



2015 Annual Report





Letter from the Chair of the Board

Dear Fellow Pure Earth Supporters,

As chair of the Pure Earth board, one of the aspects I enjoy most about our organization is the creative tension that exists between the our visionary goals and pragmatic solutions. When I am explaining our mission to someone new, they are first astonished by our goal of tackling toxic pollution in the developing world, and then surprised and heartened as they learn of the simple solutions that exist. Our team works with local partners—putting boots on ground and shovels in the dirt to get the job done. And by demonstrating cost-effective solutions, we then leverage local and federal investments to scale up lifesaving cleanups.

We are a scrappy, inventive crew, and in one of the more challenging funding years we've faced, the team has delivered on a whole host of innovative “firsts” that are detailed in this year’s report. I am proud to report that as Pure Earth entered its 15th year of operation, rather

than settling into routine, the team continued to break new ground in many areas as you will read in the body of this report.

It is clear to us that after many years of effort, the pollution issue is at an important crossroads. Pure Earth and its many partners—the European Commission, the World Bank, the United Nations, the U.S. State Department, the Asian Development Bank, and the World Health Organization—have laid the groundwork to make pollution a priority.

I am excited to announce that we are now 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.

This campaign will enable us to grow our annual budget four-fold by 2018, which will help us to impact the health of 10 million people, including

3.2 million children.

With your help, we are confident that we can continue progress on achieving our goal of a pure Earth. As always, thanks to all of our followers, donors, partners and employees for your support!

Sincerely,

H. Conrad Meyer III
Chair



Letter from the President

Dear Friends,

I am proud of the accomplishments that you will read about in our annual report. With your support, we pursue lofty goals—a vision of a pure Earth where every child grows up healthy and not poisoned by pollution. But we are science-based pragmatists—applying proven methods, marshaling resources, training and empowering partners to solve problems. However, a common obstacle blocking progress has been a lack of an integrated approach between environment, health and development disciplines, all needed to fight pollution.

Too often acted on as separate, discrete issues by specialists in their silos, an understanding of the true cross-cutting nature of all forms of pollution is starting to emerge on a global scale. The catalyst for this progress is coming from two places—a focus on the intersection of air pollution and climate change, and the launch of the United Nation’s Sustainable Development Goals.

Countless images of gray shrouds of smog in Beijing, and horrific pollution in multiple Indian cities came to the attention of the world in 2015. It became impossible to ignore the convergence of rapid economic growth, and the threat to human health that industrial pollution brings in low- and middle-income countries.

Thanks to agreements announced at the Paris COP21 meeting in November 2015, the investment commitments in clean technology to combat climate change will bring great benefits to the environment and to human health in the next decade.

But, we work to keep the world focused on all forms of pollution. Air pollution can be seen as more democratic in nature in that it affects everyone, but contaminated soil and water can disproportionately affect the poor who don’t have the resources to shield themselves from polluted surroundings.

One of our most important accomplishments in 2015 was leading the Global Alliance on Health and Pollution (GAHP) coalition that fought to expand the types of pollution included in the Sustainable Development Goals, which initially, only addressed air pollution. After marshaling the efforts of 19 other nations, Target 3.9 was expanded to include all forms of pollution. We have also submitted recommendations on technical indicators for the UN to measure progress toward pollution reduction. This will encourage investments in pollution controls on a global scale for the first time.

We will build upon the momentum gained in 2015, and look forward to continuing our role as a catalyst, bridge-builder, and problem solver in 2016 and beyond.

Sincerely,

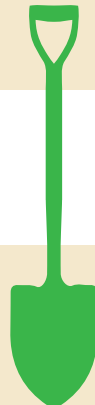
Richard Fuller
President



Boy helping to earn money for his family by scavenging in a garbage dump in the Philippines.

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Adoption of the Sustainable Development Goals



After much effort and debate, the UN General Assembly recently approved the Sustainable Development Goals (SDG), including Target 3.9 with a specific goal to reduce the health consequences of all forms of pollution. As the issue of chemicals, waste, and toxic pollution is critical to many elements of sustainable development, including poverty, health, environment, and green economic growth, the Global Alliance on Health and Pollution (GAHP) secured support from a variety of government agencies, NGOs, academia, and donors, including 38 different agencies/organizations from 25 countries. In total, 19 government agencies from 19 countries sent messages of support to GAHP. As a result,

Target 3.9 related to air pollution under the Health SDG was broadened to include water and soil pollution/contamination. GAHP is continuing to provide input to the current process of refining the indicators for the SDGs. This is a critical next step in the SDG process as it determines how nations measure progress toward these goals.



By 2030,
substantially reduce the
number of deaths and illnesses
from hazardous chemicals and
air, water and soil pollution and
contamination.

Launch of the Global Commission on Pollution, Health and Development



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 Global Commission on Pollution, Health and Development was launched at the 4th Session of the International Conference on Chemicals Management (ICCM4), in Geneva, Switzerland. The announcement was made by a panel of world leaders and experts in the fields of pollution management, environmental health, and sustainable development.

The Commission will address the full health and economic costs of air, water, and soil pollution by producing a report that 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
diseases
caused by
pollution

impose great economic costs on countries around the world—direct medical costs, opportunity costs reflecting the diminished productivity of populations damaged by pollution, and costs to health care systems.”

— PHILIP J. LANDRIGAN,
RICHARD FULLER
*International Journal of
Public Health*
November 2015

Overview of the Year

2015 was a year of many firsts for Pure Earth. Below are some key achievements.

Projects

By the close of 2015, Pure Earth has completed 90 projects in 22 countries around the world. It is estimated that this has improved the health and lives of 4.2 million people, including 834,000 children. Pure Earth managed 11 projects in 2015, ranging from site cleanups to pilot remediation and community health education. It is estimated that the projects currently in progress will improve the lives of an additional 3 million people.

Toxic Sites Identification Program (TSIP)

Pure Earth made significant progress in the quality and consistency of its Toxic Sites Identification Program in 2015. The program, which boasts more than 3,200 sites identified and visits to over 2,400 sites in 49 countries, uses a unique rapid assessment protocol. That protocol was revised and improved in 2015, resulting in significantly improved data collection and storage.

Global Alliance on Health and Pollution (GAHP)

GAHP membership grew to 37 official members in 2015 and dozens of observers. The Third Annual GAHP Meeting was held in Geneva at the ICCM meeting and was attended by representatives from numerous countries. Efforts to ensure pollution is included in the Sustainable Development Goals were successful, resulting in the inclusion of not only air pollution, but also water and soil contamination in Target 3.9.

