



2011 ANNUAL REPORT



Richard Fuller

“ This will be a groundbreaking effort that will marry the environmental exposures to health in the developing world for the first time. ”

Letter from Blacksmith Institute Founder and President

Dear Reader,

2011 has been a year of expansion for Blacksmith Institute. We are grateful to the World Bank and the European Union for their support for this work with commitments to fund us with substantial grants for the next three years.

The database of toxic hotspots has grown in size and professionalism with outstanding assistance from teams on the ground under the guiding eye of Jack Caravanos of Hunter University. We are beginning to get to the point where we can quantify the scope and size of problems around the world and compare them to public health disasters.

In 2012, we will begin to publish a series of papers that will quantify the scope of the problem in disability-adjusted life years (DALYs). This, too, will be a groundbreaking effort that will marry the environmental exposures to health in the developing world for the first time. This basic science is needed as part of the long-term strategy to bring this issue to the forefront of the development agenda.

Implementation projects, the core of our work, continue on all continents except Antarctica; some small, some large, all focused on cleaning up toxics. These projects are often the first of their kind in the countries in which we operate and are transferring cleanup expertise from technical experts from the United States to those who need it the most. It is a great model and we are working to expand funding to be able to do more of it.

Some of our projects in 2011, and a summary of our financials are included in this report. But always feel free to contact us for more details at any point.

Sincerely,

Richard Fuller

Letter from the Chairman of Blacksmith Institute's Board of Directors

Dear Friends of Blacksmith,

2011 was a very exciting year for Blacksmith, and we thank all of you for the contributions you have made to our success. On virtually all fronts, we have seen a significant expansion in our activities, and we are proud to report that our work is reaching an ever-growing number of beneficiaries.

During the year, our work included clean-up projects in Nigeria, Ghana, and Indonesia. Work also continued on Blacksmith's Toxic Site Identification Program ("TSIP"), which now includes information on over 1500 pollution sites worldwide. The TSIP should help to serve as a valuable roadmap for future clean-up work. In addition, our annual "World's Worst" pollution reports continue to be successful in drawing attention to the problems we address.

Our work is possible because of the funds and human resources we can bring to bear on the problems we seek to remedy. The last year has seen a notable enhancement in both these assets. In 2011, Blacksmith received multi-year, multi-million dollar grants from both the EU and the World Bank. On the personnel front, our growing size has warranted key new hires in development, operations and finance. These additions will allow us to do even more in the future, and, we believe, are an endorsement of our achievements to date.

With this strength behind us, we feel well positioned to continue our work. We look forward to a robust 2012 and beyond.

Sincerely,

Conrad Meyer

Conrad Meyer

“ 2011 was a very exciting year for Blacksmith, and we thank all of you for the contributions you have made to our success. ”

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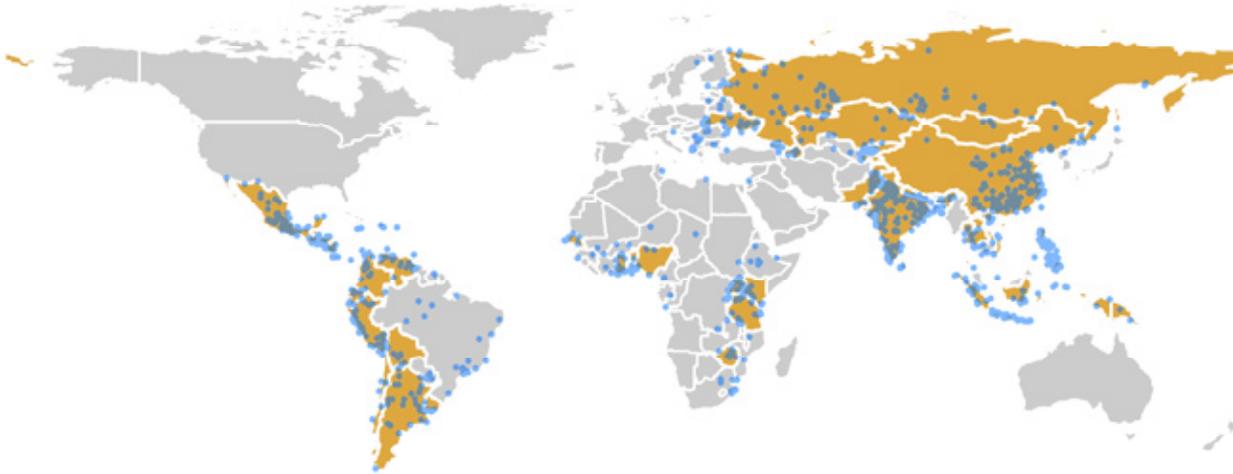
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■ The Global Impact of Toxic Pollution: Getting the Word Out



