

## Chemicals, waste and women's health

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Chronic, non-communicable diseases (NCDs), such as cancer, cardiovascular disease, respiratory illnesses, and diabetes, are the leading cause of death worldwide, translating into an estimated 36 million deaths annually and hitting developing countries much harder than industrialized countries - 80% of deaths occur in low and middle income countries. NCDs are also the leading cause of preventable morbidity and related disability, significantly affecting the wellbeing of many individuals and workers around the world. As a result, the associated health care costs of NCDs are also rising exponentially.

New recognition of the growing burden of these diseases indicates that environmental factors are a key risk factor. However, the World Health Organisation and the majority of national health ministries have not yet acknowledged the importance of addressing environmental factors as a cause of NCDs. Indeed, the WHO failed to include environmental pollution in its list of priorities for addressing NCDs, despite the long list of NCDs that are linked to environmental degradation.<sup>1</sup>

Smog hangs over many cities, especially in middle- and low-income countries, and simple air quality measures could help to reduce respiratory and heart conditions dramatically. A 2012 assessment of the global burden of disease, carried out by 450 experts including the World Health Organization, confirmed that air pollution is a top level risk for public health.

In addition, a recent systematic review of the burden of disease attributable to chemicals estimated that 4.9 million deaths (8.3% of the total) and 86 million disability-adjusted life years<sup>2</sup> (5.7% of the total) in 2004 were attributable to the unsound management of and environmental exposure to selected chemicals.<sup>3</sup> Many experts believe this is a conservative estimate, since many daily exposures are not taken into account, and the review only included areas where data is available.

Harmful chemicals are everywhere. Thousands of chemicals are used to enhance production processes, and increase the performance or lower the price of almost all goods. Chemicals are added not only to food and food packaging, but also to everyday articles such as clothes, mobile phones, glue, carpeting, furniture, cosmetics, toys and detergents. Harmful chemicals are everywhere in the air, including as a result of burning wood, coal or gas, and because they are contained in air-borne sprays and gases such as pesticides, perfumes and car fumes. They enter our bodies and get into our blood through our eyes, nose, lungs, mouth and skin.

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<sup>1</sup> HEAL chronic disease and environmental prevention fact sheet, [http://www.env-health.org/IMG/pdf/110913\\_HEAL\\_fact\\_sheet\\_-\\_Chronic\\_disease\\_and\\_environment-final.pdf](http://www.env-health.org/IMG/pdf/110913_HEAL_fact_sheet_-_Chronic_disease_and_environment-final.pdf)

<sup>2</sup> One disability-adjusted life years (DALY) can be thought of as one lost year of 'healthy' life. [http://www.who.int/healthinfo/global\\_burden\\_disease/metrics\\_daly/en/](http://www.who.int/healthinfo/global_burden_disease/metrics_daly/en/)

<sup>3</sup> Annette Prüss-Ustün and others, "Knowns and unknowns on burden of disease due to chemicals: a systematic review", *Environmental Health*, vol. 10, No. 9 (20110). Available from [www.ehjournal.net/content/10/1/9](http://www.ehjournal.net/content/10/1/9). Estimates of the burden of disease attributable to chemicals included estimates from the following sources: chemicals involved in unintentional acute poisonings; chemicals involved in unintentional occupational poisonings; pesticides involved in self-inflicted injuries; asbestos; occupational lung carcinogens; occupational leukaemogens; occupational particulates; outdoor air pollutants; indoor air pollutants from solid fuel combustion; second-hand smoke; lead; and arsenic in drinking water.

**For example, there is considerable evidence linking breast cancer to a polluted environment** and the chemicals used in everyday products and workplaces. They include: industrial chemicals, pesticides, dyes, chlorinated solvents, drinking water disinfectant by-products, pharmaceuticals and hormones, endocrine disrupting chemicals such as parabens and phthalates, dioxins, furans, phenols and alkylphenols, polyaromatic hydrocarbons (PAHs), styrene, metals and phytoestrogens. These chemicals names may mean little to the consumer but we are all exposed to them and we unknowingly carry them in our bodies. Up to 280 synthetic chemicals have been detected in umbilical cord blood and as many as 300 in human fat tissue. In laboratory tests 250 chemicals which mimic or interfere with oestrogen have been identified.

One such worrying group of products is cosmetics. Cosmetics can contain ingredients that have been linked to diseases such as breast cancer, asthma and allergies, and to reproductive disorders. The skin is the largest organ in the human body and through it we can absorb ingredients present in cosmetics. This is a large and profitable industrial sector with women as their main target group: women may use up to 26 different products daily, there are over 5,000 different ingredients used in cosmetics, and 5 billion products are sold to 380 million consumers every year in the EU alone.

### **35 million deaths related to NCDs each year are women**

NCDs cause 60% of all deaths worldwide, and 18 out of the 35 million deaths related to NCDs each year are women.<sup>4</sup> In fact, NCDs are the biggest threat to women`s health globally. These diseases are also on the rise. The WHO estimates that around 1.7 million women will be diagnosed with breast cancer in 2020, a 26% increase from current levels.<sup>5</sup> In 2010, 143 million women were diagnosed with diabetes, and by 2030 the number is expected to rise to 222 million.<sup>6</sup> These are just two examples showing the urgency and importance of addressing the issue of NCDs and women. Other diseases, such as respiratory and cardiovascular diseases or allergies are likely to show similar trajectories.

