



ANNUAL REPORT

2018–2019

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► Documenting sources of toxic pollution at a recycling village filled with plastic cables and other waste, Vietnam.

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INTRODUCTION



Pure Earth's mission is to reduce pollution, save lives and protect the planet.

How We Do It

Pure Earth works in low- and middle-income countries in communities experiencing the worst of the pollution crisis with high levels of death, disease and disability, especially in children and pregnant women. We identify toxic hot spots and work with community members and governments, building their capacity to clean up disease causing toxic pollution in soil, water and air. This field work, combined with our groundbreaking research and advocacy, elevates pollution control and prevention to a local and global priority.

We are pleased to report in 2018, a palpable sense of urgency for action on pollution began to build, and is continuing in the first half of 2019.

The report of *The Lancet* Commission on Pollution and Health, published in October 2017, has been a key driver of the increased awareness and demand for solutions throughout 2018 and into 2019.

The Commission concluded that all forms of pollution (air, water, soil, chemical wastes) were responsible for an estimated 9 million premature deaths—16% of all deaths worldwide—as well as for the loss of 268 million disability adjusted life-years (DALYs) in 2015. Pollution is the world's largest environmental cause of disease and premature death (Landrigan et al. 2017). The majority—71%—of the deaths attributed to pollution are caused by noncommunicable diseases (NCD).



► Pure Earth President Richard Fuller at the World Economic Forum in 2018 presenting “The Big Picture in Pollution,” Davos, Switzerland.

Global dissemination of *The Lancet* Commission findings (media reach estimated at 2 billion) contributed to the following advances toward a consensus for urgent action to stem the pollution crisis:

- ◆ The air pollution and climate agendas have converged, both acknowledging the immediate threat to human health, and the longer-term changes to the habitability of our planet. Modern, industrial pollution is the source of both of these problems, and investment in pollution control will decrease both threats.
- ◆ Uncontrolled industrial pollution in low- and middle-income countries is visible around the world, and citizens in numerous cities, each experiencing versions of “airpocalypses”, fear for their children’s health and are mobilizing and demanding change.
- ◆ Corporate leaders are responding to demands from board members and consumers to ensure their supply chains are clean, and toxic chemical “footprint” metrics are needed.
- ◆ Pollution was acknowledged as a threat to biodiversity for the first time by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES).
- ◆ Air pollution and lead (Pb) have been acknowledged as major risk factors for non-communicable diseases.
- ◆ Larger NGOs and foundations are beginning to recognize the need to add pollution control and prevention to their program areas.

CAMPAIGN FOR 10 MILLION LIVES



► Campaign co-chairs Charlotte Triefus and Sheldon Kasowitz

Rich Fuller challenged us 20 years ago. “How would you like to solve, in our lifetimes, the problem of pollution?”

It was and remains extremely compelling—save millions of lives AND protect the planet. In the early days, a few of us donated to projects that assessed problems and directed solutions.

Fast forward to 2019: Pure Earth has completed 120 cleanup projects helping more than 5 million people, and spearheaded the seminal *Lancet Commission on Pollution and Health*, that revealed pollution as the leading cause of death—we lose 9 million people to pollution every year.

We’ve made ending pollution a global priority.

Now in this decade we must keep up the pressure, take what we’ve learned over the past twenty years, scale it up, and deliver better outcomes for the half of a billion children affected by lead every day.

Together we can do this. Together our donations can jump-start five more country-wide Health and Pollution Action Plans—a blueprint, a prescription—for cleaning up and stopping future polluting practices.

Together our donations can fund 50 new projects that demonstrate cost-effective cleanups and educate communities on the dangers and sources of pollutants. We can affect 10 million lives, and more.

Join us so that in this decade, we can deliver a Pure Earth.



► Two girls enjoy a bike ride in a polluted village, Vietnam.



► Family in doorway of their home, Senegal.

**“20 years from now,
I hope all countries adopt
pollution as an issue
that is fundamental to
their own development
strategies and they are
committed to doing things
in healthy and productive
ways...that’s how the
world should look.”**

—Rich Fuller, President, Pure Earth

20TH ANNIVERSARY

Throughout 2018 & 2019, we are marking our 20th anniversary and looking back at years of collaborative efforts that have improved the health and lives of millions of families in over two dozen countries.

