

The Global Pollution Remediation Fund

BELLAGIO PRINCIPLES

Summary

Toxic pollution is found throughout the developing world. It is significant cause of disease and death and especially harms children. It is a moral imperative to deal with this issue, one made all the more compelling by the globalization of industry.

These problems include contaminated sites from industry and mining, where the polluter is long gone or insolvent, yet the damage to human health is compelling. These sites include mines and smelters, tanneries, battery processors, chemical manufacturers, and other industries. Pollutants include heavy metals, industrial solvents, radionuclides, pesticides, dyes, and others. Health effects include cancers, mental retardation, increased infectious disease, and cardiac problems amongst others.

Technologies for cleaning up these problems are well known in the west, but little has been done because of inadequate resources at the local level, and a lack of technology transfer. Affected communities and local authorities often struggle to do what they can with very limited financial and technical resources. The Global Pollution Remediation Fund (the Fund) will finance remediation of the worst pollution issues in the developing world, implementing activities that mitigate the most devastating impacts on people, especially children. It will not necessarily fund complete environmental remediation. The Fund will also develop local capacity for further activities on pollution in recipient countries. Around \$400 million over five to ten years will be sufficient to deal with the worst of these sites, and will improve the life expectancy of between 10 and 70 million people.

Effective methodologies for implementation of international aid projects are outlined. A small and efficient secretariat will be created to assess and design projects for implementation and then oversee project implementation through local authorities. A strong technical advisory board would provide technical assistance.

This work directly supports the Millennium Development Goals, as it significantly improves health and reduces poverty. Climate change has a direct relationship on these problems; contamination exposures increase as water resource patterns change.

This document was endorsed and finalized in a meeting in Bellagio Italy, where senior representatives of stakeholders concerned about toxins in the developing world met, in October 2007. Represented were recipient countries (China, India, Russia, Kenya, Mozambique, the Philippines), donor countries (the US, Germany) international organizations (World Bank, UNIDO, Blacksmith Institute, Green Cross Switzerland), and world experts in pollution and toxins from Johns Hopkins Bloomberg School of Public Health, University of Idaho, the US Army, and others agencies.

The Problem

Toxic pollution in developing countries is a major risk to human health. Health impacts include drastically shortened life spans, retarded mental and physical development, increased cancers, respiratory diseases, stomach and skin lesions, and psychiatric disorders.

Heavy metals such as lead, mercury, chromium, cadmium and arsenic cause neurological damage and/or cancer. Solvents are acutely toxic and carcinogenic. Radionuclides cause birth defects, cancers, and genetic problems. Particulates cause respiratory and cardiac problems. Other industrial and mining toxins include asbestos, dioxins, PAH's, PCB's, dyes and pesticides.

These pollutants affect the health of hundreds of millions of men, women and children in the developing world. Sadly, the adverse impacts of toxic pollution on children are particularly severe. Most, if not all, polluted sites are in poor neighborhoods and cleaning them up is an integral part of poverty reduction. Poisoned communities are unhealthy, and have no chance to develop economically. These problems have not yet been adequately addressed in the developing world, whereas the west has spent several decades on these issues, and has far fewer problems.

The damage to human health resulting from such pollution is often easily avoidable, and should not be tolerated. There is no tenable moral stance that can allow for a continued poisoning of future generations from toxins that we ourselves have created. These problems must be solved, and pollution remediation efforts should focus first on human health issues. Locations where human populations are not affected, while often presenting serious ecological problems, do not have the same priority.

Efforts continue on every country to rein in ongoing sources of toxic discharges. However, some of the most significant sources of pollution are legacy or "orphan" sites. These involve pollutants that are left behind from previous activities, and continue to poison local communities. In most cases, the original polluter is long gone and inaccessible. Often, legacy pollution is intermingled with toxins from active polluters, and both must be addressed together.

These problems harm humans, especially children, every day. Children are susceptible to pollution issues for several reasons. They play outside, and gather larger doses of toxins than adults. Smaller bodies also accumulate higher doses per unit of mass, causing greater harm. Certain pollutants can also permanently damage developing brains. The longer the problems are left unaddressed, the more children are harmed. There is a need to move with purpose, and with effective implementation, and curb the damage as quickly as possible.