### **Harmful chemicals as a cause of disease and mortality**

It is very important to give the chemicals aspect more weight in the discussion on NCDs and women in general, for several reasons. Firstly, recent studies state that NCDs can often be linked to chemical exposure during the foetal and early years of childhood development.<sup>7</sup> We can, for example, find harmful chemicals in the body tissue and umbilical cords of newborns<sup>8</sup>. The US Center for Disease Control found 100 different harmful chemicals like BPA, flame retardants, phthalates, in pregnant women, with 43 of them in all women tested.

Critically, certain chemicals can disrupt normal signalling pathways or mimic hormone signalling during foetal development, which may lead to an increased risk of developing NCDs later in life. It is also known that these negative effects can occur even when people are exposed to low levels of chemicals and during critical windows of development.<sup>9</sup> One group of chemicals to which these effects apply are endocrine disrupting chemicals (EDCs). So far there are around 900 chemicals characterized as EDCs.

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<sup>4</sup> WHO (2005): Preventing Chronic Diseases: A Vital Investment: WHO Global Report, Geneva.  
[http://www.who.int/chp/chronic\\_disease\\_report/en/](http://www.who.int/chp/chronic_disease_report/en/)

<sup>5</sup> WHO (2002): The world health report 2002 – Reducing Risks, Promoting Healthy Life, Geneva

<sup>6</sup> NCD Alliance: Non-communicable diseases: A Priority for Women`s Health and Development

<sup>7</sup> Barouki et al: Developmental origins of non-communicable disease: Implications for research and public health. Environmental Health 2012, 11:42

<sup>8</sup> Environmental Working Group: Pollution in People, Cord Blood Contaminants in Minority Newborns, 2009

<sup>9</sup> find a list of scientific references here

<http://www.endocrinedisruption.com/prenatal.criticalwindows.references.php>

Also, women are exposed and affected differently than men, where men might be more exposed to chemicals in their workplace, women might be more exposed through chemicals in e.g. cleaning products. Women fulfil in most countries a gender role as main decision makers for their families' food and living conditions, and thus are implicitly involved in what crucial to pollution may enter households via products and food, and they are key in finding and implementing solutions. Biologically, from similar exposures to harmful chemicals, women and men may be differently effected and develop different illnesses, e.g. breastcancer or prostate cancer.

## **Conclusions and Recommendations**

In general we face two problems: there are chemicals that have negative effects on women and on their children, and those chemicals are found virtually everywhere, in the air we breathe, the food we eat, and the products we use. If rates of NCDs caused by chemicals are to be effectively reduced, the only solution is to reduce exposure to these harmful substances. It is thus necessary to phase out and safely substitute harmful chemicals especially those used around women and children. It will involve a ban on hazardous pesticides, and the clean up of contaminated sites and hot spots, as well as ensuring that the polluter pays for such changes.

People have a right to know about the pollutants in their environment, and more information should be provided, especially with a view to reducing the exposure of women to toxic chemicals. This will include more gender sensitive studies/research; awareness raising for women and especially pregnant women; education training for professionals working with women and children, like professionals in the health and education sector (gynaecologists, midwives etc.); and the continuation of WHO Human Bio-Monitoring (HBM) programmes

Best practices already exist in all areas. Countries like France and Denmark are frontrunners in terms legislation, and have already banned phthalates from products. They are also developing stronger policies to protect their citizens from EDCs (Endocrine Disrupting Chemicals). For example, the Government of Denmark brought out a publication informing women about chemicals which are particularly dangerous during pregnancy, and gave tips about how they could protect themselves.<sup>10</sup> Many civil society organisations are carrying out awareness raising for consumers, and advocating for strong EDC criteria, a strong mercury treaty and the successful adoption of EDCs as an emerging issue in the UN multi-stakeholder *Strategic Approach to International Chemicals Management (SAICM)* process.

## **Recommendations for SDGs and post-2015**

Priority needs to be given to a healthy environment free of harmful substances in the SDGs and post-2015 development goals.

The example of China, and its February 2013 government report on environment which acknowledge "cancer villages" around the industrial centres, and where a record number of days with toxic smog have been measured this year, shows that too long development has gone at the expense of our health and environment.

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[http://www.mst.dk/English/Chemicals/consumers\\_consumer\\_products/information\\_campaigns/Good\\_Chemistry\\_pregnant/](http://www.mst.dk/English/Chemicals/consumers_consumer_products/information_campaigns/Good_Chemistry_pregnant/)

Already at the World Summit on Sustainable Development in Johannesburg in 2002, heads of state agreed on the goal to eliminate harmful chemicals in consumer products by 2020. The Joburg chemicals goal is not at all on track, in particular in developing countries and emerging economies, the problem of harmful chemicals is increasing instead of decreasing. The UNEP Global Chemicals Outlook (2012) estimates 900,000 death each year from pesticides and harmful substances, and 2 million diseased. The related health costs are exploding, and are estimated to surpass the ODA sub-Saharan countries receive for their health sector – whereas these chemicals are almost all imported.

We therefore recommend that the SDGs/post2015 process should:

1. **Overall target; achieve elimination of hazardous manmade chemicals** from harming public health and entering into the environment by 2030 in all countries
2. **All women and men are informed and aware of the problems of hazardous chemicals and able to protect themselves** and their families by 2030
3. **Achieve zero harmful chemicals in consumer products** by 2020 (WSSD goal 2002)
4. **Achieve elimination of Endocrine Disrupting Chemicals** by 2020 globally
5. **Set national targets to move towards organic agriculture** aiming at 100% by 2030
6. **Invest in prevention of breast cancer and other NCDs related to hazardous chemicals**, eliminate harmful chemicals in the workplace, consumer products and environment.
7. **Hold chemical industry accountable** for health risks and environmental pollution, install a global tax on chemical industry revenue of 0,01% for redress and clean-up