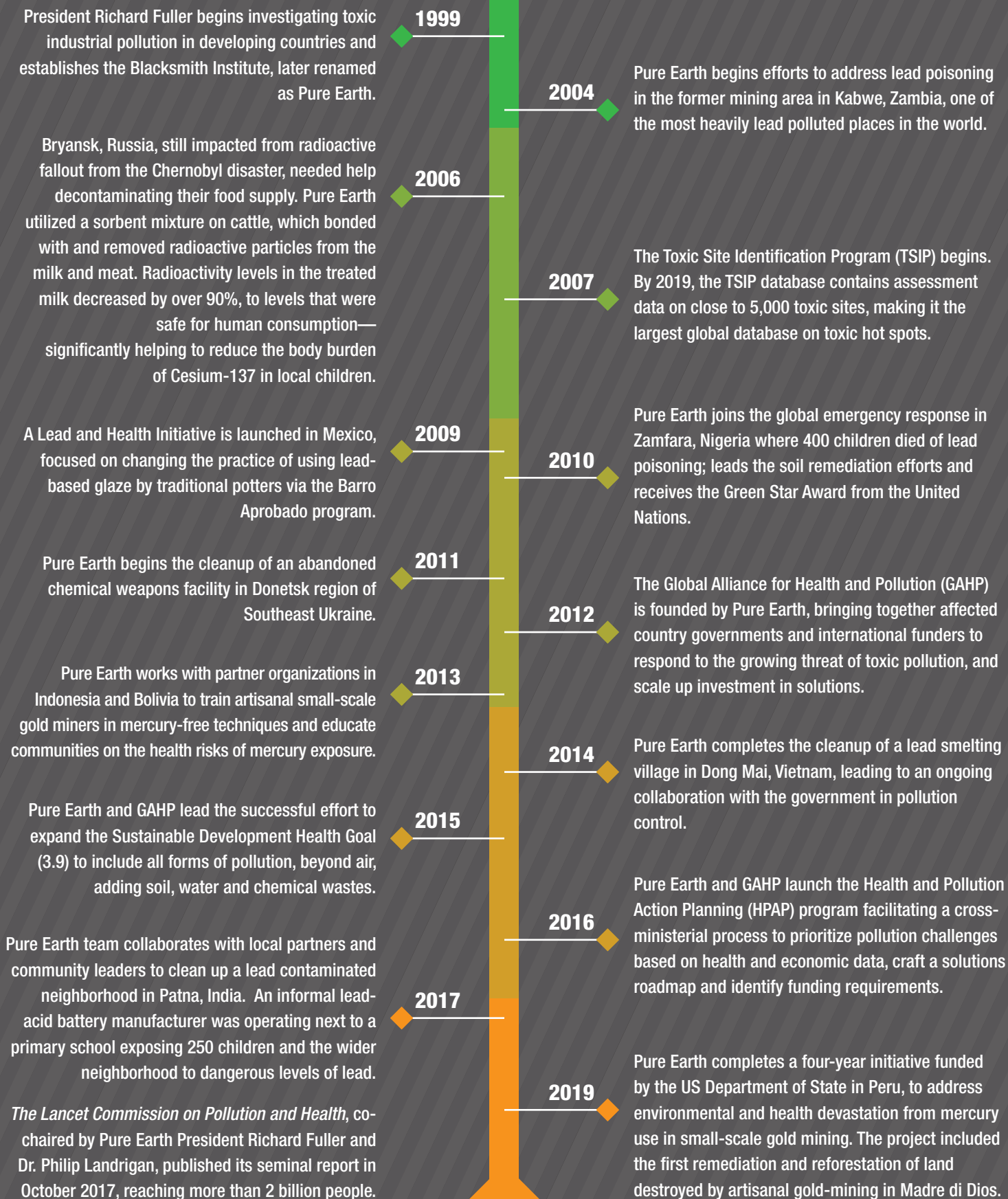
In 1999 Founder and entrepreneur Richard Fuller used profits from his successful sustainability consulting firm, Great Forest, to begin investigating toxic industrial pollution in developing countries, an area no other environmental organizations were focused on. Rich and his childhood friend, Peter Hosking, travelled to several countries in Asia and Africa and discovered the scope of the problem, and the proliferation of disease-causing pollution, was far greater than they imagined. Rich soon came to understand,

“Living in a town with serious pollution is like living under a death sentence. If the damage does not come from immediate poisoning, then cancers, lung infections, and brain damage are the likely outcomes.”

Rich concluded that the organization needed to focus on toxic hot spots where children were most at risk. 20 years on, this focus continues.

Pure Earth team members have empowered and mobilized community stakeholders, governments, NGO partners and funders to work together to assess and clean up some of the most dangerously polluted communities in the world.

KEY MILESTONES



ACCOMPLISHMENTS

20 Years of Impact



PURE EARTH'S IMPACT SO FAR

Completed 120+ cleanup pilot projects in 24 countries.

Improving 5 million lives, including 1 million children under 6 years of age.

Assessed 5,000 toxic sites indentified in 50 countries.

Launched Health and Pollution Action Planning in Thailand, Madagascar, Colombia, Indonesia, Ghana, Senegal and the Philippines.

Published *The Lancet* Commission on Pollution and Health.

Over 2 billion media reach—changing the conversation on pollution.

Achieved inclusion of all forms of pollution in the UN's Sustainable Development Health Goal.



► Clockwise, from top left: Daniel Estrada, Pure Earth's country director in Mexico, uses an XRF (X-ray fluorescence) analyzer to test for lead contamination at a home; Potters associated with Pure Earth's Barro Aprobado program; Artisanal pottery in Mexico is traditionally coated with a lead-based glaze.

♦ Mexico

Barro Aprobado—Ending Lead Poisoning From Traditional Pottery

In 2018, Pure Earth expanded its Barro Aprobado project from the state of Morelos into Puebla, helping pottery artisans convert to lead-free techniques and decontaminating workshops and homes. Six months after our interventions, children's blood lead levels fell by 65% and are expected to continue to fall.

The national government took several important

steps in combatting lead poisoning this year. COFEPRIS, the Federal Commission for Protection Against Sanitary Risks, announced they will expand programs to eliminate lead glaze from traditional pottery in eight Mexican states.

Mexico's National Health Service also included blood-lead screening in their national health survey for the first time. Pure Earth provided technical expertise and equipment for the survey, which also included questions on the use of traditional pottery. The data collected will provide a valuable baseline to guide efforts to reduce lead poisoning of children across Mexico.



► *Left to right:* Mexican artisan Miriam working on her lead-free pots; Since joining Barro Aprobado, Mexican artisan Erika's studio has gone lead-free.

FAMILY SUCCESS STORIES

Miriam and Pedro—Miriam is an artisan who made the switch to lead-free glaze. Her husband Pedro, takes her wares to markets to sell. At first, he did not tell people that the pottery was lead-free, but once Miriam shared with him what she learned through Barro Aprobado, he began explaining to customers and sales are steadily increasing, especially from tourists.

Marcos and Erica are potters who switched to lead-free glaze and upgraded to a more efficient kiln. Marcos now trains other potters helping them go lead-free. They added decorative painting in their designs, increased sales and now live in better housing as a result of joining the Barro Aprobado program.

◆ Brazil

A National Capacity Building Project

Thanks to support from Legacy Alcoa Foundation, Pure Earth continued its Toxic Sites Identification Program (TSIP) in Brazil in 2018. The project supported the Brazilian government in efforts to identify toxic hot spots and establish priorities for further evaluation and interventions.

Along with improving the government's pollution assessment and cleanup capacity, this project addresses the problem of lead contamination from artisanal pottery. When Pure Earth visited the town of Maragogipinho in the state of Bahia, the team found lead concentrations in soil as high as 44,500 ppm (more than 100 times higher than the US Environmental Protection Agency's standard).



► *Clockwise from top:* Mexican potter Victor Águila (left) with a local Brazilian artisan known for creating the famous large female figures of Maragogipinho. Águila traveled with Pure Earth to Brazil to demonstrate Barro Aprobado solutions used in Mexico; A potter at 1 of 100 ceramic workshops in Maragogipinho where about 80% of the community is employed; Pure Earth team cleans up a workshop contaminated with high levels of toxic lead.

