Knowledge Database Helps Policy Makers Identify and Assess Toxic Waste Hot Spots

BACKGROUND

Serious Health Risks. Around 200 million people are routinely exposed to toxic pollution in developing countries. Toxic substances are known to shorten life spans and cause cancers, respiratory diseases, stomach and skin lesions, and psychiatric disorders. Their adverse impacts are particularly severe on children as toxic wastes retard mental and physical development. Population-wide drops in intelligence levels can severely hinder national economies.

Wastes from the chemical, metallurgical, and processing sectors contain toxic substances such as heavy metals, solvents, and organic compounds. Illegal dump sites of these wastes can be found in urban and suburban areas, leaking chemical toxins which pollute water supplies and enter the food chain. Artisanal industries such as tanneries and stainless steel factories also pollute groundwater with cancer-causing hexavalent chromium. Many residents around these industries rely on groundwater for their only source of drinking water. Informal and unregulated battery processing facilities likewise pollute urban areas with lead.

Compounding the Risks. Weak government regulations and enforcement aggravate the adverse effects of toxic pollutants. Governments and communities find it challenging to hold small-scale, informal polluters and those who vacated toxic sites accountable for cleanup costs. In addition, until recently, the scale of the problem was unknown. There was little systematic information gathering on the scale of the problem, the site-specific magnitude of economic and health impacts, or the cleanup costs. Worse, countries generally lack funding and technical know-how to counter these challenges.

Toxic waste sites can be cleaned up and active polluters can be stopped through a mix of regulation, community education, and use of alternative and modern technologies. But first, in order to prioritize action, these sites must be identified and assessed, and the technology and costs for cleanup need to be estimated.

APPROACH

Scoping the Problem. The Asian Development Bank (ADB) partnered with the Blacksmith Institute in building capacity in Asian countries to develop a knowledge base on the location, toxicity, and health impacts of these sites. ADB also wanted to determine the most cost-effective methods and estimate the costs of remediating the sites’ negative health impacts. This was done through a regional

Highlights

- Industrial toxic wastes from artisanal and legacy industrial sites, e.g., those from informal businesses or closed factories, pose serious health risks but are often not prioritized by governments because it is difficult to hold the polluters accountable for the cleanup. An NGO, Blacksmith Institute, proposed to assess the magnitude of the problem in countries across Asia and the Pacific, and to work with communities and governments to plan and implement mitigation efforts.
- A first step was to identify and assess these artisanal and legacy pollution sites. From this work, a toxic sites database was developed and sites were categorized and prioritized by level of impact and cost-effectiveness of mitigation measures.
- The regional inventory of polluted sites led to better information and higher awareness among policy makers and development partners about the scope of, and possible solutions to the problem. Communities and governments throughout the region are benefiting from this knowledge as an advocacy tool and as a roadmap for cleanup actions.

1 Lungs, kidneys, and intestines are most vulnerable to hexavalent chromium, a highly carcinogenic compound used in making stainless steel, textile dyes, wood preservation, leather tanning, and anticorrosion coatings.

Photo: ADB Photo Library
Toxic pollution can retard children’s mental and physical development.
Investigating the Sites. The regional inventory focused on 18 low- and middle-income ADB developing member countries. Local investigators were hired and trained before conducting site assessments in 16 of these countries. They made lists of contaminated sites using existing networks, internet search, and other research methods. The investigators then collaborated with Blacksmith’s New York-based technical staff to prioritize sites for physical assessment, determine when the basic physical characteristics of the sites were gathered, note global positioning system coordinates, determine when photographs were taken, and find out when sampling data was acquired or when new sampling was conducted.

In this phase of the project, investigators likewise traced the history of the site, identified stakeholders, and determined the estimated population affected by the toxic sites.

Over the course of the project, 475 contaminated sites were assessed—a significant increase over the target output of 243. In addition, 251 sites identified by Blacksmith in 2009 prior to the start of the project were assessed and included in the R-PATA outputs, bringing the total database number to 726 sites.

The information gathered were lodged in a database that includes geographic information system coordinates, sampling data regarding toxic elements, numbers of persons impacted with potential health risks, and an estimate of the technologies and costs needed to mitigate the sites’ toxicity. The estimated health impacts and remediation costs were used to prioritize sites in the inventory for government attention.

Culmination. A final workshop assembled key country assessors and government partners in Manila in July 2011. The workshop report reflected the successful completion of the project tasks. The final output, a feasibility study for developing a financing mechanism for cleanup activities, was produced. Blacksmith was able to use the work undertaken to successfully obtain an innovation grant to support the further development of an international financing mechanism for remediation efforts. This mechanism was subsequently called the Health and Pollution Fund.

RESULTS

Overall, the project was rated “highly successful,” exceeding expectations in cataloging, assessing, prioritizing, and estimating costs for remediation of critical toxic sites.

The project achieved its policy goals. The Global Inventory Project was intended for policy makers and has provided a rich source of information on the potential harm caused by these sites as well as priorities for remediation. Several of the participating countries requested translation of the country database into their language so they could maintain and build on the inventory.

The inventory is a membership database that is not open to the public due to country sensitivities regarding the sites. However, ADB and Blacksmith are working with the members in order to make public the data to the extent possible in order to use them to raise awareness and stimulate action. Some of the results and information gathered from the project may already be viewed from Blacksmith’s website.

Sharing and Continuity. The R-PATA team discovered that country sharing of experiences became a by-product of the project even though it was implemented transnationally. In Indonesia, for example, there were many artisanal and small-scale gold mining sites. The Indonesian team shared notes with the Philippine team on how to address pollution caused by such activities.

The magnitude of health risks posed by sites in the current inventory far exceeds earlier estimates. These toxic sites will have immediate and long-term, intergenerational impacts on human health. In-country experts and stakeholders need to maintain and build upon the database, and use the information for domestic advocacy. External financial resources will be needed, particularly for low-income ADB developing member countries, given the scope and scale of remediation efforts.

Related Links

- TA 7395: Improving the Health Status of Vulnerable Communities Threatened by Legacy or Artisanal Pollution. www.adb.org/projects/documents/improving-health-status-vulnerable-communities-threatened-legacy-or-artisanal-pollution
- The Global Inventory Project (Global Inventory of Polluted Sites). www.blacksmithinstitute.org/blacksmith-institute-to-lead-global-inventory-of-polluted-sites.html

KNOWLEDGE CONTRIBUTOR

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