Map Showing the Countries in Which TSIP is Taking Place - Blue Dots Represent Sites

In high-income nations, the consequences for health due to environmental hazards at waste sites are well documented. However, this is not the case with low- and middle-income countries. As more information becomes available, it becomes clear that the impacts from toxic pollutants such as heavy metals, pesticides, and radionuclides are much greater than previously thought.

Environmental degradation aggravates poverty and makes growth unsustainable. Recognizing the link between health, poverty and polluted environment, the Asian Development Bank's (ADB) long term "Strategy 2020" reiterates the need to assist developing member countries in addressing environmental problems. Environmental damage not only reduces quality of life, but also has significant costs for public health – with the poor most severely affected. Pollution-related morbidity and mortality together with productivity losses – notably among infants, young children, and women – are pervasive through developing nations.

2011 was an exciting year for Blacksmith, as programs began to take hold. 2011 saw a significant increase in both government and private funding, allowing Blacksmith to enter into a new phase of expansion.

The past year saw new, large, government contracts that will allow for new projects, greater investment in the Toxic Site Identification Program, and greater staff for a larger, more effective infrastructure. The European Commission and United Nations Industrial Development Organization (UNIDO) awarded Blacksmith a five million Euro contract; Blacksmith's biggest government contract to date. The three-year grant received matching funds from the World Bank Development Grant Facility.

Additionally, two new donors signed on for the ongoing project to remove and dispose of dangerous explosives from the abandoned Gorlovka Chemical Plant in Ukraine in partnership with UNIDO. The Delegation of the European Union in Ukraine and the Swedish International

“ Environmental damage not only reduces quality of life, but also has significant costs for public health – with the poor most severely affected. ”

Development Agency granted Blacksmith 400,000 Euros to continue this cleanup project.

Some smaller grants awarded in 2011 are also allowing Blacksmith to complete some necessary and important remediation work. SAICM granted \$250,000 for Used Lead Acid Battery (ULAB) work in Indonesia. The US Environmental Protection Agency also provided a grant for work in Indonesia. Partnering with UNEP and our local partner, YTS, Blacksmith will be able to continue working with small-scale and artisanal gold miners to reduce mercury use in the mining process and improve miners' techniques to prevent further mercury contamination.



Children Playing in E-Waste



Tannery Operations Polluting Local River



Children Playing in Lead Contaminated Area



Chromium Waste Pile

■ The Toxic Site Identification Program (TSIP)

TSIP is a joint effort led by Blacksmith Institute, with partners United Nations Industrial Development Organization, World Bank, European Commission, Asian Development Bank, and Green Cross Switzerland to develop a database of polluted sites across the planet.

In most of the countries where TSIP takes place, no comprehensive lists have been compiled to understand the scope of toxic pollution. The results have been astounding. The number of people affected by toxic pollution is large.

Blacksmith has estimated that over 100 million people to be at risk for severe health effects resulting from toxic pollution. From 2009 to 2011, over 2,000 polluted sites were identified and initial assessments were conducted at over 1,500 of those sites. The program has been active in over 40 countries across the globe.

TSIP has seen significant expansion since its inception in 2009. As more organizations are recognizing the importance of this work, Blacksmith has been able to significantly enlarge this program. In 2011, the World Bank and the European Union increased funding to allow the program to continue and to enter new countries. As a result, trainings are taking place in 2012 in Argentina, Chile, Mexico, Uruguay, Peru, Kyrgyzstan, Tajikistan, Russia, Armenia, Azerbaijan, Nigeria, Ghana, Tanzania, and Kenya. Over 450 new sites will be reviewed during 2012.

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■ 2011 World's Worst Toxic Pollution Problems Report: The Top Ten Toxic Threats



2011, Blacksmith Institute with our partner, Green Cross Switzerland, released its sixth annual report on the scope and impacts of toxic pollution. This year's report, titled "The World's Top Ten Pollution Problems Report 2011," identifies the top ten toxic pollution problems and sources. The report provided, for the first time, quantitative estimates of the health impacts of toxic sites. The report also reveals that, contrary to popular belief; most toxic hotspots result from poorly regulated, locally owned small- and medium-scale operations, often in informal economies, rather than large, multinational corporations. The report offers the most targeted picture of pollution's toll to date and is a crucial step in prioritizing life-saving cleanup efforts.