The technologies required to clean up legacy sites are often relatively simple. Small initial investments can usually tackle the most acute cases, and produce a substantial reduction in human health impact. Initial steps can then lead to more involved works, which further reduce health risks.

Clean up can also be very cost effective. A recent Blacksmith Institute study found the cost of implementation per disability life adjusted year (DALY) to be \$1 to \$50, or to be between \$40 and \$500 per life saved. These numbers compare favorably with the health cost effectiveness of mosquito nets or better cooking stoves. In other words, interventions in this area are amongst the most effective at enhancing life in developing countries.

Dealing with toxic pollution is not an isolated challenge. Solving these problems directly supports the Millennium Development Goals, with impacts on poverty (goal 1), child mortality (goal 4), maternal health (goal 5), and most importantly environmental sustainability (goal 7).

These issues are also directly related to climate change, especially in the context of growing water resources concerns. Toxic pollution is one of the important constraints on use of scarce groundwater resources – particularly in fast growing urban fringes. Changes in rainfall patterns result in lower water flows, and more concentrated pollution (and more health impact as a result) or floods, which spread pollution over a larger area (and also increase health impact).

Polluted sites, large and small, can be found all over the developing world. While small sites (say <\$50,000) can often be solved with local resources, and very large problems (say >\$20million) can often make use of Multilateral Development Bank programs (such as the World Bank), the bulk of problem sites fall between these two extremes and have no ready access to clean-up resources. A global resource is needed.

The Principles

In order to establish a global program to deal with this issue, we present the following key principles:

There is a need for a response from the developed world

Individual problems are localized but the distribution, scale and impacts of the challenges are felt globally. These problems affect large populations, and directly hinder development. The people who are most directly affected are the poorest in each country, and those without a voice. In addition, very little effort has gone into cleaning up these sites to date. They are also often easily solved. The technical solutions are often well established and understood internationally but need to be transferred to local groups and adapted for local conditions.

Polluter pays, if possible

If pollution is actively ongoing, the responsibility for remediation, and the costs thereof, rests squarely with the entity causing it ("polluter pays").

If the polluting activity has ceased but the pollution caused earlier continues to impact human health, responsibility for remediation still remains with the polluter. The preferred response is clean-up by the owners (public or private), driven by appropriate regulatory interventions by government. Where the polluter is a private company, the government should take action to ensure that the works are completed effectively.

But if not - public support

But in many cases it is often difficult to identify the responsible body, or the responsible party is long gone, or the polluter has no resources, or is defunct or bankrupt, or there are no capable government regulatory capabilities to bring a polluter to the table. At other times, the necessary remediation work is delayed or avoided through legal or political maneuvering. There are also cases where the pollution is active but the polluters are micro- or small enterprises and cannot afford to finance the clean up (e.g., small tanneries, artisanal mining). Local and national governments should support interventions in these cases, but clean-up is likely to be beyond their resources.

In these cases it our responsibility to mitigate the worst of the health impacts. Where it is beyond the resources of local governments, programs should be funded and implemented by the international community to clean up the worst of the pollution, and protect children's and other vulnerable population's health. This is particularly appropriate because many of the most polluting industries in the developing world are manufacturing products for consumption in the developed world. In a search for sustainable globalization there is a shared responsibility to deal with this issue.

Any project undertaken should be conducted with the following basic principles:

Local stakeholder ownership.

All programs must be founded on the efforts of local stakeholders. A Stakeholder group should always be formed, and include full representation from all stakeholders, who form a consensus to move forward with a remediation solution. There may be some resistance from some stakeholders, which must be addressed directly but sensitively. Experience

shows that local stakeholders, including industrialists and government officials, can usually be induced to take action to deal with severe health issues if the priorities can be agreed to in a non-confrontational way. All activities or remediation should be directed through the stakeholder group.