The Commission on Pollution, Health and Development was launched at the ICCM conference. Statements of support were given by former Mexican President Carlos Salinas and Barbara Hendricks, Minister of Environment, Germany.

Research Publications

Four peer-reviewed scientific papers and commentaries authored by Pure Earth staff and advisory board members were being published in top journals in 2015.

Two issues of the *Journal of Health & Pollution*, Pure Earth's own scientific journal dedicated to publishing original articles on point source pollution, were also published.

“When we tackle pollution—

be it the lack of safe water and sanitation, be it the exposure to contaminated sites or the lack of clean air to breathe—we do not just protect human health and the environment. We also very much contribute to economic development: especially in developing countries, the adverse effects of pollution on health hinder or even render impossible any meaningful social and economic development.”

— BARBARA HENDRICKS
Minister of Environment, Germany

PROJECTS
overall

90
PROJECTS

22
COUNTRIES

4.2
MILLION PEOPLE

834K
CHILDREN

PROJECTS
2015

11
PROJECTS

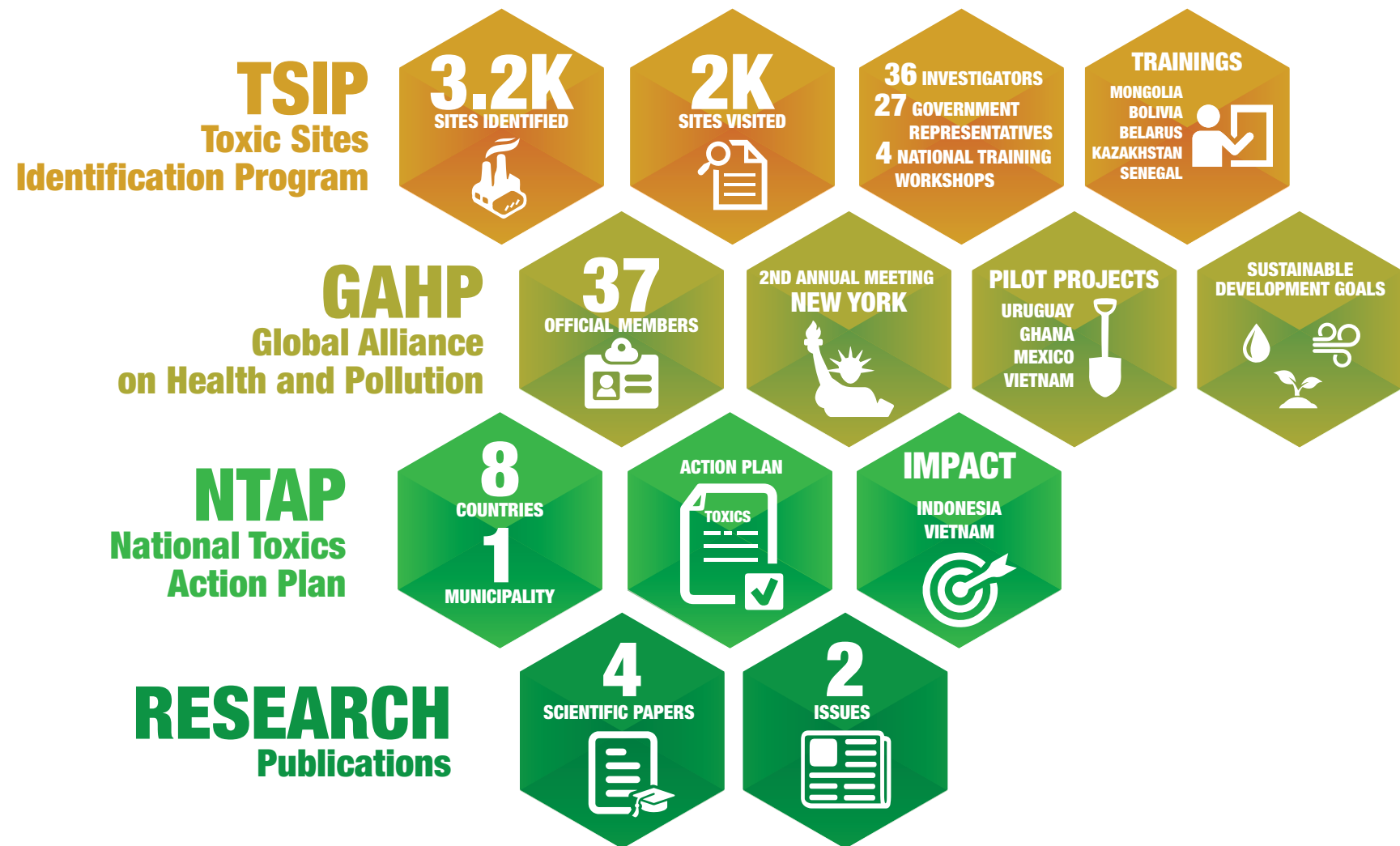
SITE CLEANUPS
PILOT REMEDIATION
COMMUNITY HEALTH
EDUCATION

3
MILLION PEOPLE

“Pollution is such an enormous problem.

We really have to come to grips with it. In my country, we are dealing with it in all sectors of society. The health impacts are so large and far-reaching. It just breaks your heart.”

— JAIRAM RAMESH
Member of Parliament, India,
GAHP member



Campaign for 10 Million Lives

Since 1999, Pure Earth has been saving lives, preserving livelihood, 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 World Bank, the European Commission, Mount Sinai, Columbia University, and the United Nations—to make pollution a top world priority.

Pure Earth, led by campaign co-chairs Sheldon Kasowitz and Charlotte Triefus, 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) Fund 35 cleanups of some of the world’s most toxic sites;
- 2) Launch up to four national Health Pollution Plans;
- 3) Impact the health of 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 donation revenue from \$1.5 million to \$4.6 million annually by 2018 will provide more flexible funds to cover activities such as piloting remediations and health screenings in new areas, which are not often 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.



“After a sobering visit

to a highly contaminated car battery recycling site in India, I saw first-hand the importance of Pure Earth’s work. I am excited to launch this critical campaign and look forward to building our family of supporters, so we can make a real difference in 10 million lives.”