Since the pottery communities in Mexico and Brazil are similar, Pure Earth shared best practices learned from Barro Aprobado with potters in Maragogipinho. Funded by a generous philanthropist, Pure Earth conducted its first lead-free glaze workshop in Maragogipinho in May 2018. The potters were very enthusiastic about the new, safe method, and the local government committed to helping in the conversion to lead-free glaze.

Following up on the workshop, Pure Earth will visit the potters who converted to lead-free glaze, and assist in the remediation of lead from the pottery workshops and homes, critical to ensuring a sustainable healthy environment for their families and community. Maragogipinho will serve as a model for other pottery communities throughout Brazil showcasing a safer and still profitable path for artisans.



► *Clockwise from top:* Carrying seedlings to the reforestation site in the Amazon rainforest, Madre de Dios, Peru; Miners Maxiliano Pari and Olimpia Bellido show gold recovered using mercury-free techniques; Artisanal gold miners attend a Pure Earth workshop to learn how to go mercury free, Ollachea, Peru.

◆ Peru

Helping Gold Miners Go Mercury-Free and Replanting the Amazon Rainforest

WORK IN 2018

Thanks to support from the US State Department, Pure Earth completed a four-year mercury reduction project. Over 200 miners were trained in mercury-free mining and 3.5 hectares of Amazon Rainforest was restored. A major milestone was this being the first forest restoration project ever used to responsibly close a gold mining site in Peru.

A key partner was Pedro Ynfantes, owner of the mining concession Paolita II who had been using mercury for nearly 10 years. Together we tested various ways to use gravity instead of mercury to separate out the gold. Pedro and the other miners chose the most efficient method and now use shaking tables provided by Pure Earth in place of mercury.

After becoming mercury-free, Pedro worked with Pure Earth to responsibly close the portion of his mining concession that was no longer being mined.

Mercury & Mining in Peru

Peru is the largest gold producer in Latin America and has experienced an explosion in artisanal small-scale gold mining (ASGM) in recent years. Miners use varying rudimentary methods to extract and process gold, including creating a mixture of ore with mercury, which is then burned to recover the gold. Because this is often conducted in residential areas, miners, their families and their communities directly inhale significant amounts of mercury vapor, which can lead to miscarriages, respiratory failure, psychotic reactions, cardiovascular disease and death.

Additionally, mercury-contaminated water drains into waterways, seeps into groundwater and is deposited in lakes and oceans,

transforming into the highly toxic methyl mercury. This is ingested by fish and ends up in our grocery stores and on our dinner plates. Pregnant women are advised to avoid certain fish because methyl mercury causes birth defects. Children and adults can suffer neurological damage from consuming too much fish like tuna or halibut.

Furthermore, small-scale gold mining results in substantial environmental degradation. A 2013 report by the Peruvian Ministry of Environment reported that the amount of forest destroyed by gold mining in Madre de Dios increased by 400% between 1999 and 2012—from 10,000 hectares to more than 50,000 hectares.



► At this site in Peru, gold miners and family members take turns to rocking back and forth on boulders to force mercury to bind with gold from ore placed below the rock. The amalgam is then burned off to extract the gold, releasing toxic mercury into the air.



► Children in the public square of Karmalichak, a village polluted with lead, Bihar, India.

Partnering with CINCIA, the team planted 4,166 seedlings in December 2017, and returned in March 2018 to plant 744 additional seedlings to reinforce initial growth at the former mining site.

LEVERAGE

Thanks to the success of this project, the Tiffany & Co. Foundation awarded Pure Earth a multi-year grant to continue forest restoration and mercury-free miner training in Peru. An additional 3-5 hectares of degraded Amazon rainforest will be restored and 50-100 more miners will be trained in mercury free mining. Most importantly, the methods and results will be shared with miners, government officials and university students to ensure the work can be replicated and grow.

“We recognize that the Amazon rainforest is crucial for not only Peru, but the global environment.” said Anisa Komaldi, President of The Tiffany & Co. Foundation. “The Foundation is thrilled to support a sustainable environmental

solution for artisanal gold mining that restores degraded rainforests and also provides health benefits to the local and global population.”

◆ India

Stopping Lead Poisoning Of Children From Informal Battery Recyclers

KARMALICHAK, A COMMUNITY IN PATNA, BIHAR STATE

Five months after the Pure Earth cleanup of a lead contaminated community in Karmalichak, follow-up testing revealed that blood-lead levels among the most severely lead-poisoned children—those with pre-project BLLs exceeding 55µg/dL—decreased by 60% on average.

The children were among 250 students at an elementary school exposed to lead poisoning from an informal battery manufacturer that was re-assembling lead acid batteries less than 10 meters from the school.



► *Clockwise from top:* Almost the entire population of Karmalichak showed up to celebrate the lead cleanup of their town and also to learn how to stay safe from lead poisoning, Bihar, India; Local toxic site investigators being trained as part of the Toxic Sites Identification Program, India; A local worker participating in the lead cleanup in Karmalichak, Bihar, India.

Pure Earth and local partner, the Institute of Environment and Eco-Development (IEED) trained 15 local workers and supervisors to clean the interior of the school and of homes within the contaminated area.

LEVERAGE

Following this project, the Indian government has requested Pure Earth's help to conduct a lead source apportionment study identifying

all sources of lead and the exposure pathways resulting in elevated blood-lead levels across India. The study will be piloted in Patna, with funding from USAID and ERM, with the intent of scaling up to the state and national levels. Once the many aspects of the problem are identified, crafting sustainable solutions can follow. The data collected will give policy-makers the information they need to prioritize and justify further action on lead pollution.



► *Clockwise from top:* Kathgora, Bangladesh—Cleaning up a pile of toxic waste left behind by an informal battery recycler; The Pure Earth remediation team at work in the lead-contaminated bamboo forest, where many children play; Children look through Pure Earth leaflets distributed to their community to learn how to keep themselves safe from lead poisoning.

