

APPENDIX

Indonesia

Naicila, a five year old, bathes under a pipe carrying runoff from a nearby mining site outside the Padang Bilah mining community in Southeast Sulawesi, Indonesia.

Photo: Larry Price



THE IMPACT OF A \$10.4 MILLION CAMPAIGN

Pollution controls are feasible, cost-effective and replicable. Since 1999, Pure Earth has been saving lives, preserving livelihoods and improving health by devising and implementing practical solutions to pollution in the developing world.

Today, the pollution issue is at an important crossroads. The groundwork has been laid by Pure Earth and its many partners including the United States Agency of International Development, World Bank, European Commission, Mount Sinai, Columbia University and the World Health Organization to make pollution a top world priority.

Pure Earth is poised to launch “The Campaign for 10 Million Lives” to raise \$10.4 million from non-governmental sources from 2016-2018, which in turn has the potential to leverage an additional \$38.6 million from government entities.

It is our goal to grow four-fold to a \$22 million annual budget by 2018, which will enable us to:

- 1) ramp up and fund 35 cleanups of some of the world’s most toxic sites,
- 2) launch Health Pollution Plans with at least four national governments,
- 3) impact the health of at least 10 million people including 3.2 million children,
- 4) increase research in areas that will guide our programs as well as policy-makers, and
- 5) expand our policy and public education efforts so that this global public health crisis gets the attention it needs and deserves.

Furthermore, expanding our private revenue from \$1.5 million to \$4.6 million/annually provides more flexible funds that cover activities, like toxic site remediation and community health screenings, which are not typically supported by government grants. In addition, private donors are more likely than public entities to take risks and fund the testing of new technologies that can be used to clean up toxic sites and screen the population.

Below provides more detail on the programmatic and financial goals of this campaign

1. Cleaning up Toxic Sites (\$7,770,000)

Pure Earth has invested millions of dollars to develop the Toxic Site Identification Program, its comprehensive database that has become the go-to resource for countries and agencies tackling the pollution problem. With 3,200 sites assessed and documented, Pure Earth is ready to focus upon the most toxic threats recorded, conduct cost-effective cleanups and help the affected communities adopt healthy work practices, and then build the capacity of the host countries so that they can regulate and scale up these remediation efforts. Based on our assessments, the four pollution areas of focus are: mercury, lead, electronic waste and industrial pollutants, and urban air.



Cambodia
Burning the
mercury/gold
amalgam
creates mercury
vapor inhaled by
the family

MERCURY

The Problem: More than 19 million people are at risk of mercury poisoning, and the effects are irreversible. Children are especially vulnerable. The toxin attacks the central nervous system and many organs, which can result in serious birth defects and brain damage. Furthermore, mercury travels across the globe when released into the air affecting millions of unsuspecting people, by contaminating water bodies, soils, and crops.

Artisanal and small-scale gold mining is the leading source of mercury pollution, accounting for 30% of the global emissions. Small-scale gold miners work with few regulations or illegally to make a meager living. Miners mix and burn off toxic mercury during the gold mining process, as the element helps to extract gold from ore.

Plan of Action: For 10 years, Pure Earth has worked to reduce mercury emissions from artisanal gold mining in low-income communities around the world. We have identified the sites that pose the greatest risk to human health. We now want to collaborate with local governments and NGOs to develop three comprehensive programs.

Where	<i>Indonesia, Mongolia, Peru</i>
What	<i>Three long-term replicable programs which will:</i> • <i>educate communities about the health risks from mercury,</i> • <i>teach miners mercury-free or reduced gold mining methods,</i> • <i>remediate mercury-poisoned sites, and</i> • <i>coordinate country-wide plans to facilitate a scaled up transition to mercury-free mining.</i> <i>Participate in global efforts to reduce mercury poisoning and enable responsible sourcing of mercury-free gold.</i>
Impact	<i>135,000 lives impacted</i>
Cost	<i>\$1.4 million in private support, with leverage potential of \$5.6 million in governmental support.</i>

LEAD

The Problem: Around the world, lead contaminated sites resulting from informal recycling of car batteries, mining and metal processing are poisoning of over 25 million people. In Mexico, it's estimated that 15% of the Mexican population (19 million people) has lost an average of 5 IQ points as a direct result of lead poisoning. In this case, the source is local lead glazed pottery contaminating food. This large-scale toxic exposure is taking an enormous toll on public health. In very small amounts, lead exposure is associated with long-term neurological and cognitive defects in children. Other adverse health impacts include loss of memory, nerve disorders, infertility and chronic headaches. In high doses, lead can cause seizures and death.