The World's Worst Toxic Pollution Problems 2011 report is the latest in a series of annual reports documenting

“ The report provided, for the first time, quantitative estimates of the health impacts of toxic sites. ”

global pollution issues. Since 2006, Blacksmith's yearly reports have been instrumental in increasing public understanding of the health impacts posed by toxic pollution, and in some cases, have compelled cleanup work at pollution hotspots. Blacksmith reports have been issued jointly with Green Cross Switzerland since 2007.



Abandoned Small-Scale Gold Mining Site



Pesticide Bottles in Poor Storage Places



Woman Suffering Effects of Arsenic Poisoning



Children Playing in Chromium-Filled Tannery Waste

■ Summary of the Top Five Toxic Threats and Sources

The five pollutants and their sources profiled in this report were selected on the basis of the number of people that Blacksmith estimates are at risk from sites impacted by these contaminants. The population estimates are based on research conducted by field investigators as part of our ongoing effort to identify and evaluate polluted sites in low- and middle-income countries.

1. Lead:

The sources of lead most commonly found include industrial estates, mining and ore processing, lead smelting, and lead-acid battery recycling. Lead is a naturally occurring heavy metal, and key component in car batteries. Lead smelters often have little or no air pollution controls or waste management and disposal infrastructure, and they are often located near populated areas.



Child in leaded waste in China

Lead can contaminate air, soil, water, and food. Lead smelting, and battery recycling release large amounts of lead contamination into the surrounding environment through poorly controlled furnace emissions, fugitive dusts, and poor waste management.

At mining sites, tailings are the waste material from the ore-processing phase, and often contain toxins left over from the ore separating process along with small amounts of heavy metals that were not fully removed.

2. Mercury:

Mercury, commonly used in thermometers, is used in the production of chlorine gas, vinyl chloride, caustic soda, batteries, and electrical switches, as well as to extract gold from ore in artisanal gold mining practices.

More than 1/3 of the global annual release of mercury into the environment is due to artisanal gold mining. Miners use mercury to amalgamate small particles of gold in their crushed ore, separating the gold from silt and crushed ore. They then torch the mix of gold and mercury, and the mercury boils off into the local environment. Due to a lack of awareness, as well as lack of environmental, health, and safety regulations in these small mining industries, miners are often exposed to dangerous levels of toxic materials. Some mercury floats high into the atmosphere and eventually deposit in the oceans, and thus into the world's fish supplies.

3. Chromium:

Chromium is a naturally occurring heavy metal commonly used in industrial processes, notably including tanneries. Around the world, the vast majority of the tannery industry



Mercury amalgam

run their operations with good pollution controls, and do not expose local populations to health risk. However, one can find many sites throughout the developing world with abandoned factories that formerly made tanning chemicals, or poorly run (usually small) tanneries, or legacy contaminated waterways with dangerous levels of chromium. These places pose significant public health risks to local populations.

4. Arsenic:

Arsenic can be found in air, water, soil, or food, and all of these present potential pathways for human exposure. Natural arsenic contamination of ground water is a significant problem in South Asia. Though naturally occurring arsenic in the soil is usually only found in very

low concentrations, some regions of the world contain high levels of arsenic-heavy deposits in soils. In these arsenic-rich areas contaminated groundwater supplies, are often the only source of drinking water for local communities. Arsenic is also sometimes a byproduct of metal smelting, which can contaminate surrounding areas if not well controlled.

5. Pesticides:

A major factor in the improvements in agriculture over the last decades is the use of pesticides that protect crops from insects and pests. Unfortunately, many older chemical pesticides are persistent in the environment and can be toxic to humans. Pesticides can spread far beyond their production and application point even to a global scale. Common pathways for human exposure include inhalation when pesticides are applied, ingestion of contaminated foods, ingestion of contaminated soil, and contamination of surface or groundwater and subsequent ingestion. Though the international community has taken great lengths to protect people and the environment from particularly hazardous pesticides, many of these products continue to be produced, used, and stored.