— CHARLOTTE TRIEFUS
Campaign Co-chair



“I’ve been involved with Pure Earth

for many years. An excellent foundation has been established, and now is the time to build on our accomplishments and take the next step forward. I am proud to co-chair a campaign that will have so much impact on some of the most vulnerable people in the world.”

— SHELDON KASOWITZ
Campaign Co-chair



Boys in Zamfara, Nigeria, during the lead decontamination of their village.

2015 Project Highlights

By the close of 2015, Pure Earth has completed **90 projects** in **22 countries** around the world. It is estimated that this has improved the health and lives of **4.2 million people**, including **834,000 children**. Pure Earth managed **11 projects** in 2015, ranging from site cleanups to pilot remediation, and community health education. It is estimated that the projects currently in progress will improve the lives of an **additional 3 million people**.

(top) A few of the 40 local residents that were hired and trained by Pure Earth to carry out the remediation. Learning by doing builds capacity so efforts can continue after the project concludes.



(bottom left) Technical advisory board member Gordon Binkhorst, testing for lead in the soil in Chowa, a neighborhood in Kabwe. He measured levels 10 to 100 times higher than recommended by the U.S. EPA.



(bottom right) Every house in Chowa has a backyard garden. A local resident, part of the project team, is testing soil for lead level.



AFRICA
Kabwe, Zambia
Lead Remediation

In 2015, private donations enabled Pure Earth’s team to return to Kabwe, Zambia, and start cleaning up one of the “World’s Worst Polluted Places.” One hundred years of lead mining operations during and after the African colonial era has devastated this area.

Ten years ago, Pure Earth helped bring attention to the severe lead poisoning in Kabwe, resulting in a major intervention from the World Bank. In 2014, we went back to check on the progress, and were saddened and shocked at what we found.

The team tested soil across 12 neighborhoods and the blood lead levels of 196 children aged two to eight years.

The reference level at which CDC recommends public health actions be initiated is 5 µg/dL. **We found that 26.5% of the children recorded blood lead levels higher than 65 µg/dL.**

That’s 13 times the level found in some of the children in Flint, MI.

With the help of private donations, we deployed a project team, partnered with the Kabwe City Council, designed a pilot intervention, trained up local staff, and got to work.

After just three months of remediation efforts, carried out by residents, the team decontaminated 80 homes and yards. By December 2015, the residents of the Chowa neighborhood in Kabwe were free from dangerous lead exposure in their homes and yards for the first time in 100 years.

After finding the high lead levels in 2014, Pure Earth notified the World Bank and requested assistance. The Bank has committed to a new multi-million dollar effort to address the lead poisoning in Kabwe.

During this round of funding, Pure Earth will stay closely involved providing oversight to ensure that remediation efforts are focused on reducing the threat to human health and protecting children.

“I am impressed with what has been done...

and this comes as a relief not only to the people of Chowa, but the entire Kabwe population. We believe that when this project is completed, more lives will be safeguarded.”

— PATRICK CHISHALA
Kabwe District Commissioner,
as reported in the *Zambian Daily Nation*: “*Anti-Lead Project Cheers Kabwe Residents*”



AFRICA

Agbogbloshie, Ghana

E-waste

We continued our work in 2015 to improve the health and environmental conditions for workers and children at an informal scrap yard in Ghana's capital, Accra.

Following the opening of a new recycling center with mechanized wire-strippers, the Pure Earth team installed a machine that strips finer electrical wires than was previously possible, and separates the metal from the plastic, allowing both to be resold. This equipment is expected to further reduce the burning of e-waste and reduce exposure to the toxic emissions from black smoke.

Approximately 7,500 lbs of PVC plastics were cleanly stripped and shredded at Agbogbloshie, rather than burned. This prevented the potential spread of:

- 10,555 pounds (or 4.8 metric tons) of carbon dioxide emissions
- 4,228 pounds (or 1.92 metric tons) of the very toxic pulmonary irritant hydrochloric acid
- 22.5 pounds of lead

(right) Electric wires are fed through the granulator/separator which outputs separate streams of metal and plastic pellets for resale.

(below) Former scrap yard workers operating the new mechanized wire-stripper.



(top) Agbogbloshie residents.

(bottom left) Green Advocacy Ghana staff member showing the 7,500 pounds of plastic wire coating ready to be recycled that would have previously been burned.

(bottom right) Agbogbloshie is the largest e-scrap yard in Ghana.

(top) Potter Rosario's granddaughter and son help mix plant material into the clay. Rosario converted to the lead-free boron glaze and had the workshop area decontaminated.

(bottom left) At Festival Internacional Cervantino, one of the most important arts and cultural events in Latin America, dinner was served on lead-free pottery, showcasing the culinary culture of Morelos State and its leadership in the fight against toxic lead poisoning in Mexico.

(bottom right) Lead-glazed cooking pots are widely sold.



LATIN AMERICA

Morelos, Mexico

Lead Pottery

We continued to make progress in our Barro Aprobado project in Morelos.

In partnership with the State Ministry of Health, we piloted an innovative program to screen the blood lead levels of newborns to identify lead poisoning victims and determine the source of contamination. The project screened 304 newborns. Infants identified with blood lead levels over 10 ug/dl are now receiving medical treatment.

Since 2008, Pure Earth has been working with local authorities in Mexico to address the issue of lead in pottery. Leaded glaze is used extensively throughout Mexico. Acid from spicy food may leach lead from the glaze into food consumed by individuals. As lead has been completely phased out of gasoline since 1997, leaded pottery is now the main source of lead exposure in the country.

Pure Earth has implemented Barro Aprobado, a pilot project in the State of Morelos in

association with the National Institute of Public Health (INSP), the Morelos Health Secretary, and the Mexican Institute of Social Security (IMSS). The project aims to increase demand for lead-free pottery by working with restaurants and hotels to create awareness of the problem and promote the transition to safe pottery. Pure Earth expects to expand this work to other regions and support governments in the implementation of a national strategy to address this issue.

Pure Earth has engaged with restaurant and hotel associations to promote lead-free restaurants. With a modest start of four participating restaurants, now there are more than 15 restaurants interested in buying lead-free pottery. This has been a great incentive for artisans to switch to lead-free glaze.

Lead-free potters in Tlayacapan have quadrupled their sales with this program, and 10 artisans received training from Pure Earth on the use of lead-free glazes—important progress towards making a new healthier tradition.

