

A Successful Track Record

How Pure Earth Leverages Donations to Maximize Impact and Save Lives

Small investments (often from unrestricted resources) are used to implement pilot projects. Costing between \$10,000 and \$100,000, these pilots create local partnerships, and prove the concept and method of a practical solution to a life-threatening pollution problem.

Success then initiates larger scale projects that are funded by international partners such as US Department of State, the European Commission, or the World Bank. Those projects can be \$500,000 or more and further expand local capacity and knowledge. Pure Earth usually manages these projects, involving government agencies and local partners, providing expertise and on the ground training.

And that, in turn, leads to ownership of the problem by governments themselves, who bring even larger amounts. These funds might be \$10 million or more, and enable fully-scaled solutions to pollution problems. At this level, governments and multi-lateral development banks take over, and Pure Earth's role becomes one of coordination and oversight.

This methodology enables initial investments of just thousands of dollars to leverage millions, saving lives with an exponential return on investment.

Pure Earth further magnifies this financial leverage through efficient use of human capital. Our technical advisory board volunteers share advice of the highest caliber on our projects, and our clean-ups are typically executed with local labor which reduces costs, encourages local support and directly stimulates local economies.

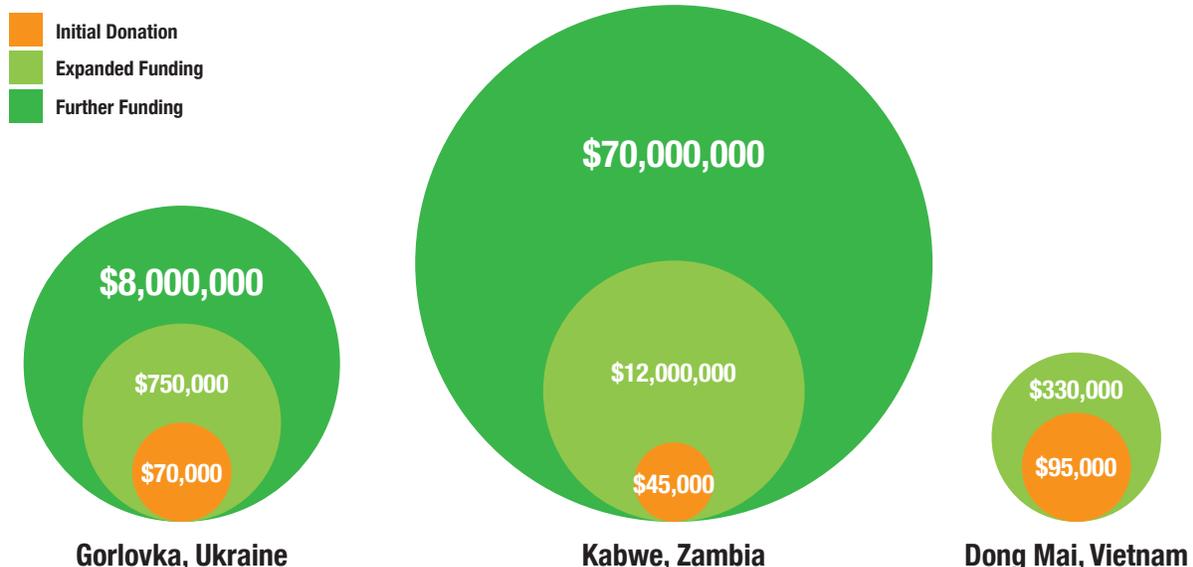
CASE STUDIES

1 Gorlovka, Ukraine

\$70,000 in initial donations and grants was leveraged to secure \$750,000 in expanded project funding, which then enabled about \$8 million in project funds from government.

In the Donetsk region of Southeast Ukraine there was an abandoned chemical and explosives facility in the middle of Gorlovka, a city with a population of 260,000. The plant produced several chemicals, including the carcinogen mononitrochlorobenzene (MNCB) and explosive trinitrotoluene (TNT), from the Soviet era until production at the plant was halted in 2001. The facility was not decommissioned appropriately, and large volumes of both of these toxic compounds were left in substandard

PURE EARTH'S LEVERAGING STRATEGY AS SHOWN IN 3 CASES



storage around the 167-hectare site. In some buildings, the production was stopped mid-process and the compounds were left in the production equipment and piping. This was particularly dangerous for the TNT, which becomes more explosive when packed and confined in a closed pipe.

