



## Reducing the Threat of Toxic Pollution to Women and Girls in Low- and Middle-Income Countries

Toxic pollution causes immense harm to humans, especially to women, threatening maternal health, and children. It can exacerbate other health concerns and can trigger illness throughout the lifespan.

### TOXIC POLLUTION HARMS MATERNAL, INFANT & CHILD HEALTH

Exposures to dangerous chemicals have a multigenerational impact on women, families and entire communities.

Toxicants such as lead, mercury, hexavalent chromium and particulates in air pollution can cause damage to babies in utero, including birth defects and neurological damage, and result in lower IQs. These chemicals can also be transmitted to infants via breast milk.

Toxic exposures have been linked to pre-term birth, and infant mortality. New research has shown that exposure to toxic pollution in utero can also impact the future reproductive and genetic health of a developing fetus.

### > SOLUTION

We prioritize interventions and remediation projects based on the most urgent threats to human health. The threat to pregnant women, infants and young children ranks highly in our decision matrix.

Community education is a key part of all our interventions. We provide thorough training on toxic exposure risk and mitigation strategies to families, nurses/health care staff, teachers and school children. We also conduct health assessments, testing community members for exposure and levels of contamination. We train and employ community members in decontaminating their communities and homes.

Well over 50% of attendees at these trainings are women. As mothers, they are traditionally the



Photo: Larry Price

In Patna, India, after the cleanup of a lead-contaminated neighborhood, the women we trained continue to meet on a regular basis to discuss ways to protect their children from lead and other forms of pollution.

guardians of family health. And women constitute the majority of teachers and nurses at our project sites.

## TOXIC EXPOSURE AT WORK MIGRATES TO THE HOME

Artisanal small-scale and informal industrial work that cause pollution and/or use dangerous chemicals on a daily basis, such as mercury use in artisanal gold mining, recycling of used lead acid batteries, tanneries using hexavalent chromium and e-waste burning constitute areas of particular concern.

Millions of women are dependent on these industries for their livelihoods and are exposed daily to toxic chemicals while they work. It is not uncommon for children to accompany their mothers to work. Often, subsistence industrial work is performed in or very close to where they live. This poses an even greater health risk to infants and children due to their smaller size and increased body burden.

After work, women return to their homes to prepare meals and care for children. The workplace toxins come with them on their clothes, skin and in their hair, contaminating entire households.

**“In order for our cleanup projects to succeed, we always strive to involve the community, in particular women. Women are usually more receptive to the solutions we bring, and more willing to set them into action. If you win over women, you are more likely to have a positive, long term impact on their families, and thus the community.”**

—Budi Susilorini,  
Indonesia Country Director

## › SOLUTION

In Mongolia, Pure Earth’s project team on mercury-free artisanal gold mining discovered that women were commonly employed in the panning stage of gold processing, and mercury was introduced in the work flow during this stage. This provided a key intervention opportunity to prevent the use of mercury. With this knowledge, Pure Earth placed a special emphasis on ensuring the technical trainings on alternatives to mercury use were gender inclusive. As a result, fifty percent of the trainees were women.

## WOMEN, POLLUTION AND POVERTY

Toxic pollution, its health risks and subsequent environmental degradation are linked with poverty, and can hinder economic development and the poverty reduction efforts for women.

Women in informal toxic industries are commonly pushed to the fringe, thereby forming a de facto high-risk population. For example, they may be economically isolated, excluded from cooperatives or ownership positions or paid through back channels to work in their homes or backyards rather than in monitored, safer industrial environments. Women at the lowest economic rungs are relegated to sub-sectors of already informal toxic industries, scavenging through lead slag or downstream mining waste by hand. As primary caregivers, women’s workloads are additionally burdened when toxic pollution exposures cause illness or disability.

Aside from direct exposures, toxic pollution can also disproportionately burden women and girls. They are at greater risk for multiple pollution exposures, such as mercury or lead exposure plus exposure to air pollution from indoor cook stoves. Industrial contamination of water has made many ground and surface water sources no longer safe for domestic use. Girls and women have to spend time traveling longer distances for safe water, or must divert scarce income for the purchase of safe water, resources that could be spent on a girls’ education building future earning potential.

## › SOLUTION

Women play an important role in the family and society. They often manage family income,



Photo: Larry Price

household budget, and have a strong voice in family decisions. They are typically active in community life and are effective communicators. An emphasis on raising awareness of women is particularly important because of their roles in the family and community.

In Thiaroye Sur Mer, a neighborhood of Dakar, Senegal, women were approached by foreign lead traders to both scavenge lead scrap and recycle used lead acid batteries in their backyards. This led to the deaths of 32 children from acute lead poisoning. Pure Earth conducted an education and remediation project that protected the surviving children. The women of the village formed a co-op and requested training in alternative livelihoods. They now speak to women in other villages about the dangers of used lead acid battery recycling whenever needed.