Public participation is key

Stakeholder participation should include NGO's and agencies that clearly represent the affected peoples. Full disclosure to all parties is critical to ensure accountability and transparency to stakeholders and donors.

Low cost and locally relevant solutions

Initial interventions must be locally led, scientifically sound, technically feasible and cost effective. These will often be the first steps towards a longer-term solution and so developing local commitment is essential.

Technology for remediating toxic industrial and mining pollution are reasonably well known, having been developed in cleaning up polluted sites in OECD countries. Simple, cost-effective solutions are usually available in developing countries and can be implemented by local entities (local governments, non-governmental organizations and others), with technical and financial support from the international community.

Transfer of technology and capacity building

One benefit of initiating a stakeholder group is that resources for clean-up are directed through, and thus train, the members of that group. Local environment authorities can replicate the process in other contaminated areas. Most importantly, there is a transfer of techniques and strategies in working cooperatively with all sectors.

A first level effort can make the most difference, for the lowest cost.

The focus of these efforts is reducing the impact on human health. This may result in projects that are less than complete in environmental and ecological remediation terms. Full remediation may have to wait for a future where more resources are available. The projects of the Fund will be designed to encourage additional efforts from local stakeholders to further clean-up the region over time.

Coordination with non-legacy aspects is critical in complex sites

More complex sites with legacy and active pollution will require multiple parallel solutions. These need to be coordinated by the stakeholder group, and managed carefully to ensure that they tie together within the general goal of protecting human health.

A commitment to implementation

The focus of the work should always be to reduce and if possible eliminate the health risk. While some resources must be spent on studies, these should be done at low cost and high speed, so as to move forward with implementation as rapidly as possible. Existing expertise from other clean-ups should be used wherever possible.

Scale of Interventions and Direct Benefits

Initial estimates of the scale of the problem have been developed from a database of problem sites, together with information available in different countries and cross-country comparisons. Experience shows that there are key industry and economic activities that are responsible for the majority of problem sites.

Extrapolating from the existing known cases, a first cut of the total number of critical sites that require intervention is as follows:

Small scale	250 sites (estimated 3,000 to 50,000 people affected per site)
Medium scale	150 sites (estimated 30,000 to 300,000 people affected per site)
Large scale	20 sites (estimated 200,000 to 1 million people affected per site)

If all of these sites could be upgraded to at least a minimum level of public health protection, then between **10 and 70 million people** would benefit from clean-up work.

Using information from the existing inventory of sites and applying reasonable cost estimates, **\$350 to \$400 million** is needed to clean up all sites. This number represents the additional finance required beyond that which can be extracted from the responsible polluter (if they are known and still accessible) and that which is available from local resources (including government transfers).

Finalizing the list of sites, remediating critical problems, and implementing the larger scale projects will require five to ten years. The expenditure requirements of the Fund are therefore estimated at \$30 to \$80million per annum. These figures need to be refined and discussions are underway to upgrade the existing inventories, but the order of magnitude presented here is believed to be correct.

The overall scale of the toxic legacy worldwide is specific and limited. If the four hundred or so sites estimated here are resolved then the work of the Fund will be done. To encourage the implementers to get to this point, it is proposed to write a specific sunset clause into any Fund structure.

Wider benefits of clean-up

Cost effectiveness is comparable with and complimentary to other public health programs

The immediate objectives of the GPRF are to save lives and to protect health. Analysis confirms that the costs are comparable with other development and public health programs in the international arena. For example, the cost per DALY in a recent study was between \$1 and \$50, comparable to similar interventions in water supply, improved cooking stoves, and malaria controls. In addition, implementation can be relatively straightforward, does not duplicate or hinder other health initiatives. Work in this sector also reduces the pressures on healthcare providers, complimenting programs in this area.

Developing local capacity

Experience shows that really effective clean-up programs must be based on bottom up and participatory methods. One of the most important results is building the capabilities and confidence of the local champion and group, developed while working together in

surmounting practical and political challenges. These stakeholders can go on to tackle broader questions of local development, including addressing the balance between growing and polluting. Not every project achieves such impacts, but when it does the results are striking.