Between 2009 and early 2011, Pure Earth received approximately \$70,000 in grants and donations to repackage MNCB and design a remediation plan for the 30 tons of TNT at the site. Pure Earth was able to leverage those funds to secure \$600,000 from bilateral and multilateral organizations, as well as \$150,000 from a chemicals industry group to conduct a full-scale TNT remediation project.

Pure Earth was also able to leverage its initial work on the MNCB problem. Because of Pure Earth's early efforts repackaging MNCB, and the attention that activity brought to the site, Pure Earth was able to secure a commitment from the Ukrainian government to spend about \$8 million to remove and incinerate the remaining 2,000 tons of MNCB.

This project removed a catastrophic threat to the local population and served as a model for how to organize a broad coalition of stakeholders to solve a dangerous and complex problem.

② Kabwe, Zambia

\$45,000 was leveraged to secure a \$12 million interest free loan and donation from World Bank and the Nordic Development Fund, which in turn has enabled an additional \$70 million in World Bank funding.

Legacy pollution from a lead mine poisoned the city of Kabwe—population 300,000—rendering its population severely sick and incapacitated from chronic lead exposure. Symptoms of acute poisoning occur at blood levels of 20 and above, resulting in vomiting, diarrhea, and leading to muscle spasms and kidney damage. Levels of over ten are considered unhealthy and levels in excess of 120 can often lead to death. In Kabwe, blood concentrations of 300 ug/dL were recorded in children and records showed average blood levels of children range between 60 and 120 ug/dL. Kabwe's lead poisoning situation was one of the worst ever recorded.

In 2004, with \$45,000 Pure Earth implemented a study that analyzed the extent of contamination in soil, air, surface and ground water, crops, and wild plants and animals. A comprehensive human blood survey involving a total of 2,373 people across all ages was also undertaken. Additionally implemented was an intensive community outreach program aimed at raising awareness as well as providing simple messages on how to avoid lead exposure, including a localized curriculum on lead and the environment is being used in the school system. The project also developed play areas and parks to provide safe, lead-free play areas for young children across all impacted communities.

Pure Earth worked closely with the Zambian government throughout, establishing a local NGO called the Kabwe Environmental and Rehabilitation Foundation (KERF), whose role is to bring educational and healthcare services into each community. At Blacksmith and KERF's urging the World Bank and Nordic Development fund gave \$12 million to the Zambian Government to remediate the lead contamination throughout Kabwe. This money initiated some urgent remediation activities, and defined a detailed plan of action for fully-scaled solutions. A full-scale implementation budgeted at \$70 million is now in process with the Zambian government and the World Bank, with Pure Earth providing monitoring and oversight.

③ Dong Mai, Vietnam

\$95,000 was leveraged to secure an additional \$330,000 in resources and funding from village residents, district government and private industry. A larger scale project with Vietnam government funding is now being developed.

Dong Mai is a village of approximately 3,000 residents and was the site of a severe epidemic of lead poisoning due to decades of informal car battery processing. Although the government had begun to address the issue by constructing an industrial area south of Dong Mai where most industrial activity was relocated, over 100 children still were found to have elevated lead levels in 2012. Because lead is very immobile in the environment, surface lead levels in Dong Mai remained dangerously elevated.

The Pure Earth project supported five key components: community education; cleaning contaminated home interiors; covering of contaminated soils with compacted clean soil or cement to prevent exposure (encapsulation); construction of a clothes changing facility for the workers to mitigate migration of lead back into the village; and final village inspection and blood level monitoring. The project was completed September 2014, with blood lead levels decreasing by more than 30% on average.

Funding secured by Pure Earth enabled lead capping in 39 residential yards. These cleanings were used as demonstrations for community members who then capped an additional 67 homes.

The district government contributed by building three new paved roads which significantly reduce exposure to dust, while the private smelter built a changing facility on site so workers no longer tracked home lead dust on their clothes. Not only is this project a great example of collaboration between various levels of government, community and industry, it is now a model for the Vietnam government to design and initiate further remediation projects across the country.

Other leveraging examples can be found in the Philippines, India, Senegal, Uruguay, and other countries in which Pure Earth works.