In the case of one newborn with a blood lead level of 40 ug/dl, the investigation revealed the poisoning was attributed solely to lead-glazed pottery, used daily by the family to cook and serve their meals. The lead source, lead glazed pottery, was removed, and much to everyone's relief, the baby no longer has elevated lead levels. The family received a new set of lead-free cooking.

The project has also screened 304 newborns for lead poisoning; those children identified with BLLs above 10 ug/dl are now receiving the appropriate medical treatment. The results of the health screenings have been shared with the government and will be published.



“Barro Aprobado is an action

that allows us not to be partakers of the damage that lead would cause to the artisans and to our customers.”

— JUAN PONS
Owner of Casa Hidalgo
Restaurant



LATIN AMERICA

Madre de Dios, Peru

Artisanal Small-scale Gold Mining

In 2015, Pure Earth received a grant from the U.S. Department of State to assist the Peruvian government in assessing mercury pollution at artisanal gold mining sites in the Madre de Dios region. We are developing plans for site remediation, strategies for alternative livelihoods, and sustainably restoring affected natural resources.

Our team visited eight towns in the Andes region and the Peruvian rainforest. During the trip Pure Earth educated local officials on the dangers of mercury exposure, trained them to conduct environment assessments, and identified polluted sites for intervention.

In the coming year, we will be training miners in mercury-free methods and developing strategies for ecological restoration of devastated areas.



(right) Leoncio Na-Oy training miners in Peru to use mercury-free methods.

(below) This sluice separates and concentrates gold particles, reducing the need for mercury.



Artisanal gold mining site in Peru where once green, lush land has been stripped bare to get at sandy soil below that contains gold particles. Pits contaminated with mercury are left behind as miners move on to the next site.

(top left and right) BEFORE: This waterfront area and beach in Sumgayit, Azerbaijan, frequented by families in the summer, was heavily contaminated with industrial effluent and high concentrations of PCBs in the soil.

(bottom) AFTER: In 2015, the remediation is complete; hundreds of trees and shrubs have been planted and now await grass to sprout in time for summer sun bathers.

(opposite page) Board member Paul Roux, left, at cleanup site.



CENTRAL AND WESTERN ASIA

Sumgayit, Azerbaijan Remediation of PCB Beach

In 2015, Pure Earth conducted the first remediation project of a beach in Sumgayit, Azerbaijan—a region we had designated as one of the “World’s Worst Polluted Places.” A chemical plant had constructed an industrial settling pond near the beach. This toxic sludge was left on the ground surrounding the pond, where it was kicked around and spread out over the years, in part by the foot traffic from beachgoers unaware that they were walking through poison.

With cancer rates in Sumgayit 22–51% higher than average incidence rates in the rest of Azerbaijan, this cleanup was made a top priority.

The contaminated sand and soil were removed and contained in a designated landfill. Clean fill was then brought in and flattened with a bulldozer.

To stabilize the sandy soil and prevent erosion, dozens of local trees and shrubs were added to a park landscape surrounding the beach.



“People here have been telling me that this gives them hope.”

I live miles away in Baku and I feel the same way. I believe this cleanup is a symbol of what can happen in other polluted areas in Azerbaijan.”

— ROVSHAN ABBASOV
Pure Earth

“It was a good and successful project.”

The contaminated areas within the town of Goziyon were cleaned up and are no longer a threat to the health of people. Residents in the area now know about the health risks of radiation and can use our recommendations to protect themselves. Inspired by our project, the regional government funded the covering of the main portion of the uranium tailings with clean soil. This will also greatly reduce the exposure of people to contamination.”

— DMITRY PRUDSKIH
Chair of the Youth Group on
Protection of the Environment



CENTRAL AND WESTERN ASIA

Digmai, Tajikistan

Mine Tailing Site Intervention

In 2014, Pure Earth, Green Cross Switzerland, and the Youth Group on Protection of the Environment (Sughd Region) conducted an environmental assessment and a series of sociological surveys of the Digmai tailings area. The water and soil samples in Goziyon indicated that this community is particularly vulnerable to the effects of radioactive heavy metal contamination. The primary recommended actions included removing radioactive hotspots in residential areas and educating local people on radiation safety measures.

As a result of the project, five radioactive hotspots in residential areas were removed and 400 people who live close to the tailings were educated on the need for radiation safety. This has significantly decreased the most immediate risks of radioactive contamination to people.

Recommendations for future project activities include:

- Planting trees around the Digmai tailings;
- Constructing a fence along in the northwest part of the tailings area;
- Covering the tailings with a layer of soil (already partially implemented by the regional government following the project recommendations);
- Introducing regular classes on radiation safety in local school and kindergartens;
- Conduct a more detailed assessment.



Pure Earth team member measuring radiation levels.



(above) Pure Earth trainers demonstrating the panning technique to miners.

(right) Ms. Altantuya is a widow living with her 10 year-old daughter Sanchitrmaa and her 3 year-old son Enkhbaata. She and her husband were rural herders, but lost their livestock during the winter of 2009. They moved Zaamar, the largest mining area in Mongolia, and became gold miners, using mercury illegally.

When her husband died unexpectedly, she struggled to feed her children and feared going to jail for using mercury.

A Pure Earth workshop trained her in mercury-free mining methods.

Now, she extracts more gold using the clean method, and can work closer to home and take care of her children.



CENTRAL AND WESTERN ASIA

Mongolia

Alternatives to Mercury in Artisanal Small-scale Gold Mining (ASGM)

The artisanal small-scale gold mining sector (ASGM) is an important source of livelihood in Mongolia. It provides much needed income to an estimated 100,000 miners, most of who are from socially and economically marginalized communities that turn to mining to escape extreme poverty, unemployment and landlessness.

Although ASGM is a relatively new activity in Mongolia, it continues to be an increasingly important economic activity. Despite the overall slow in economic growth in 2014, mining was one of the few sectors that grew.

Pure Earth and the Environment and Security Center of Mongolia (ESCM) have collaborated on a two-year project to improve the economic and environmental sustainability of ASGM, and reduce poverty in ASGM areas in Mongolia.

A year after the project began, more than 1,000 small-scale gold miners (42.5% are women and 3.1% are pensioners) in the Tov, Selenge and Bayankhongor provinces were trained in mercury-free ASGM techniques that are more efficient than traditional methods. In fact, they are extracting up to 50% more gold with the new mining methods. The project has been so well received that there is a waiting list of several mining communities requesting training.