In the village of Dong Mai, Vietnam, both women and men work in the village's main industry or "craft"—recycling of used lead acid batteries, operating as collectors, smelters and metal workers. During the design of the project to remediate the village, women's needs were specifically taken into account. Awareness raising experts, many of whom were female, visited families in their homes and the workplace.

All the lead recycling activity was moved out of the village to an industrial area a safe distance away.

But workers were still going home with clothes covered in lead. It was determined a worker changing facility with showers would break this pathway. To ensure participation of female workers, women were provided with separate facilities.

## INCORPORATING GENDER EQUITY IN PROJECT DESIGN

Pure Earth directly addresses gender issues in its work by ensuring participation in project activities and project benefits are equitable, and that all community education and project activities involve and enable women, as well as use gender appropriate accessible tools, language, and procedures. For each project, specific gender objectives are to:

1. Ensure equitable participation of women and men in technical assistance and education/communication activities;
2. Incorporate gender considerations into baseline data collection and strategy development in designing projects; and
3. Hire and train an inclusive project staff representative of the population served, including languages spoken, gender, and cultural background.

**“Because healthy workers are more productive, investment in pollution control and prevention is crucial to poverty reduction, especially for women and girls.”**

—Rachael Kupka,  
Executive Director, GAHP

## CASE STUDIES

There are dozens of documented cases that highlight the importance of gender and toxic pollution. A few of these are provided below:

### 1) Lead and Mercury Poisoning from Artisanal Gold Mining in Zamfara, Nigeria

- <http://www.pureearth.org/project/zamfara-nigeria-lead-poisoning/>
- [https://en.wikipedia.org/wiki/Zamfara\\_State\\_lead\\_poisoning\\_epidemic](https://en.wikipedia.org/wiki/Zamfara_State_lead_poisoning_epidemic)
- <http://www.ibtimes.com/nigeria-lead-poisoning-2015-outbreak-kills-28-young-children-niger-state-spreads-1922463>
- <http://www.africacradle.com/2015/07/13/the-lead-poisoning-crisis-in-zamfara-state-nigeria/>

### 2) Lead Poisoning from Battery Recycling in Dakar, Senegal

- <http://www.pureearth.org/project/informal-lead-battery-recycling-thiayore-sur-mer-senegal/>
- [http://www.nytimes.com/2009/01/04/world/africa/04iht-batteries.1.19064480.html?\\_r=0](http://www.nytimes.com/2009/01/04/world/africa/04iht-batteries.1.19064480.html?_r=0)

### 3) Chromium Contamination from Leather Tanning in Kanpur, India

- <http://pulitzercenter.org/reporting/asia-india-toxic-pollution-leather-industry-health-problems>

### 4) Lead and Dioxin Contamination from E-waste Recycling (India, Ghana)

- <http://pulitzercenter.org/reporting/asia-india-electronic-waste-toxic-environment>

- <http://www.pureearth.org/project/agbobloshie-e-waste/>
- <http://www.hhrjournal.org/2014/07/women-e-waste-and-technological-solutions-to-climate-change/>

### 5) Air and Water Pollution, India

- <http://pulitzercenter.org/reporting/india-kolkata-urban-environment-water-wetlands-waste-ramsar>
- <http://www.environmentalhealthnews.org/ehs/news/2014/nov/coal-and-health-in-india>

## RESOURCES

### A Growing Role for Gender Analysis in Air Pollution Epidemiology

- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2831913/>

### Environmental pollutants and their impact on women’s health

- <https://sciencediscoveries.degruyter.com/environmental-pollutants-impact-womens-health/>

### Air pollution as bad as smoking in increasing risk of miscarriage

- <https://www.theguardian.com/environment/2019/jan/11/air-pollution-as-bad-as-smoking-in-increasing-risk-of-miscarriage>

### Air pollution particles found in mothers’ placentas

- <https://www.theguardian.com/environment/2018/sep/16/air-pollution-particles-found-in-mothers-placentas>

### Are Women More Vulnerable to Environmental Pollution?

- [https://www.researchgate.net/publication/228656504\\_Are\\_Women\\_More\\_Vulnerable\\_to\\_Environmental\\_Pollution](https://www.researchgate.net/publication/228656504_Are_Women_More_Vulnerable_to_Environmental_Pollution)

### How Environmental Toxins Harm Women’s Reproductive Health

- <http://www.livescience.com/39876-environmental-toxins-women-reproductive-health.html>

### Mercury exposure in pregnancy: a review

- <https://www.ncbi.nlm.nih.gov/pubmed/24698820>

### Fetal Lead Exposure at Each Stage of Pregnancy as a Predictor of Infant Mental Development

- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1665421/>