◆ Bangladesh

Kathgora—Cleaning Up Lead Waste Dumped by Battery Recyclers in a Bamboo Forest Where Children Play

When Pure Earth first visited Kathgora in 2016, children were playing in two former used lead-acid car battery (ULAB) recycling sites that had lead concentrations in the soil exceeding 100,000 parts per million (ppm). In the U.S.,

the EPA allowable level for residential soil is 400 ppm.)

Battery recyclers had been breaking batteries and smelting lead in open furnace pits. By the time they stopped work and disappeared, not only was the site highly contaminated, but lead had also spread to nearby homes and a forest, where the community harvested bamboo for sale, and where children also played.



► **Top to bottom:** Kathgora, Bangladesh—Hanging up educational posters about lead poisoning prevention; Children watch as a Pure Earth expert measures contamination using an XRF (X-ray fluorescence) analyzer.

Recent follow up testing show that a year and a half after the cleanup project, the children's blood lead levels dropped by 42%

Pure Earth and local partners at the University of Dhaka teamed up to remediate the site. All contaminated material was removed and buried in a subterranean containment structure. A small commercial building is being constructed independently of this project on top of the containment structure. The building's foundation will be poured on the clean soil without excavation.

Paths, roadways and residential yards were improved and capped through the addition of concrete, brick and clean soil. In total, 120 meters of road were cleaned and repaired, 60 meters of new road were built, and 9 residential yards were capped.

After the outdoor project was completed, the interiors of 95 homes were cleaned of lead dust following a specific protocol developed to reduce exposures to dust contaminated with lead. This included using vacuums with a HEPA filter to remove loose dust, as well as washing walls, floors, windows, and furniture within the homes.

The team returned to Kathgora just months after our remediation work, and found that the impact was already measurable. Before the intervention, 75 children under the age of seven had elevated lead levels ranging from 8 $\mu\text{g}/\text{dL}$ to as high as 47 $\mu\text{g}/\text{dL}$. Recent follow up testing showed that a year and a half after the cleanup project, the children's blood lead levels dropped by 42%. Children's levels are now similar to the background lead level across Bangladesh.

◆ Colombia

Searching for Solutions to Mercury Pollution From Gold Mining

In 2018, Pure Earth began a project to test various technologies to recover mercury from the tailings left behind by artisanal gold miners, with support from the US Department of State. Two of the techniques being tested have been known to recover gold as well. If proven applicable to the Colombian context, the recovered gold could help offset costs of remediation. Pure Earth's work with partner Innova Ambiental on this project will support the Colombian government's efforts to comply with the Minamata Convention on Mercury.

◆ Armenia

Removing 1,000 Years of Lead From a Treasured Historic Landscape

We've ended a 1,000-year legacy of lead poisoning by cleaning up the historic Akhtala Monastery, a UNESCO World Heritage site. This was first lead remediation to take place in Armenia.

Lead contamination at the site was rooted in the

church's history as a fortress in the 10th century, when metal works and weapon-making took place on the grounds. Later, copper and lead mining deposited more polluted waste on the site.

Pure Earth connected with the Armenian diaspora in the US to raise funds to clean up the site. The effort was led by Pure Earth board member Diana Mkhitarian and the Armenia Fund USA Eastern Affiliate.

The cleanup began in October 2018. A Pure Earth team covered the contaminated soil with geotextile, topping it with a layer of clean soil—which the mayor of Akhtala help to procure. The work was completed in December and included a new stone pathway wide enough to fit a bride and groom walking side by side. Today Akhtala is safe for the many families and school groups who visit this cultural heritage site each year.

LEVERAGE

The success of this first lead cleanup project in Armenia stands as a model demonstrating that polluted sites can be cleaned up in a cost-effective manner. Pure Earth is continuing to work in Armenia, with additional funds from USAID, to assess other toxic sites and identify the next priority for cleanup.



► *Clockwise, from top left:* As the first lead site to be remediated in Armenia, the project made the news when A1plus TV channel/ ArmNews interviewed Pure Earth Board member Diana Mkhitarian and country coordinator Lusine Taslayyan about Pure Earth's work in Akhtala; Workers laying down the geotextile barrier in front of the historic church during the lead remediation; The historic site is popular with school children and other visitors; The lead remediation work included a new stone pathway wide enough to fit a bride and groom walking side by side.



► *Left to right:* Volunteers from HSBC Philippines and the local community take part in a Pure Earth-organized river cleanup, Manila, Philippines; Volunteers interview consumers at a market about their fish buying habits, Manila, Philippines.

◆ Philippines

Cleaning Up Polluted Waterways

The Marilao-Meycauayan-Obando (MMO) river system, is one of the worst polluted water bodies in the world and feeds directly into Manila Bay. It has been a catch basin of untreated household, commercial and industrial wastes, and a waterway that hosts thousands of hectares of aquaculture ponds. For many residents in the area, the aquaculture industry generates employment and brings food to the table.

With leadership support from HSBC, Pure Earth has been conducting cleanup activities for six years. In 2018, Pure Earth worked with hundreds of HSBC volunteers on a series of river cleanups, tree plantings, and six river quality monitoring events. This was part of the ongoing partnership between Pure Earth and HSBC Philippines to take action on river pollution and increase

awareness of pollution public health concerns. Volunteers planted over 100 Camachile and Talisay trees along the shoreline of Laguna Lake, collected 4.5 tonnes of garbage, and helped to take water samples at eight stations along the Alabang River. Volunteers also visited markets to interview fish vendors and consumers about the source of the fish sold, and the frequency of fish consumption.

Measurable progress is being made, which directly impacts the health and wellbeing of the people in Metro Manila, who depend on having safe fish and clean drinking water.

TOXIC SITE IDENTIFICATION

Throughout 2018, Pure Earth teams conducted an intensive, macro-level TSIP investigation, collecting detailed pollution data in 360 randomly selected Filipino Barangays, or villages, in the Visayas region of the Philippines.



► *Clockwise from top left:* Tajikistan—A child sits outside a home in an area surrounded by large amounts of abandoned toxic pesticides once used by large cotton farms; Barrels filled with pesticides removed from an abandoned warehouse await transportation to a secure storage facility; Members of the remediation team; Measuring the level of contamination using an XRF (X-ray fluorescence) analyzer.