There are currently an estimated **100,000** miners working in about **18** provinces throughout the country, almost **50%** of whom are women.

“We know we must be doing it right

when miners are extracting up to 50% more gold, and we have a long waiting list of communities requesting training in mercury-free mining techniques!”

— PETR SHAROV
Regional Director



SOUTH AND SOUTHEAST ASIA

Tegal, Indonesia

Cleaning up Informal Lead Smelting

In 2015, we expanded our work in communities recycling used lead acid car batteries. The villages of Pesarean and Kebasen in Tegal Regency, Central Java, have been involved for decades in various forms of metal smelting, including lead from used car batteries. Many operators work from their homes or from small shops in residential areas. This has led to heavy metal contamination in the soil and water and exposure of the population.

In the summer of 2015, our team went to Tegal to begin environmental and health assessments, and to start determining the cleanup process.



(top) Children just out of school in Pesarean. Smoke from lead and other metal smelting causes many to have respiratory problems.

(bottom left) Metal workers pouring molten lead into ingot molds.

(bottom right) After workers leave the smelting area, women dig through the waste piles looking for bits of lead slag they can sell.

(opposite page) Metal smelters work in toxic environments with little to no protection.



Villagers in Central Java recycling plastics, including used battery casings.



SOUTH AND SOUTHEAST ASIA

The Philippines and Indonesia Urban Revitalization Through Mitigating Toxic Wastes

The central objective of this urban revitalization project is to improve environmental management of industrial activities in urban areas of the Philippines and Indonesia.

The goals are:

- Increase awareness of the scope of the problem in Manila and Jakarta;
- Improve capacity among environmental regulators, industrial stakeholders, and artisanal operators;
- Create plans, strategies, and policies to integrate environmental management with urban redevelopment; and ultimately
- Mitigate hazardous waste exposures in urban environments.

Building on the existing TSIP database and ongoing relationships with implementing agencies, the project will enhance the capacity of local stakeholders to do assessment work themselves. Once this information is collected, a strategy for response that outlines priority actions, roles and responsibilities, and a timeframe for action will be developed. Data collection and review activities on existing policies and urban development plans, policy gaps, economic and social considerations will be conducted. The project will also generate the tools to mitigate hazardous waste contamination. These tools will result in the overall strategic urban redevelopment plans, and investment and action plans.

“We are pleased to be working

with the Asian Development Bank to identify contaminated brownfield sites that could be put to better economic use by the local community. This is the first time we are exploring this approach in the region, attempting to use market forces to stimulate change. This year, two sites have been chosen—one in Indonesia and one in the Philippines. Two leading brownfield developers from the U.S. are analyzing the economic potential of these polluted sites. We hope to fund cleanup and kick start a better future for these communities.”

— LARA CRAMPE
Regional Director, Southeast Asia

“This project has been very progressive,

with pilot-testing, community education and government involvement. This project has brought great success. Indeed a strong partnership with HSBC and Pure Earth.”

— SUNSHINE
HSBC volunteer



SOUTH AND SOUTHEAST ASIA

Marilao, Meycauayan, and Obando River System, The Philippines River Fisheries Project

A major hub for aquaculture, the Marilao, Meycauayan and Obando river system is badly contaminated by untreated wastewater from used car battery recycling, precious metal refining shops, tanneries, and more. In the second year of a four-year project sponsored by HSBC, Pure Earth is testing innovative water filtering in fishponds, enhancing monitoring of water quality, providing comprehensive training to fishermen, and expanding education, advocacy, and public outreach.

In 2015, the project team tested different remediation technologies, including bioremediation to filter heavy metals. Vetiver grass, which can grow in and around bodies of water and absorb heavy metals, was planted on river banks and in floating garden pontoons. Initial results were positive so this phytoremediation technique will be expanded.

By the end of 2015, more than 4,500 residents were eating cleaner fish, as a result of the remediation efforts. By 2016, we expect this number to nearly quadruple to 17,000.

Local HSBC employees continue to be involved in the data collection and measuring of toxins in the water along the MMOR system.

Key accomplishments to date:

1. Established a series of scientific test ponds in order to test different techniques for cleaning the contaminated river water;
2. Involved 150 HSBC employees and local community members in learning about the river system, identifying contamination sources, and engaging in cleanup projects to prevent additional contamination;
3. Built a mobile lab to test water quality in remote areas and engage HSBC employees and local fish farmers in data collection;
4. Created an online monitoring database of extensive water quality measures for the river system and shared it with the government and public;
5. Empowered the local fish farmers by helping them formally organize, research safer methods of fish farming, and receive funding for improving their practices and educating their membership.



(top left) Tanneries along the river system dump highly toxic hexavalent chromium and other chemical waste into the water.

(top right) Students help propagate plants for phytoremediation trials in the river system.

(bottom left) A creative, cost-effective solution using vetiver grasses to absorb heavy metals in the river.

(bottom right) With support from project partner HSBC Water Programme, a mobile water quality monitoring laboratory has been deployed.



(top) Broken lead acid car batteries sorted by components, laid out on a residential side street.

(bottom left) Children in Patna standing barefoot on soil contaminated with lead measuring 60,000 parts per million (ppm). The U.S. EPA standard is 400 ppm.

(bottom right) Young man smelting lead from used car batteries in residential neighborhood.



INDIA

Patna, Bihar State
Bihar ULAB Cleanup

Pollution-related illnesses cause one in four deaths in India. While many of India’s pollution problems are highly complex and difficult to solve, others are more focused and cost-effective solutions are available. One such problem is childhood lead poisoning resulting from informal car battery recycling.

It is estimated that the burden of disease from this issue is substantive—as much as that of malaria. Today, the average concentration of lead in the blood of Indian children, 10 µg/dL, is two times higher than the maximum recommended level set by the U.S. CDC (5 µg/dL). This is not only a public health emergency but a threat to India’s economic future.

Pure Earth conducted a detailed assessment in recycling neighborhoods in Patna, with staggering results. In the village dirt pathways used by schoolchildren every day, the lead in soil measured at 60,000 parts per million. This is 150 times over international health standards. Pure Earth will implement a project in this community with the following components:

1. Community environmental (soil) and health (blood) assessment;
2. Community education program regarding lead risk, project activities, and expected outcomes;
3. Moving informal recyclers to safer areas;
4. Cleaning contaminated homes/workshops;
5. Encapsulating contaminated outdoor areas with clean soil (a method recommended by U.S. EPA);
6. Final inspection and monitoring.