Philippines
Children standing on toxic broken lead-acid car battery casings used to construct walkways

HOW PURE EARTH IMPACTS LIVES

- **Remediation.** Cleanups have an intensive, immediate impact on the health of the people who live in the highly toxic areas being decontaminated from pollutants like lead and mercury. The cost to save a life and/or significantly affect health can range from \$40 to \$70 per person.
- **Prevention.** Policy changes affecting much larger populations (in a less intensive way) prevent disease as in the case of air pollution (i.e. eliminating leaded gasoline). Cost per person can be as low as \$1 per person.
- **During the campaign, Pure Earth will employ both strategies.**

Plan of Action: Pure Earth has extensive experience in cost-effective remediation of lead contaminated sites. Similar to the approach to reducing mercury use in artisanal gold mining, community education of health risks, and trainings in safer work practices for those dependent on livelihoods like pottery making are critical to facilitating sustainable change. With expanded resources, we will accelerate our clean-up, education and training efforts at the most toxic sites identified in our database.

Where	<i>Armenia, India, Indonesia, Kazakhstan, Kenya, Kyrgyzstan, Mexico, Philippines, Vietnam, Zambia</i>
What	<i>Up to 26 projects which address lead contamination in various settings, ranging from cleaning up abandoned lead mines to a comprehensive program working with the Mexican government to convert Mexican potters to use lead free glaze. 280,000 lives saved/impacted</i>
Impact	<i>7,425,000 lives impacted</i>
Cost	<i>\$4.3 million (\$200,000/year/site) in private support, with leverage potential of \$17.3 million in governmental support.</i>

ELECTRONIC WASTE (E-Waste) and INDUSTRIAL POLLUTION

The Problem: Toxins from recycling e-waste (old computers, appliances, electronics) as well as other industrial pollutants poison locales in most urban centers. Recycling is a significant revenue-generator; however, in the developing world, toxic practices are often employed. For example, Agbogbloshie hosts Ghana's largest center for e-waste recycling and disposal. Workers manually disassemble parts and burn off the plastic encasements on computer wires to recover profitable metals. The workers use tools with no protective equipment, leaving them susceptible to respiratory diseases and lead poisoning. Remaining waste after stripping wires is dumped into unlined pits and waterways. Another health hazard is the black smoke that continuously hovers over the site, resulting from piles of copper cables that are lit to burn off the plastic coatings. Air pollution from the burning affects workers as well as the families living and working nearby.



Plan of Action: There are solutions to formalizing industries and reducing toxic exposure while promoting safe, profitable work practices. Critical to introducing non-toxic recycling, is first building trust within the community that the goal is not to eliminate their livelihood. Pure Earth will soon complete a successful pilot in Agbogbloshie, involving a new e-waste facility equipped with four automated machines that strip plastic coated cables extracting copper and other valuable materials without burning. Additional funding will enable Pure Earth to roll out this project and initiate programs in two other countries that are significantly impacted by e-waste and other industrial pollutants.

Where	<i>Ghana, India, Kenya</i>
What	<i>up to 4 projects</i>
Impact	<i>75,000 lives impacted</i>
Cost	<i>\$1.05 million (\$150,000/year/site) in private support, with leverage potential of \$4.2 million in government support.</i>

2. Launch a Country-by-Country Health Pollution Plan Process (\$400,000)

The Problem: Air, water and soil pollution contribute to the majority of deaths each year in low- and middle-income countries. Many countries lack the knowledge and resources to address this enormous health problem.

Plan of Action: Pure Earth has a 15-year successful track record of working with governments at all levels, along with respected local NGOs to develop and implement pollution plans.

In 2016, Pure Earth will design a Health Pollution Plan Process in close collaboration with recipient countries.