Mining with mercury in Ecuador



Breaking down lead-filled electronics in China

Cleanup projects

■ Africa

Zamfara, Nigeria

Ghana, Agbogbloshie, Accra

■ Eastern Europe

Gorlovka, Ukraine

■ Southeast Asia

Vietnam, Craft Villages

Indonesia, Cinangka

India, Tamil Nadu

Indonesia, Kalimantan

■ Africa

■ Zamfara, Nigeria

In 2010, Blacksmith along with partners TerraGraphics Environmental Engineering, WHO, CDC, MSF, and UNICEF worked to cleanup seven villages in the Zamfara State in Nigeria. Zamfara is home to one of the worst lead poisoning epidemics to date. Samples from children in various villages showed that 100% of children had blood-lead levels (BLLs) exceeding 10 µg/dL (the international standard for the maximum safe levels of lead in blood), 96% exceeded 45 µg/dL, and 84% exceeded 70 µg/dL. Over 500 children were affected from acute exposure to lead. Almost all deaths were in children under five.

Blacksmith obtained funding for the remediation work from UNICEF. Blacksmith TerraGraphics and Médecins Sans Frontières (MSF) implemented a remediation plan that overcame many of the obstacles facing this cleanup. The plan was two-fold; to treat villagers that had high



Group Working on Soil Remediation

lead-blood levels, which was done by MSF, and to remove the lead from the soil to prevent recontamination. Remediation work was done by local labor, under the supervision of the Zamfara Ministry of Environment Managers. Blacksmith technical advisors and TerraGraphics employees, following a technical plan developed by TerraGraphics, directed the project.

The source of the lead contamination was from informal processing of lead-rich ore to extract gold. The ore was ground to dust during the gold-extraction process, coating entire villages. The lead-filled waste soil and dust permeated family compounds, even providing the mud for homes. Decontamination efforts involved removing the lead contaminated soil from compounds, village and common areas, and village exterior locations where small-scale mining operations were occurring. Additionally, the miners were taught how to modify practices so as not to re-contaminate the area.

Project Outcomes

Between June of 2010 and March of 2011, remediation work was completed in seven villages across Zamfara State under the technical direction of TerraGraphics. Over 282 residential compounds, 107 exterior areas, and 23 processing ponds were remediated.

“ Over 282 residential compounds, 107 exterior areas, and 23 processing ponds were remediated. ”



Soil Remediation



Informal Ore Processing

A large compliment of Zamfara State and LGA staff were trained to manage and supervise the remediation program. Several hundred villagers and local suppliers were provided jobs and acquired experience in implementing the remedial protocols.

The second portion of the project included chelation therapy, provided by MSF. Children who underwent chelation therapy showed vastly improved blood lead levels.

Male and female advocacy programs were established to facilitate remediation and support prevention of recontamination, among other community response activities. Villagers are increasingly aware of the dangers of artisanal mining and measures required to protect their families. Also, the capacity of Zamfara state and local level government to undertake future cleanups was developed with over 200 ministry, local village, and private personnel trained in appropriate technology. The international partnership has provided assistance to a new state agency addressing proper mineral processing. But more work is needed. Many additional villages are still contaminated, and the town of Bagega has not been remediated.



Group Working on Soil Remediation

■ Ghana, Agbogbloshie, Accra

In 2009, Blacksmith went to Accra, Ghana to investigate reports of e-waste dumping and lead poisoning related to improper recycling of used car batteries. Reports proved true, and Blacksmith began working in Agbogbloshie market, in Central Accra, known for its massive e-waste processing and dumping. With support from local government officials and the Ghana Health Service, Blacksmith initiated e-waste interventions for small-scale waste recycling.

Throughout 2011, work in Agbogbloshie market focused on training local recyclers methods to prevent lead and toxics pollution. Through education initiatives and proper access to wire-stripping technologies, pollution is on the decline and good e-waste practices are being adapted.

Project Outcomes

Various wire-stripping equipment improvements gave an alternative method for workers to strip e-waste products. Instead of burning the wires, releasing harmful pollutants, wire strippers allow workers to breakdown equipment cleanly. Blacksmith trained workers on the equipment, including providing demonstrations at the middle of the waste site. This not only increased the visibility of new technologies, but also provided a communal place for people to bring wire to retrieve copper manually, rather than burning them. The new station increased access to wire-strippers, encouraging the practice across the community.

Blacksmith staff conducted further interviews and observations to understand the effectiveness of the change. Overall, the workers were enthusiastic about the wire-



Girls Playing Near Burning E-Waste

stripping station. Many came to the realization that through burning, smaller wires turn to ash. They were losing valuable copper. Using hand-held wire strippers, worker retrieved more copper overall. The price of clean copper exceeds that of charred copper, and also has more weight than its burnt counterpart; thus, increasing income and productivity.