Furthermore, Pure Earth formed a coalition called the Indian Alliance on Health and Pollution (IAHP) with two highly respected Indian organizations—the Council on Energy, Environment and Water, and the Public Health Foundation of India. Specifically, IAHP will work on formalizing the battery recycling industry, to ensure that approved, clean practices and facilities are the norm.

“Working with the battery recycling community

in Bihar is an exciting project for us. It’s a unique opportunity to get involved at the very start of a process that will integrate the informal industry into the formal economy in a way that preserves livelihoods, protects workers and reduces health risks to the surrounding community. Bihar recycles batteries not just from their region, but also from neighboring states and even other countries. With our experience in this sector, and solid partnerships locally, we are poised to make a major contribution with this project.”

— DREW McCARTOR
Regional Director, South Asia & East Asia

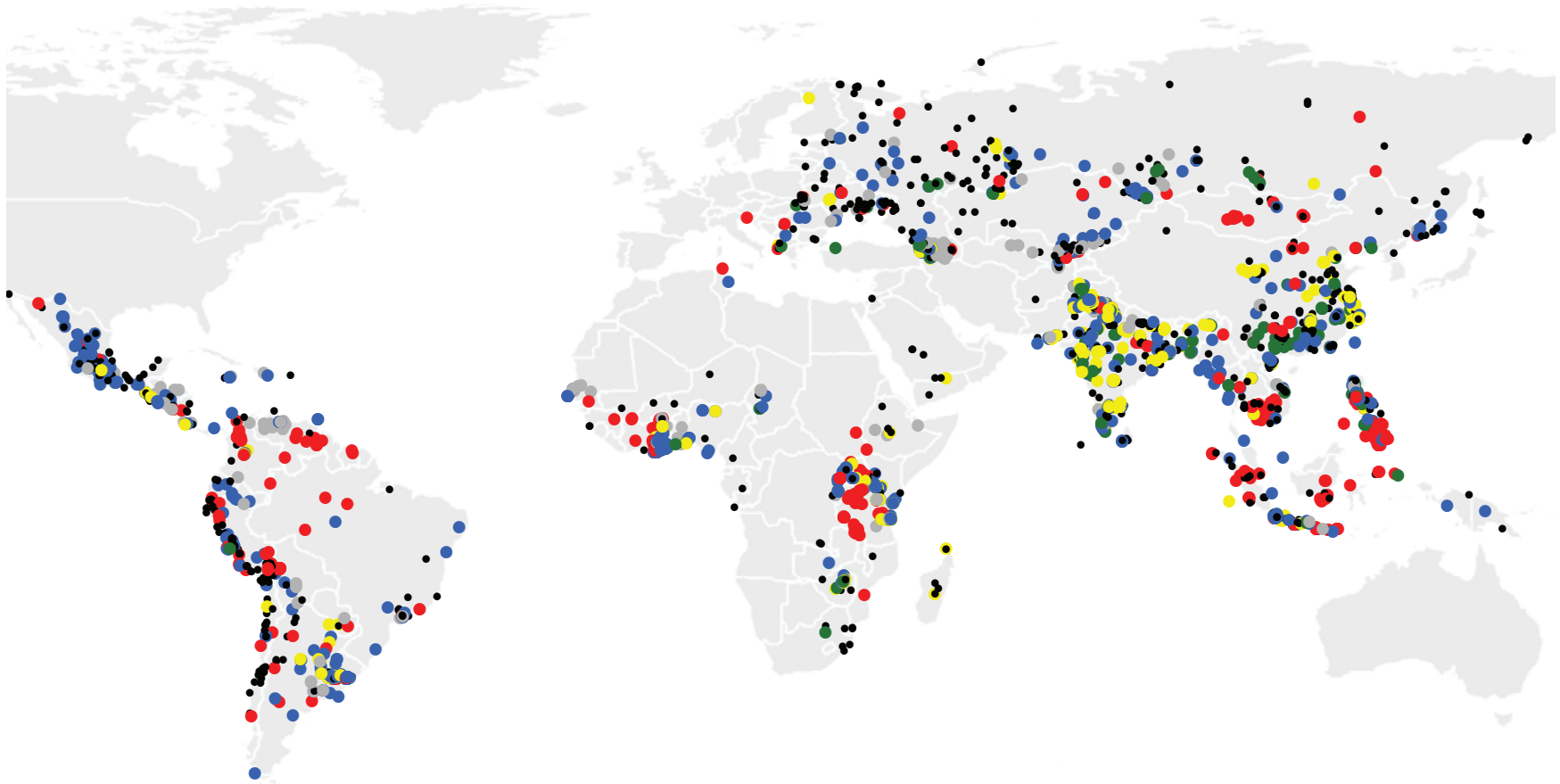
“Pure Earth’s
TSIP program
is an
invaluable
resource.

It is the only database tracking contaminated sites worldwide. This critical data is used by many countries, and enables them to set priorities as they begin to tackle their pollution problems.”

— PAUL ROUX
Chairman, Roux Associates,
Pure Earth Board Member

The Toxic Sites Identification Program (TSIP)

- Chemicals and toxic pollutants in the environment affect the health of millions of people each year in low- and middle-income countries. Pure Earth’s Toxic Sites Identification Program (TSIP) seeks to identify and screen contaminated sites in low- and middle-income countries that pose a potential threat to human health. This is an important step in understanding the scope of toxic pollution globally, and is not meant to be a comprehensive inventory of sites around the world.
- Currently there are more than 3,200 sites in the Global Inventory Database, affecting an estimated 83 million people. However, this database is still a work in progress. Pure Earth estimates that the real number of people at risk from exposure to contaminated sites is closer to 200 million people, and that is a conservative estimate. Of the 3,200 sites in the TSIP database, more than 2,300 have been visited in person by Pure Earth staff.
- Over the past seven years, a team of more than 200 trained investigators in nearly 50 countries has been working to collect health and pollution data while working in collaboration with both local and national partners.
- In 2015, we focused our efforts on improving the accessibility and quality of the TSIP. Resources were allocated to enhancing data collection protocols and in improving the quality and consistency of existing information. Our quality control teams worked closely with researchers and implementers to calibrate the TSIP. The result is a much improved approach that will form the basis of the 2016 program.



