuals and place no normative assumptions on bodies.

Gender Glossary

Sex and Gender

The terms sex and gender are not the same. Sex is assigned at birth and based on the different biological and physiological characteristics, such as reproductive organs, chromosomes, hormones, etc. A person’s gender is the complex interrelationship between three dimensions: body, identity and social gender. Social gender is not naturally given but determined between three dimensions: social, cultural and economic organization of the society and its normal values. In this publication we use both terms to discuss the gender dimensions of the plastics negotiations.

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WECF is a part of the worldwide movement:

#breakfreefromplastic

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