“ Blacksmith trained workers on the equipment, including providing demonstrations at the middle of the waste site. ”



Burning E-Waste

■ Eastern Europe

■ Gorlovka, Ukraine



MNCB Storage

The Gorlovka Chemical Plant is an abandoned industrial site located in the city of Gorlovka, in the Do-netsk region of Ukraine. The plant, a former chemical and explosives production facility, has thousands of tons of toxic chemicals leaking into soil and groundwater; most of it a highly toxic chemical produced by the plant called mononitrochlorobenzene (MNCB). In addition, 30 tons of TNT is stored on site in underground tanks and within equipment in the former production buildings. The plant began production of TNT in 1961 and stopped production in 2001 due to lack of demand for TNT in the Ukraine mining industry.

The plant posed a significant and immediate threat to the local population. MNCB is a very dangerous blood toxin. It is volatile and easily taken up by the human body, through ingestion, dust inhalation or skin contact. A lethal dose of MNCB is approximately one teaspoon. This chemical was leaking from open drums and tanks directly into groundwater and running off the property through surface waters. More than 13,000 tons of MNCB were stored haphazardly around the facility, abandoned in drums, on the ground, and in rusting tanks.

The TNT at the site posed a risk of explosion. A blast could have potentially spread MNCB across the city of Gorlovka, and consequently threatened much of the population of 260,000 inhabitants.

Beginning in 2009, Blacksmith began advocating remediation of this site. Our push for change paved the way for some giant steps in 2011.

In 2011, Blacksmith conducted a detailed site assessment, formed partnerships with local and national authorities, secured additional funds from bilateral and multilateral

“ Based on a demonstration project done by Blacksmith, the Ukraine government implemented a project to remove the MNCB. ”

organizations, and raised the profile of the Gorlovka Chemical Plant to the point where remediation of the site is now a national priority of the Ukrainian government.

Based on a demonstration project done by Blacksmith, the Ukraine government implemented a project to remove the MNCB. Also, a technical scope of work has been developed to remove the TNT and is ready to be implemented in 2012.



TNT Plant's Current Condition

■ Southeast Asia

■ Vietnam, Craft Villages



Air Pollution From Metals Re-Processing



Understanding How Craft Villages Operate

To date, the TSIP has identified 34 craft village sites in Vietnam where toxic pollutants exceed national regulations and recognized international standards. Approximately 188,000 people are estimated to be at risk from pollution at these sites—a number that is expected to increase as new sites are evaluated. Because initial evidence suggests significant risks to human health, these sites became an important priority for Blacksmith. Throughout 2011, Blacksmith sought to understand and evaluate these sites, to create a scope of work, which could begin to be implemented in 2012.

‘Craft Villages’ are typically semi-industrial zones where area farmers carry out a range of production activities as a form of secondary employment.

Traditionally the products of these zones meet a demand for a variety of local household products. New industries have been introduced to Craft Villages and other existing activities amplified in recent years.

Certain villages have moved markedly toward the production of export driven goods. In particular scrap recycling has become much more common in these areas. Scrap recycling is the process of salvaging valuable material from waste, which can come from many sources, including domestic and industrial refuse. Recyclers deal with a broad scope of materials. Chemical releases vary depending on the material being recycled, but can include: lead, chromium, PCBs, sulfur dioxide, carbon monoxide, and nitrogen dioxide, among other contaminants.

Project Objectives

The ultimate objective of this project is to help communities improve community-wide health through locally led action to clean up the toxic waste left by secondary production from craft villages.

Blacksmith’s work in Vietnam aims to generate both immediate interventions and support for local institutional structures that sustain efforts to resolve broader problems. Throughout 2011, Blacksmith worked to create a regional inventory of sites, create partnerships with local stakeholders and relevant agencies and to identify priority interventions, based on health risks.

Training in Vietnam

Blacksmith has been working jointly with the independent Center for Community and Environment Development (CECoD) and the Pollution Control Department (PCD) since October 2009 to identify and assess contaminated sites in Vietnam. The European Commission and the United Nations Industrial Development Organization supported this earlier effort. More recently, the Asian Development Bank (ADB) has been supporting these efforts through the Regional Technical Assistance (RETA) funding.