◆ Tajikistan

Leading A National Coalition to Clean Up Pesticide Stockpiles

In 2018, Pure Earth Country Coordinator in Tajikistan, Ulugov Umidjon Amonovich (Umed) convened a coalition of 22 civil society groups, with support from the European Union. Attendees were trained in environmental and health assessment methods to address the numerous abandoned pesticide stores in their regions.

In early 2019, a Pure Earth team returned to Tajikistan to conduct cleanups in two communities near the Afghan border, and to teach residents about the dangers of pesticides. The outreach team included university students from the capital of Dushanbe and NGO coalition members.

The remediation team excavated and contained 40 bags of pesticide waste from the site in Farkhor and filled 69 bags of chemical wastes from the site in Ziraki. These materials were secured at a hazardous waste disposal facility in the country.



► *Left to right:* At the Pure Earth 2019 event in Tajikistan—Ulugov Umidjon (Umed), Pure Earth coordinator in Tajikistan, briefing the press about the impact of pollution and solutions; Petr Sharov, Pure Earth's Regional Director for Eastern Europe and Central Asia (second from left) and Umed (far right) with Ruslan Shukurov, Director of local NGO Peshsaf (left) and Zulfia Davlatbekova, Programme Manager, Cooperation section, Delegation of the European Union to the Republic of Tajikistan.

On Earth Day 2019, Umed and his team conducted a briefing on their cleanup work that was widely covered in the media. Local news outlets Vecherka, ASIA Plus, Oila, Radio Sadoi Dushanbe, TV Vatan, TV Shabakai Yakum, and TV Jakhonnamo all came to learn more about the global problem of toxic pollution and how Tajikistan is being affected. The presenters included the most pressing local pollution problems along with a photography exhibit with images representing solutions and successful cleanups that have been completed to date.

◆ Africa

Partnering with the Chemical Observatory (ChemObs)

Pure Earth joined the ChemObs project to strengthen the sound management of chemicals in Africa, focusing on these 9 countries over a

five-year period:

- Ethiopia
- Gabon
- Kenya
- Madagascar
- Mali
- Senegal
- Tanzania
- Zambia
- Zimbabwe

Pure Earth and PAN-UK are partners on the ChemObs, working to develop a standardized toolkit for the collection, management and analysis of chemicals data. The toolkit will include a mechanism to prioritize chemicals issues along environmental, economic and social criteria. This will enable participating countries to establish evidence-based policies, and make decisions on chemicals and pollution issues.

TOXIC SITES IDENTIFICATION PROGRAM (TSIP)



► Brazil—Local investigators being trained to identify and assess toxic hotspots as part of the global Toxic Sites Identification Program.

In 2018, Pure Earth's
TSIP investigators around
the world...

ASSESSED AND MAPPED

334 SITES IN
9 COUNTRIES

CONDUCTED WORKSHOPS IN

5 COUNTRIES

COLOMBIA, BANGLADESH
ARMENIA, TAJIKISTAN, TANZANIA

TRAINED OVER

70 NEW
INVESTIGATORS

In nearly a decade,
TSIP has...

TRAINED CLOSE TO

500 INVESTIGATORS
WORLDWIDE

MAPPED & DOCUMENTED

5,000 TOXIC
SITES

IN OVER

50 COUNTRIES

HEALTH AND POLLUTION ACTION PLANNING PROCESS (HPAP)



► Participants at a meeting organized by UNICEF and Pure Earth in Madagascar that brought together over 66 representatives from more than 34 agencies, organizations and businesses to discuss the country's pollution challenges and solutions.

A joint effort by Pure Earth and the Global Alliance on Health and Pollution, the HPAP process engages a cross-section of relevant government agencies (Environment, Health, Development, Industry, Transport, Mines, and Finance), as well as agencies such as World Bank, UNEP, UNDP, and potential donors.

In an HPAP workshop, governments are presented with country-specific data on the health and economic impacts of pollution from the Lancet Commission's research. Facilitators introduce a methodology that results in a prioritization of pollution reduction strategies connected to the country's development policies. This process convenes experts across discipline silos, and brings together decision makers from across governments with international funders to discuss the most cost effective investments. With leadership funding from USAID, the Oak Foundation and other private donors, progress was made in Colombia, Thailand, Madagascar, Indonesia, and Bangladesh.

Twenty additional countries have submitted requests to begin the HPAP process in 2018. In addition, UNIDO has adopted the program and led HPAP workshops in Ghana and the Philippines. Madagascar and Colombia were the first two countries to complete the HPAP process in 2018.

GAHP is not yet a legal entity, but efforts are being finalized to incorporate GAHP in 2019 in Switzerland. Legal incorporation is critical to maintaining transparency, and to ensuring GAHP's members have a real stake in its operations and activities. The incorporation process is a joint effort of the Swiss Agency for Development and Cooperation, the Ministry of Environment, Ecology and Forest of Madagascar, and Pure Earth, with support from two premier law firms Freshfields LLP in the USA and Homburger LLP in Switzerland.



▶ GAHP incorporation meeting, Switzerland.

GLOBAL POLLUTION MAP PROJECT AND MOBILE APP

The staggering global impact of pollution is hard to comprehend, in part because of incomplete data. The global pollution map project aggregates existing data sets on air, water, soil and chemical waste pollution, along with the health and economic impacts, into an interactive map at www.pollution.org to help policymakers and funders comprehend the urgency and scope of the issue.

In 2018, work continued on the global pollution map project and expanded into the development of an app—**Report Pollution**—that will launch late in 2019.

Thanks to our probono partner NetGuru, based in Poland.



PURE EARTH DAY 2019

► The beginning of a new tradition!

Cleaning up communities around the world is a substantial and meaningful way to support and recognize Earth Day. In 2019 several companies approached Pure Earth to collaborate, and together, we really made a difference.

Pokemon Go Earth Day Events with Niantic Labs

Through a partnership with Niantic Labs, the developers of Pokemon Go, Pure Earth was able to mobilize hundreds of Pokemon Go players and friends in **Mexico**, **Philippines** and **Senegal** to participate in local pollution cleanups for Earth Day 2019.