Healthy populations are productive populations

Economic growth is dependant on a fully functioning workforce, a difficult task in places where pollution is causing morbidity and disability. Additionally, a clean environment and predictable, fair regulation are factors that attract industry and growth.

Key Elements of the Global Pollution Remediation Fund

Aims

The purpose of the Global Pollution Remediation Fund is to support the remediation of highly polluted sites in the developing world.

Operating Protocols

The Fund will be overseen by three distinct groups: a Steering Committee will represent donors, and coordinate a small Secretariat, responsible for administering project work and for the day to day running of the Fund. A Technical Advisory Board (TAB) will provide technical coordination for project review and implementation.

The costs of administration will be kept to a minimum, with current experience showing that less than five percent of projects costs being sufficient.

The purpose of these protocols is to evaluate potential sites for program implementation against the principles indicated above. Even if an evaluated site is not chosen for program implementation, the information discovery process has value in its own right, and will be useful in other international programs.

Site Nomination and Desk Review Protocol

- Nominations from all directions to Secretariat
- Secretariat project review and dossier preparation – via internet and literature search
- Technical Advisory Board (TAB) review and recommendation – on a rolling basis
- Defined criteria from TAB for project to move to further review
- Generate site nomination report and disseminate

Initial Site Assessment Protocol

- Site visit by trained personnel – one or two days – rapid risk assessment
- Meetings with all stakeholders – government, non-government, health, industry
- Local reports and documentation collection and review
- Legal and institutional assessment to determine if there is a responsible party that can be held accountable under local laws.
- Assessment of legal responsibilities of national laws and regulations to determine an appropriate regulatory response in addition to an analysis on whether to pursue these exclusively, or in parallel with a clean-up.
- Samples and testing sufficient to document health impact or otherwise
- Identification of local champion and potential stakeholder group
- Estimate engineering costs
- Report back to Secretariat and TAB
- Defined criteria established for project to progress to implementation
- Generate initial site assessment report and disseminate

Project Design and Implementation Protocol

- Local champion is the key implementation driver
- Stakeholder group well defined, and mandate driven by a consensus on health impact

- Local engineering design and implementation, with assistance from international experts as needed.
- Clear operational objectives to be set and monitored, related to pollutant contamination (in the short term) and health impacts (in the longer term).
- Simplified procedures for procurement related to the scale of support provided.
- Review of parallel activities by the international and national community in the same region or program area and coordination with same.
- Technology appropriate to the site and the capacity of the local agencies – low cost and efficient solutions
- Appropriate contribution to project cost by the recipient government.
- Government commitment to regulatory response to avoid future pollution as appropriate.
- Reliable oversight by GPRF Secretariat, capable of ensuring transparency.
- Analyze and report on successes and lessons learned.

Structure

The ideal structure for the Fund is a central trust fund with contributions from donor agencies and private institutions. This trust could be housed at an existing international agency such as the World Bank or at an approved commercial bank.

Project funding approvals for clean-up costs under \$500,000 would be done at Secretariat level. Project costs above this level would require Steering Committee approval.

Participants

The key participants who would have the powers and responsibilities to manage, assign and monitor the use of resources, would be:

- Donors – who contribute funding, technical support and other assistance. These donors may be public or private entities. The terms of the contributions can be adjusted to suit the requirements of the donor, so long as there is agreement to manage operations using the processes of the Fund.
- Implementing Governments – most of the resources will be distributed at the local level. However support will be required from the relevant national governments. Typically this support would cover:
 - Signing up to the objectives and protocols of the GPRF and agreement to support practical efforts as implemented through the Secretariat;
 - Agreement to provide access and institutional backing to the international specialists and other implementation team members
 - Commitment to ensure adequate enforcement actions on active pollution and appropriate application of sanctions on responsible parties for legacy problems
- Technical Advisory Board of health specialists, scientists, engineers and institutional experts with expertise in the underlying issues.
- The Secretariat itself, tasked with project management and implementation, and fiduciary oversight, as per donor requirements.