Blacksmith developed a stronger focus on promoting government involvement in remediating toxic sites caused by secondary production. ADB funds have allowed Blacksmith to carry out further site assessments, which has vastly increased knowledge of the scope of pollution. A Vietnamese language database was also developed and two separate trainings were conducted.

The first training in April introduced the protocol and database to local investigators and government officials. Approximately 20 technical staff from PCD and State Departments of Natural Resources and the Environment (DoNRE) participated in the two-day workshop. The training included a hands-on demonstration of how to carry out a site assessment.

Blacksmith will continue to support joint work between CECOD and PCD, including database hosting and technical support.



Child Processing Heavy Metals



Craft Village



Training

■ Indonesia, Cinangka



Testing Family Compounds For Lead

“ When dispersed by the wind, lead dust can contaminate an entire community in large quantities from smelting operations. ”

Since 2010, Blacksmith has been working with KPBB, an Indonesian nonprofit, to address lead pollution there. During 2010, Blacksmith identified Cinangka, a high-density residential area with a population of approximately 12,500, as a home to numerous small-scale used lead acid battery (ULAB) recycling facilities. In addition to active operations, there are legacy-waste dumpsites in community areas throughout the village.

Small, low-tech lead recyclers crudely break open batteries to extract the lead plates. Lead dust is created in the breaking process, and lead-sulfuric acid is often poured onto the ground. The acid then migrates through the soil, or volatilizes leaving lead on the topsoil. When dispersed by the wind, lead dust can contaminate an entire community in large quantities from smelting operations. Additionally, lead fumes, are emitted. Due to the weight, much of the lead dust settles in close proximity to where they are released. Since small ULAB sites are often located in villages, people are frequently exposed to the lead dust. In particular, children play outside, in the dirt, and their hand-to-mouth activity typically results in very high lead ingestion rates.

In 2011, work began to remediate a soccer field that had become contaminated with lead waste from ULAB recycling operations. The main Cinangka Primary School (attended by 1015 children) is located a mere 100 meters from the soccer field, where children play barefoot. Battery casings, plastic dividers and piles of lead oxide slag are exposed within these soils.

Water samples were taken from 3 different wells and blood level tests were performed on children throughout the village. The results show extremely high levels of lead in the children’s blood, which cause a variety of health impacts.

Project Objectives

The project will excavate contaminated soil and waste above remediation targets and dispose of this material in a secure landfill custom built for this purpose at the project site.

Additionally, the Indonesian Government will be building a new soccer field over the site and a seating area. This will not only provide a recreational area, but will also prevent further digging and dumping at the site.

The project was designed in late 2011 and work is set to begin in early 2012 to be completed by the end of the year.



Testing Children For Blood Lead Levels

■ India, Tamil Nadu



Lead Furnace

Blacksmith Institute is trying to mitigate lead pollution from ULABs in seven countries around the world through, “The Initiative for Responsible Battery Recycling”. The initiative focuses on ending endemic exposure to lead from improper ULAB recycling through education, remediation of legacy contaminated soils, and development of responsible policies for management of ULABs.

One of the project focus areas is in the state of Tamil Nadu, India. Funding from the UK-based Queen Anne’s Gate Foundation enabled Blacksmith to undertake identification and screening of lead contamination caused by battery recyclers. Blacksmith began by forming a local stakeholder group including officials from the state pollution control board, pollution experts, industry representatives, international lead remediation experts, and environmental engineering academics. The group’s first step was to identify both formal and informal recycling sites. Given the often-precarious nature of the latter, the group agreed to concentrate on the formal recyclers.

Project Successes

Throughout 2011, Blacksmith’s local partner, Anna University, sampled soil and water near three registered facilities. Their research showed levels exceeding 5,000 ppm of lead in soil – well above the U.S. EPA standard of 400 ppm. Residences and schools sit within close proximity of these facilities.

The findings were shared with the state pollution control board in November 2011 and with their support, Blacksmith plans to conduct detailed assessments and possible remediation at one or more facilities in 2012.



Breaking Down Lead Batteries



Empty Battery Cases



Mercury Used For Gold Processing

“ These interventions have led to a dramatic reduction in the level of mercury emissions from many gold shops gold processing sites. ”

■ Indonesia, Kalimantan

Gold mining is a significant source of income for as many as 300,000 small -scale miners in Indonesia. As the price of gold has steadily increased, gold mining and processing has become more popular both in the artisanal and large-scale sectors. Historically, artisanal and small-scale miners have used basic technology such as panning and sluice-box concentration. In the past 15-20 years, the use of mercury - especially in a process known as “whole-ore amalgamation” has gained in popularity. Capturing gold using mercury amalgamation is preferred among gold processors as the technique is relatively easy and can generate fast cash to cover miners’ daily expenses. This process relies heavily on the use of mercury, which can cause heavy environmental damage and pose extreme health risks.