Map based on data collected as part of the Toxic Sites Identification Program (2009-2015)

Pure Earth
475 Riverside Drive, Suite 860
New York, NY

- Other Contaminants
- Cadmium
- Chromium (Hex)
- Chromium (Total)
- Lead
- Mercury - elemental
- Pesticides

Publications

The Brown Agenda



In August of 2015, Pure Earth president, Richard Fuller, published *The Brown Agenda: My Mission To Clean up The World's Most Life-Threatening Pollution*. The book has been effective in raising awareness and the profile of the global pollution

issue. *The Brown Agenda* details Fuller's inspirational journey—from his dangerous yet ultimately successful fight to save hundreds of thousands of acres in the Amazon rain forest, to establishing Great Forest Inc., one of the leading sustainability consultancies in the United States, to his creation of Pure Earth. It is a vivid account of his perilous travels to the Earth's most toxic locations, and Richard introduces readers to the plight of the “poisoned poor,” and suggests specific ways people everywhere can help combat pollution all over the world.

Journal of Health and Pollution

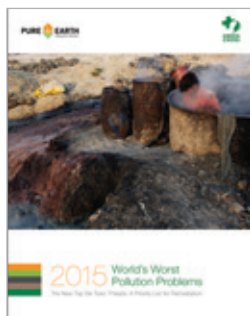


Journal of Health and Pollution expanded its editorial board and published two issues with a total of 16 new research papers authored by researchers in low- and middle-income countries.

AuthorAID courses

To date, over 120 researchers have taken the free online course developed by the Journal editors in collaboration with *AuthorAID*. The courses help researchers and scientists from low and middle-income countries improve technical writing and editing skills with an eye to getting their views and findings in major international journals. This year, the course was expanded to 10 weeks.

World's Worst Pollution Problems Reports



The *2015 World's Worst Pollution Problems* report is the tenth in an annual series published by Green Cross Switzerland and Pure Earth (formerly Blacksmith Institute).

Over the past decade, this series identified and drew attention to the worst, and most dangerously polluted places on the planet, while documenting and quantifying the startling health and human impacts of this neglected problem. The “World's Worst” series of reports has effectively raised global awareness about the extent and impacts of toxic pollution in low-and middle-income countries.

In the *Top Six Toxic Threats*, we report on six soil pollutants that pose an outsized threat to human health. The six—lead, radionuclides, mercury, hexavalent chromium, pesticides, and cadmium—collectively affect the health of 95 million people and account for 14.7 million disability adjusted life years (DALYs) lost in low- and middle-income countries. Exposure to these pollutants result in debilitating and life-threatening diseases, especially in children.

The 2015 report also examines how advances in data gathering and analysis on the scope and impact of pollution, improve our understanding of the scale of these toxic threats. The *2012 Worst Polluted* report established the first set of DALY figures for the health burden of toxic pollution at contaminated sites, by estimating for this pollution—the basic parameter developed by the World Health Organization for assessing the Global Burden of Disease—the Disability Adjusted Life Year or DALY. In the years since then, these DALY estimates have been expanded and refined, resulting in broad acceptance by the international health community of this evidence of the impacts of toxic pollutants.

Research

Four research papers were published by Pure Earth staff members in 2015, along with an editorial in *The Lancet* by board member Dr. Philip Landrigan and Pure Earth president Richard Fuller.

1. Spatial Associations Between Contaminated Land And Socio Demographics In Ghana

International Journal of Environmental Research and Public Health (Oct 2015)

2. Global Health and Environmental Pollution

International Journal of Public Health (2015)

3. Children's Health in Latin America: The Influence of Environmental Exposures

Environmental Health Perspectives (2015)

4. Exposición a plomo: una tarea pendiente en México

Salud Pública de México 2 (2015): 115-116

5. Environmental Pollution, Health, and Development: a Lancet–Global Alliance on Health and Pollution–Icahn School of Medicine at Mount Sinai Commission

The Lancet (Oct 2015)

In the Press

In 2015, Pure Earth garnered significant media attention with projects and publications.

• Air Pollution in the Developing World is Killing Millions Every Year

PRi; Dec15, 2015

• Pollution: The Deadliest Killer in the Developing World

The Takeaway;
Dec 14, 2015



• Anti-Lead Project Cheers Kabwe Residents

Zambian Daily Nation; Dec 14, 2015

• One Green Dude's Mission: Cleaning Up the World's Most Life-Threatening Pollution

The Green Divas; Nov 30, 2015

• How We Can Vanquish Pollution Within Our Lifetimes

Ensis; Oct 26, 2015

• Toxic Threat Report: Dirty Water, Contaminated Soil, Bad Air

Spiegel; Oct 21, 2015

• 6 Top Toxic Threats in the Environment

Weather.com; Oct 20, 2015

• World's Worst Polluters Have Vast Impact on Human Health

Toronto Star; Oct 20, 2015

• Global Panel on Pollution, Health Launched

Press Trust India; Oct 6, 2015

• Dish The Dirt—Remediating: Helping People Help Themselves

TCE The Chemical Engineer;
Sep 25, 2015



• Tackle Pollution to Stop Biggest Killer of Poor—Author

Thomson

Reuters

Foundation;

Sep 3, 2015



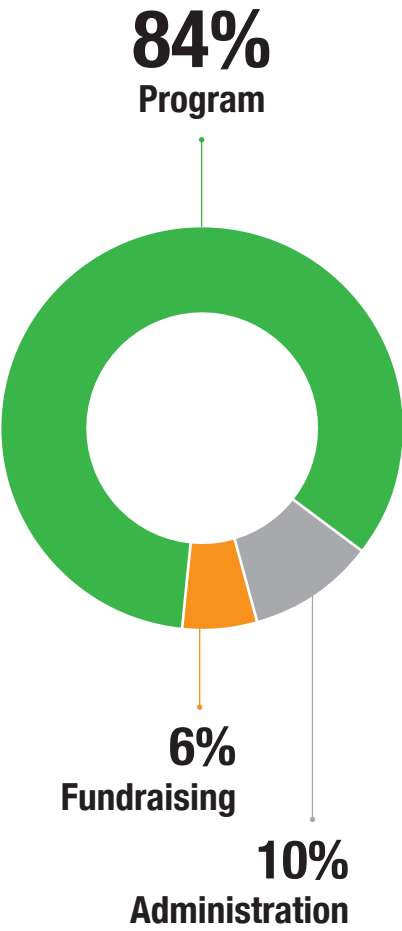
• The Poisoned Poor: In Poor Countries Man-Made Toxic Pollutants Spread Like Cancer