Senegal

150 people—including community leaders, the first deputy mayor, municipal councilors, and district delegates of Hann Marinas—turned up to help Pure Earth clean up Baie de Hann beach in Dakar. The Senegal event was organized in collaboration with Siggil Hann Association, the Citizen Consciousness Movement and the One Health Club of the National School of Sanitary and Social Development, along with the local NGO Light.



The Philippines

About 400 people—including HSBC volunteers, local community members, local government officials, and Pokemon Go players—took part in a four-day event that featured three river cleanups and three ecobrick-making workshops. Participants removed over 7 tons of garbage, and learned how to turn plastic garbage into building materials to reduce waste sent to landfills.



Mexico

About 350 people signed up for two cleanups, which began with an opening ceremony following native tradition, asking permission of the 7 directions (north, south, east, west, up, down and inside). Participants removed about 4 tons of garbage from a river in Los Remedios national park in Mexico City, planted 46 Canna Indica plants, and made seed bombs which they called “reforestation pokeballs.”



BUY & GIVE—EARTH DAY SHOPPING



► *Clockwise from top left:* “Model Mafia” member Renee Peters is part of a powerful collective of activist models, brought together by Cameron Russell and Áine Rose Campbell, who support causes like Pure Earth; Children look at special Earth Day cupcakes benefitting Pure Earth at a Magnolia bakery store in New York City; Signage advertising the bakery partnerships benefitting Pure Earth. *Opposite page:* Daniel Estrada, Pure Earth's Country Director, shows children how to make seed bombs during an Earth Day event in Mexico

Another way companies celebrated Earth Day involved engaging consumers to raise vital funds. World-famous Magnolia Bakery partnered with JARS by Dani, Cookie DŌ Confections, Zola Bakes+ Goldbelly to raise funds for Pure Earth, donating \$1.50 for each of their limited edition Earth Day cupcakes sold during Earth week in stores and online.

Retailer Theory offered 10% off and 10% donation

to Pure Earth on sales of their sustainable clothing line online and in 27 stores.

Clothing company Allen Schwartz gave a 25% discount to customers and donated 25% of revenues to Pure Earth for three days beginning on Earth Day.

Pure Earth is expanding its Pure Earth Day program. For more information contact Jen Marraccino or Carol Sumkin at 212.870.3490.



PURE EARTH DAY 2020

► **Highlight your company's commitment to sustainability on Earth Day—April 22nd—and beyond.**

Pure Earth cultivates innovative collaborations and strategic partnerships with corporate partners that:

- ◆ Engage employees at the global and local levels through either single day, turn-key events called **Pure Earth Day Parties** or long-term, project-based volunteer initiatives
- ◆ Link your product or service to a global cause that helps protect the earth and some of its most vulnerable people from the dangers of pollution.
- ◆ Support 10 of the 17 Sustainable Development Goals as set by the United Nations General Assembly in tangible, direct ways.





KEY PUBLICATIONS

Pollution Knows No Borders

In 2018, Pure Earth released a report to document the global nature of the pollution threat—*Pollution Knows No Borders: How the pollution crisis in low- and middle-income countries affects everyone's health, and what we can do to address it.*

The report was launched at a briefing hosted by Freshfields Bruckhaus Deringer in New York City and London. Pure Earth President Richard Fuller was joined by Gina McCarthy, Director, Center for Climate Health and the Global Environment, Harvard University, and former US EPA Administrator; Janez Potočnik, Co-Chair of UN Intl. Resource Panel; Baskut Tuncak, UN Special Rapporteur; J. Carl Ganter, Co-Founder & Director, Circle of Blue; and Jack Caravanos, Director of Research, Pure Earth and Clinical Professor of Environmental Public Health Sciences, New York University.

“This is not just about problems in far away places,” McCarthy reminded the crowd gathered.

The report is a “loud and clear call” for global cooperation on transboundary pollution, said Potočnik.

Fuller demonstrated the complexity and interconnectedness of the global food chain with a series of interactive data visualizations from Carnegie Mellon’s CREATE Lab, which showed the movement of food and products around the world.



► Richard Fuller at the global launch of the “Pollution Knows No Borders” report, which took place simultaneously in New York and London.

Published Research

Pure Earth research and program team members published over 10 papers in peer-reviewed journals. They include:

1. **Assessment of the prevalence of lead-based paint exposure risk in Jakarta, Indonesia.** *Science of The Total Environment*. Ericson B, Hariojati N, Susilorini B, Fisher Crampe L, Fuller R, Taylor MP, and Caravanos J. March 2019; 657.
2. **Pollution and children's health.** *Science of the Total Environment*. Landrigan P, Fuller F, et al. Feb 2019; 650(2).
3. **Editorial: Pollution, the health scourge of the 21st century.** *World Hospitals and Health Services*. Fuller R, Landrigan R, Preker A. 2018; 54(4).
4. **Pollution and global health: A time for action.** *World Hospitals and Health Services*. Fuller R, Landrigan R and Preker A. 2018; 54(4).
5. **Pollution prevention and climate change mitigation: measuring the health benefits of comprehensive interventions.** *Lancet Planetary Health*. Landrigan P, Fuller R, Haines A, Watts N and McCarthy G. Dec 2018; 2.
6. **A meta-analysis of blood lead levels in India and the attributable burden of disease.** *Environmental International*. Ericson B, Dowling R, Dey S, Caravanos J, Mishra N, Fisher S, Ramirex M, Sharma P, McCartor A, Guin P, Taylor M and Fuller R. Dec 2018; 121(1).
7. **Lead intoxicated children in Kabwe, Zambia.** *Environmental Research*. Bose-O'Reilly S, Yabe J, Makumba J, Schutzmeier P, Ericson B, Caravanos J. Aug 2018; 165.
8. **Pollution and non-communicable disease: time to end the neglect.** *The Lancet Planetary Health*. Fuller R, Rahona E, Fisher S. March 2018; 2(3).
9. **Cost effectiveness of environmental lead risk mitigation in low- and middle-income countries.** *GeoHealth*. Ericson B, Caravanos J, et al. Feb 2018; 2(2).
10. **Improving human health outcomes with a low-cost intervention to reduce exposures from lead acid battery recycling: Dong Mai, Vietnam.** *Environmental Research*. Ericson B, Duong T, et al. Feb 2018; 161.