Even though mercury use is pervasive among gold miners and processors, awareness of potential hazards to community health and the environment is very low. The negative impacts of mercury poisoning take up to 50 years to show after exposure, but can appear much more rapidly depending on factors such as dose, pathways of exposure, individual immune system and nutritional consumption. The negative impacts are more immediately severe for children. Mothers, especially pregnant and breastfeeding women, are also highly vulnerable to negative health effects. Mining and processing areas are often indistinguishable from residential areas. Families live in houses that also function as gold shops where amalgam is burned. Children freely play in the gold processing areas.

For these reasons, USEPA/UNEP/Global Mercury Partnership is supporting Blacksmith Institute, in collaboration with the Ministry of Environment and Yayasan Tambuhak Sinta to implement continuing interventions to reduce mercury emissions and improve mining practices.

Project Successes

This project is based on the introduction of tools and processes to reduce mercury emissions while increasing the earning potential of the gold miners. To date, Yayasan Tambuhak Sinta – Blacksmith’s Indonesian partner, has enabled hundreds of mercury-capture devices called retorts, to be distributed among the miners. YTS has also assisted in the installation of dozens of water-box condensers in gold shops that have captured additional mercury during the refining process. These interventions have led to a dramatic reduction in the level of mercury emissions from many gold shops gold processing sites.



Gold Extraction Process

There has been considerable progress in introducing lasting technology that has reduced mercury use and release. As the project looks ahead into 2012 and beyond, it will focus on demonstrating processing techniques that phase out mercury use entirely. There will be an increased emphasis on improving the “ore concentration” process, which requires much less mercury during the gold extraction phase. Additionally, the project will explore gold smelting, sometimes known as the Borax Method to reduce mercury further. This method, which is already used by 15,000 small-scale miners in the Philippines, has achieved great success. As in the past, Blacksmith will continue to support YTS and their community-based efforts to improve the lives on artisanal gold miners in Indonesia.