Financial Highlights

Consolidated Statement of Financial Position Years Ended December 31, 2015 and 2014

	2015 Consolidated	2014 Consolidated
CURRENT ASSETS		
Cash and cash equivalents	\$ 109,547	\$ 704,180
Grants receivable	3,847,484	5,103,887
Pledges receivable, net	353,088	174,244
Prepaid expenses and other current assets	183,570	308,434
Total current assets	\$4,493,689	\$6,290,745
Property and equipment, net	771,327	483,917
Security deposit	25,000	25,000
Total assets	\$ 5,290,016	\$ 6,799,662
LIABILITIES AND NET ASSETS		
CURRENT LIABILITIES		
Accounts payable	642,603	507,454
Accrued expenses	95,229	92,028
Line of credit	50,000	—
Long-term debt, current portion	149,798	—
Total current liabilities	\$ 937,630	\$ 599,482
LONG TERM DEBT	541,563	484,043
Total liabilities	\$1,479,193	\$1,083,525
NET ASSETS		
Unrestricted net assets	363,506	448,315
Temporarily restricted net assets	3,447,317	5,267,822
Total net assets	3,810,823	\$5,716,137
Total liabilities and net assets	\$ 5,290,016	\$ 6,799,662

Breakdown of Expenses



Financial Highlights

Consolidated Statement of Activities Years Ended December 31, 2015 and 2014

	December 31, 2015 Pure Earth Consolidated			December 31, 2014 Pure Earth Consolidated		
SUPPORT AND REVENUE	Unrestricted	Temp Rest	Total	Unrestricted	Temp Rest	Total
Grants	\$ —	\$ 1,532,697	\$ 1,532,697	\$ —	\$4,466,991	\$4,466,991
Contributions	496,215	—	496,215	95,672	—	95,672
Fundraising income	464,090	—	464,090	476,200	—	476,200
In-kind contributions	196,226	—	196,226	461,990	—	461,990
Other income	33,300	—	33,300	—	—	—
Net assets released from restrictions	3,353,202	(3,353,202)	—	4,520,605	(4,520,605)	—
Total support and revenue	\$4,543,033	(\$1,820,505)	\$ 2,722,528	\$5,554,467	(\$ 53,614)	\$5,500,853
FUNCTIONAL EXPENSES						
Program	3,746,590	—	3,746,590	4,541,930	—	4,541,930
Administration	467,378	—	467,378	390,225	—	390,225
Fundraising	257,474	—	257,474	279,304	—	279,304
Total functional expenses	\$4,471,442	\$ —	\$ 4,471,442	\$5,211,459	\$ —	\$5,211,459
Excess (Deficiency) of support and revenue over functional expenses	71,591	(1,820,505)	(1,748,914)	343,008	(53,614)	289,394
Interest expense	(45,261)	—	(45,261)	(2,423)	—	(2,423)
Realized (loss) gain on investments	498	—	498	(1,608)	—	(1,608)
Foreign currency translation adjustment	(111,637)	—	(111,637)	(352,356)	68,951	(283,405)
Change in net assets	(\$ 84,809)	(\$1,820,505)	(\$1,905,314)	(\$ 13,379)	\$ 15,337	\$ 1,958
NET ASSETS, Beginning	448,315	5,267,822	5,716,137	461,694	5,252,485	5,714,179
NET ASSETS, End	\$ 363,506	\$ 3,447,317	\$ 3,810,823	\$ 448,315	\$ 5,267,822	\$ 5,716,137

Financial Highlights

Consolidated Statement of Cash Flows Years Ended December 31, 2015 and 2014

	2015	2014
OPERATING ACTIVITIES		
Change in net assets	(\$1,905,314)	\$ 1,958
Adjustments to reconcile change in net assets to net cash provided by (used in) operating activities:		
Depreciation	102,706	27,646
Security deposit	—	(25,000)
In-kind contribution of investments	(50,877)	(63,443)
Realized loss (gain) on investments	(499)	1,608
Changes in:		
Grants receivable	1,256,403	120,082
Pledges receivable	(178,844)	76,445
Prepaid expenses and other current assets	124,864	10,125
Accounts payable	135,149	(117,435)
Accrued expense	3,201	(14,250)
Net cash provided by (used in) operating activities	(\$ 513,211)	\$ 17,736
INVESTING ACTIVITIES		
Proceeds from sale of investments	51,376	72,390
Fixed asset purchases	(390,116)	(455,290)
Net cash (used in) provided by investing activities	(\$ 338,740)	(\$ 382,900)
FINANCING ACTIVITIES		
Proceeds from line of credit	50,000	—
Proceeds net of repayments on long-term debt	207,318	484,043
Net cash provided by financing activities	\$ 257,318	\$ 484,043
NET INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS	(\$ 594,633)	\$ 118,879
CASH AND CASH EQUIVALENTS, Beginning	\$ 704,180	\$ 585,301
CASH AND CASH EQUIVALETS, Ending	\$ 109,547	\$ 704,180
SUPPLEMENTAL INFORMATION		
Interest paid	\$ 45,261	\$ 2,423

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“Some of the most experienced specialists

from the private sector advise Pure Earth’s teams in the field, bringing their expertise and innovations in pollution prevention and remediation to developing countries. Moreover, not only are projects directed at remediating contaminated sites, but long-term solutions are also implemented to build local capacity and resources to ensure that once a site is cleaned, it remains clean.

— BRIAN WILSON
Program Manager,
International Lead Association

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Boys from the Chowa neighborhood in Kabwe, Zambia, celebrate the clean soil provided through the Pure Earth remediation project, thanks to our generous supporters.

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Buildings and Nuclear
Safety (BMUB)
Global Environment Facility (GEF)
National Institute of Environment
Health Sciences (NIEHS)
Swedish International
Development Agency (SIDA)
United Nations Development
Program (UNDP)
United Nations Environment
Program (UNEP)
United Nations Industrial
Development Organization
(UNIDO)
United Nations Food and
Agriculture Organization (FAO)
United States Department
of State (US DoS)
YTS
Zhejiang University



This page: Boys in Cinangka, Indonesia

Back cover photo: Young gold miner in Indonesia, by Larry C. Price



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