Journal of Health and Pollution

Pure Earth's *Journal of Health and Pollution (JH&P)*, which released its first issue in 2011, has been indexed in recognition of the high quality of its research papers.

The semi-annual online journal of peer-reviewed research and news aims to facilitate discussion of toxic pollution, impacts to human health and strategies for site remediation, with a focus on research in under-represented countries. *JH&P* is grant-funded by the World Bank and the European Union.



EVENTS



“We have a path forward to a just and sustainable future. Let’s grab that opportunity. It will make a difference not only in the life of a child, or a family, or a village. It will make a difference in the lives of your children, your family, your future, their future.”

—Gina McCarthy, former US EPA Administrator

2018 Benefit

As Pure Earth's biggest annual event raising more than \$330,000, the Benefit Bash provides the opportunity to recognize friends who have demonstrated extraordinary commitment to the pollution issue and the solutions that save millions of lives. The 2018 honorees were: Jeweler Pili Restrepo, Pure Gold Award; Magellan Diagnostics, Impact Award; and John Keith, a Pure Earth technical advisor who received the inaugural Pure Earth Guardian Award. Gina McCarthy, the former US EPA Administrator, was the special guest and got a standing ovation from the crowd for her rousing speech, in which she reiterated the oft-forgotten fact that pollution is one global problem that can be solved, if only we worked together.

Golf

Rudin Management received the Green Champion award at Pure Earth's 2018 golf benefit.

Dirty Talk with Pure Earth

Dirty Talk with Pure Earth is a series of educational events highlighting critical pollution issues and solutions featuring experts including former New York Times journalist Gardiner Harris; Dr. Frederica Perera, a pioneer in establishing links between environmental exposures and disease; and Dr. Bruce Lanphear, an expert on the impact of lead exposure on human health.



► Clockwise from top left: Pili Restrepo, who designed a piece of jewelry for the annual Pure Earth Pure Gold responsible jewelry collection, with Colombian model and actress Taliana Vargas, who modeled the collection for the 2018 auction in support of Pure Earth; Gina McCarthy inspires the audience at the Pure Earth 2018 benefit; John Keith, a member of Pure Earth's Technical Advisory Board, with his Pure Earth Guardian Award at the 2018 benefit; A Pure Earth Dirty Talk event in New York City; Gene Boniberger receives the Green Champion award on behalf of Rudin Management from Pure Earth President Richard Fuller at the 2018 golf benefit; Magellan Diagnostics being recognized with the Pure Earth Impact Award at the 2018 Pure Earth benefit.

FINANCIAL HIGHLIGHTS

► Consolidated Statement of Financial Position Years Ended December 31, 2017–2018

	2018 Consolidated	2017 Consolidated
CURRENT ASSETS		
Cash and cash equivalents	\$ 608,615	\$ 135,788
Grants receivable	4,399,903	4,186,639
Pledges receivable	129,576	285,708
Prepaid expenses and other current assets	113,900	267,063
Total current assets	\$5,251,994	\$4,875,198
Property and equipment, net	495,960	593,851
Security deposit	25,000	25,000
Total assets	\$ 5,772,954	\$ 5,494,049
LIABILITIES AND NET ASSETS		
CURRENT LIABILITIES		
Accounts payable	501,293	933,555
Accrued expenses	111,431	136,299
Line of credit	75,000	90,000
Long-term debt, current portion	175,339	166,375
Total current liabilities	\$ 863,063	\$1,326,229
LONG TERM DEBT	43,335	218,395
Total liabilities	\$ 906,398	\$1,544,624
NET ASSETS		
Unrestricted net assets	173,100	445,789
Temporarily restricted net assets	4,693,456	3,503,636
Total net assets	4,866,556	3,949,425
Total liabilities and net assets	\$ 5,772,954	\$ 5,494,049

 Consolidated Statement of Activities
Years Ended December 31, 2017–2018

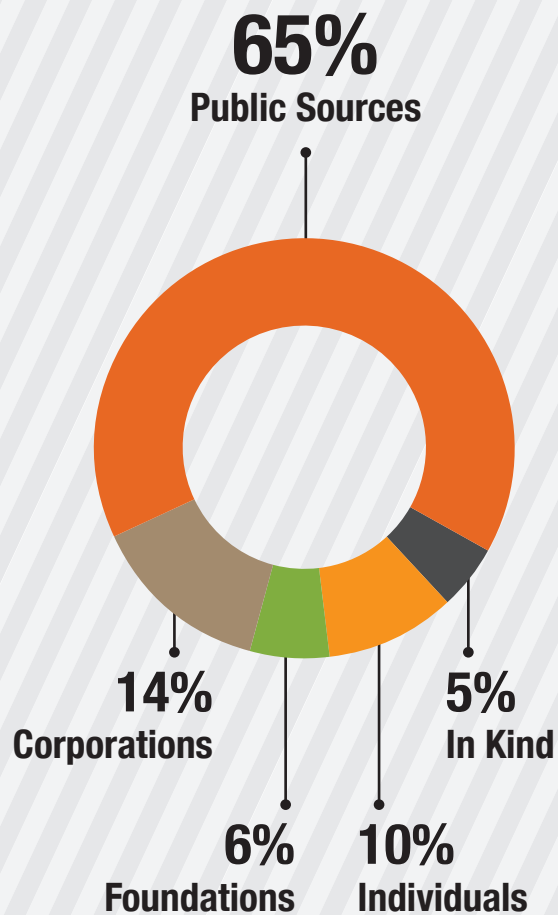
	December 31, 2018 Pure Earth Consolidated			December 31, 2017 Pure Earth Consolidated		
SUPPORT AND REVENUE	Unrestricted	Temp Rest	Total	Unrestricted	Temp Rest	Total
Grants	\$ —	\$4,806,068	\$4,806,068	\$ —	\$1,689,559	\$1,689,559
Contributions	371,955	—	371,956	357,619	—	357,619
Fundraising income	276,255	—	276,255	322,198	—	322,198
In-kind contributions	280,111	—	280,111	4,494	—	4,494
Net assets released from restrictions	3,616,248	(3,616,248)	—	4,441,248	(4,441,248)	—
Total support and revenue	\$4,544,569	\$1,189,820	\$5,734,389	\$4,543,033	(\$2,751,689)	\$2,373,870
FUNCTIONAL EXPENSES						
Program	3,592,365	—	3,592,365	4,161,000	—	4,161,000
Administration	727,325	—	727,325	666,197	—	666,197
Fundraising	424,084	—	424,084	436,819	—	436,819
Total functional expenses	\$4,743,774	\$ —	\$4,743,774	\$5,264,016	\$ —	\$5,264,016
Excess (Deficiency) of support and revenue over functional expenses	(199,205)	1,189,820	990,615	(138,457)	(2,751,689)	(2,890,146)
Interest expense	(37,097)	—	(37,097)	(36,959)	—	(36,959)
Realized (loss) gain on investments	892	—	892	(334)	—	(334)
Foreign currency translation adjustment	(37,279)	—	(37,279)	293,722	—	293,722
Change in net assets	(\$ 272,689)	\$1,189,820	\$ 917,131	\$ 117,972	(\$2,751,689)	(\$2,633,717)
NET ASSETS, Beginning	445,789	3,50,636	3,949,425	327,817	6,255,325	6,583,142
NET ASSETS, End	\$ 173,100	\$4,693,456	\$4,866,556	\$ 445,789	\$3,503,636	\$ 3,949,425