Where	<i>Up to six countries including Jordan, Madagascar and Thailand.</i>
What	<i>The Health Pollution Plan will assist a nation's leadership to more accurately measure the scope of all forms of pollution, the associated burden of disease and the economic impacts to the nation. The Health Pollution Plan will then prioritize areas for intervention, and develop an intervention for the top pollution issue/s of most pressing concern to human health. This planning process will include close collaboration with UN agencies and multilateral development banks.</i>
Impact	<i>2.4 million lives impacted</i>
Cost	<i>\$400,000 from private sources—leverage potential of \$1.6 million in public support.</i>

3. Research (\$1,180,000)

The Problem: Although there is excellent research available on the sources of pollution and its prevalence across the globe, data and analysis on pollution's harmful impacts on public health and the economies of low- and middle-income countries is fragmented and often non-existent. Furthermore, few have studied the cost-effective interventions. By better understanding the problem and the solutions, policy-makers and agencies will be more equipped to secure funding and implement the solutions.

Plan of Action: As leading researchers in this field, Pure Earth has identified the gaps of knowledge, and its research team will focus on the following topics to:

- Economic cost of not addressing pollution
- ROI (economic and life expectancy) for specific pollution interventions
- Global Burden of Disease of lead and mercury exposure including women of child-bearing age
- Quantifying the Burden of Disease of pollution through well-accepted metrics such as Disability-Adjusted Life Years (DALYs) and IQ decrement
- Analyze the correlation between poverty and exposure to contaminated sites.

In addition, Pure Earth continues to expand its global database currently consisting of 3,200 toxic sites in nearly 50 countries and is committed to deploying assessment teams to investigate and document at least 150 more sites.

Finally, Pure Earth serves as a respected channel of dissemination through the

publication of its *Journal of Health & Pollution* biannually, and a collection of peer-reviewed articles each year.

4. Policy and Public Education (\$1,050,000)

The Problem: Pure Earth and its early partners including the European Commission and Asian Development Bank recognized that the pollution issue was not getting the traction, funding nor attention it warranted. Pollution had become a persistent public health crisis in the developing world. Similar to climate change, a global response would be the only way to move the needle in cleaning up current toxins plaguing the environment and sickening the population and preventing future contamination.

Plan of Action: In 2015, Pure Earth initiated the formation of the Global Commission on Pollution, Health and Development, enlisting some of the most influential leaders in environmental health, pollution management and sustainable development to elevate pollution as a top priority in the world.

The Commission will address the full health and economic costs of air, water and soil pollution by producing a seminal report which will:

- Reveal pollution's severe, underreported contribution to the Global Burden of Disease;
- Uncover the economic costs of pollution to low- and middle-income countries, and compare the costs of inaction to the costs of available solutions; and
- Inform key decision makers around the world about the burden that pollution places on health and economic development, and about available pollution control solutions and strategies.

The Commission will bring pollution squarely into the international development agenda.

In addition to publication in the acclaimed medical journal *The Lancet*, the Report findings will be distributed widely through media outlets and dedicated websites in December 2016. The publication of the Report will coincide with public events around the world highlighting pollution's impacts:

- **Convene a half-day conference to present the Commission Report's findings:** Taking place in New York and/or Washington, DC, this conference convenes policy-makers, environmental and public health thought-leaders, students, advocates and supporters to get a first-hand presentation of the issue and the solutions. The conference could also kick-off an afternoon of advocacy meetings at the United Nations or in the halls of Congress.
- **Develop a pollution curriculum:** This education curriculum raises awareness of environmental pollution and the current public health crisis, and how it also

relates to climate change. A component could include connecting students from the Global North to those in the Global South by sharing stories/photos about pollution and their vision for a healthy, clean future.

- **Arts community involvement:** A high profile choreographer is creating an End Pollution Dance to an original score. The dance and song could be the focal point of an event that engages school children in a fun, dynamic way.
- **Recycling and Engagement Campaign:** With a corporate sponsor, a national (international) recycling effort (e-waste, for example) could be coordinated in retail locations, as well as in schools, churches, etc. A grassroots on-line fundraising campaign, involving sharing photos, testimonials, etc. could complement these activities, with proceeds supporting clean-up projects of specific toxic sites that are currently poisoning children and their families.

Pure Earth welcomes your feedback on The Campaign for 10 Million Lives and the goals that \$10.4 million will enable us to achieve. Please contact Carol Sumkin, Chief Development Officer, at 212-870-3490 or carol@pureearth.org.