Kids Playing in Tailings

Financial Highlights

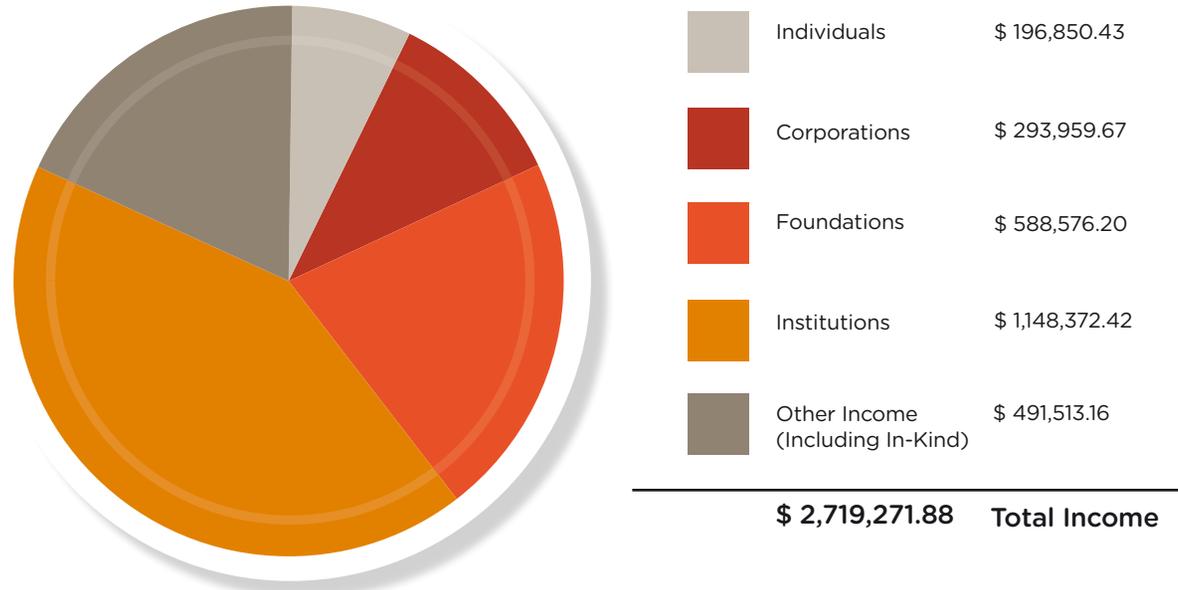
Expenses

■ Financial Highlights

Income

In 2011, Blacksmith Institute saw significant increases in income due to new grants, new donors, and continued support from individuals, foundations, and corporations. Nearly 50% of Blacksmith's income in 2011 was from institutions including grants from governments and international organizations. Blacksmith signed its largest government contract, to date; a five million Euro grant from the European Commission and UNIDO, with matching funds from the World Bank Development Grant Facility. This three-year project will continue through 2013.

Blacksmith continued to increase its loyal base of private donors, with corporations and individuals making up over twenty percent of the 2011 income. Blacksmith has benefited greatly from these generous donors. Grants and donations from foundations have also made up a large portion of the income, accounting for about twenty-five percent.



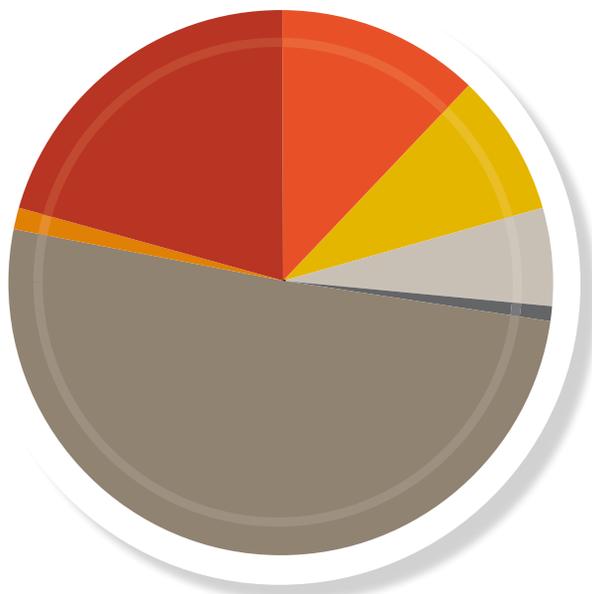
Expenses

2011 Expenses

In 2011, Blacksmith was able to increase both its administrative infrastructure as well as individual program funding. The increase will provide the necessary support for program expansion in 2012. With its increased funding for TSIP, Blacksmith will complete trainings in Asia, Africa, South America, and Eastern Europe in the beginning of 2012. This is a major achievement and will allow for continued growth going forward.

South and Southeast Asia expenses accounted for a large percentage of program costs. Projects such as mercury reduction in artisanal gold mining sites in Indonesia and ULAB site investigation in India, Indonesia, and the Philippines continued to move forward.

Africa expenditures continued to be high in 2011, as in 2010, in large part, because of continued project expenses in Zamfara. Additionally, ULAB work in Senegal, and E-Waste programs in Ghana, all account for increased spending in this region. These projects have all been extremely successful. Work in francophone West Africa and E-Waste in Ghana will continue on in 2012.



TSIP Program	\$ 566,883.33
Administration	\$ 332,500.14
Toxic Fundraising	\$ 231,847.7
Strategy Development	\$ 174,421.22
Blacksmith Journal	\$ 7,005.97
Global Programs	\$ 138,934.1
World's Worst Polluted Places Report	\$ 35,506.31

Expenses 2011 \$ 2,737,505.65

Administration	\$332,500.14	Toxic Fundraising Strategy Development	\$174,421.22
Africa Programs	\$219,202.05	Blacksmith Journal	\$7,005.97
China Programs	\$152,469.10	Latin America & Caribbean Programs	\$59,660.76
E. Europe / Former Soviet Union / C. Asia Programs	\$255,349.88	General Programs	\$423,626.67
Fundraising	\$231,847.70	South/Southeast Asia Programs	\$279,032.52
TSIP Program	\$566,883.33	World's Worst Polluted Places Report	\$35,506.31
TOTAL EXPENSES \$2,737,505.65			

■ 2011 Funders

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Government and Multilateral Organizations

Asian Development Bank
World Bank Development Grant Facility
SAICM
United States Environmental Protection Agency
Inter-American Development Bank
United Nations Central Emergency Response Fund

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Aaron & Marion Gural Foundation
MMHBO Fund
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MG Engineering P.C.
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Kasowitz Family Foundation, Inc
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