Consolidated Statement of Cash Flows

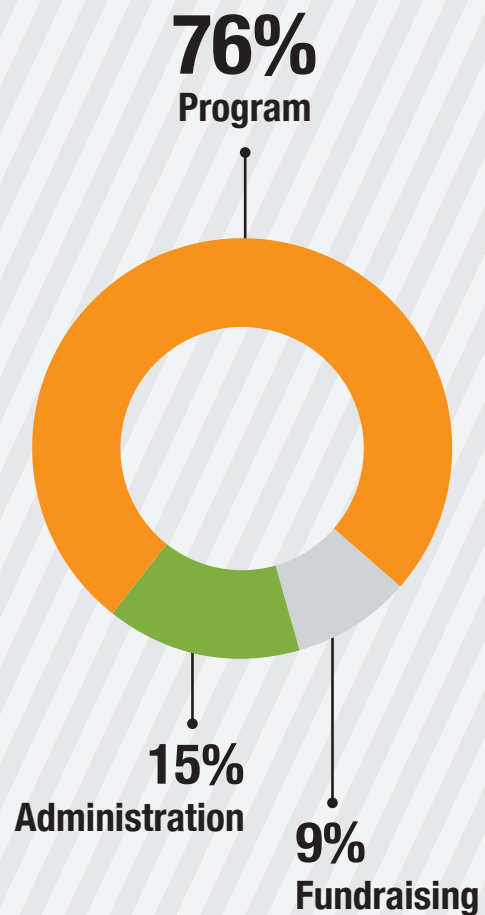
Years Ended December 31, 2017–2018

	2018	2017
OPERATING ACTIVITIES		
Change in net assets	\$ 917,131	(\$2,633,717)
Adjustments to reconcile change in net assets to net cash provided by (used in) operating activities:		
Depreciation	94,371	97,705
In-kind contribution of investments	(61,496)	(50,317)
Realized loss (gain) on investments	(892)	334
Changes in:		
Grants receivable	(213,264)	2,230,477
Pledges receivable	156,132	167,500
Prepaid expenses and other current assets	153,163	263,190
Accounts payable	(463,262)	(14,354)
Accrued expense	(24,868)	30,920
Net cash provided by (used in) operating activities	\$ 588,015	(\$ 91,738)
INVESTING ACTIVITIES		
Proceeds from sale of investments	62,388	49,983
Fixed asset purchases	(1,480)	(13,185)
Fixed asset disposals	5,000	—
Net cash (used in) provided by investing activities	\$ 65,908	\$ 36,798
FINANCING ACTIVITIES		
Proceeds from line of credit	85,000	90,000
Repayments on line of credit	(100,000)	(100,000)
Repayments of long-term debt	(166,096)	(157,513)
Net cash provided by financing activities	(\$ 181,096)	(\$ 167,513)
NET INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS	\$ 472,827	(\$ 38,977)
CASH AND CASH EQUIVALENTS, Beginning	\$ 135,788	\$ 174,765
CASH AND CASH EQUIVALENTS, Ending	\$ 608,615	\$ 135,788
SUPPLEMENTAL INFORMATION		
Interest paid	\$ 37,097	\$ 36,959

Sources of Funds in 2018



Utilization of Funds in 2018





2018 FUNDERS

Individuals

Behzad Aghazadeh
Farah Alimi
Nusrat Aliya
Jon Ambrose
Nicholas Andreopoulos
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 Legacy Alcoa Foundation
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 Geosigma AB
 Goldman Sachs
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 GraceLee
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 Oak Foundation
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► Children in Madagascar, the very first country to complete a GAHP Health and Pollution Action Plan, assisted by Pure Earth.



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The Pure Earth Leadership Council is a key group working to accelerate action to save lives threatened by the global pollution crisis. Members include innovative thinkers and world leaders in health, government, business, academia, and the arts.

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COVER PHOTO CREDITS

FRONT COVER

Clockwise from top left:

Man walking in the highly contaminated Citarum river, Indonesia. Photo: Larry C. Price;

Measuring the height of a new seedling planted at a site in the Amazon rainforest stripped by gold mining. This restoration is part of a Pure Earth reforestation project, Madre de Dios, Peru;

A young volunteer at a Pure Earth Day 2019 river cleanup event in Manila, Philippines;

A girl in Kabwe, Zambia, which has been called "the world's most toxic town." Photo: Larry C. Price;

Dr. Jack Caravanos, Pure Earth's head of research, using an XRF (X-ray fluorescence) analyzer to measure contamination in Kabwe, Zambia. Photo: Larry C. Price.

BACK COVER

Clockwise from top left:

A pool of contaminated water, India. Photo: Larry C. Price;

A man stands on a pile of cables that have been cleanly stripped by machines for recycling without burning in Agbogbloshie, Ghana;

A worker cleaning up toxic lead in a bamboo forest next to a village in Bihar, India;

A child on a horse, Mongolia;

A child washing up at a mining site in Indonesia. Photo: Larry C. Price.



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