

CENTER for SCIENCE in PUBLIC PARTICIPATION

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Technical Support for Grassroots Public Interest Groups



Mining in Haiti:

Review of Haitian Capacity and Preparedness

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² The Center for Science in Public Participation (CSP2) provides objective research, education and technical advice to grassroots groups, non-governmental organizations, regulatory agencies, businesses, and indigenous communities on natural resource issues, especially those related to mining. CSP2 provides technical support so that communities around the world have access to technical research and expertise required to protect their environment and culture, so they can make informed and proactive decisions on natural resource protection and development issues, and insure that extractive industry practices follow the highest standards.

Contents

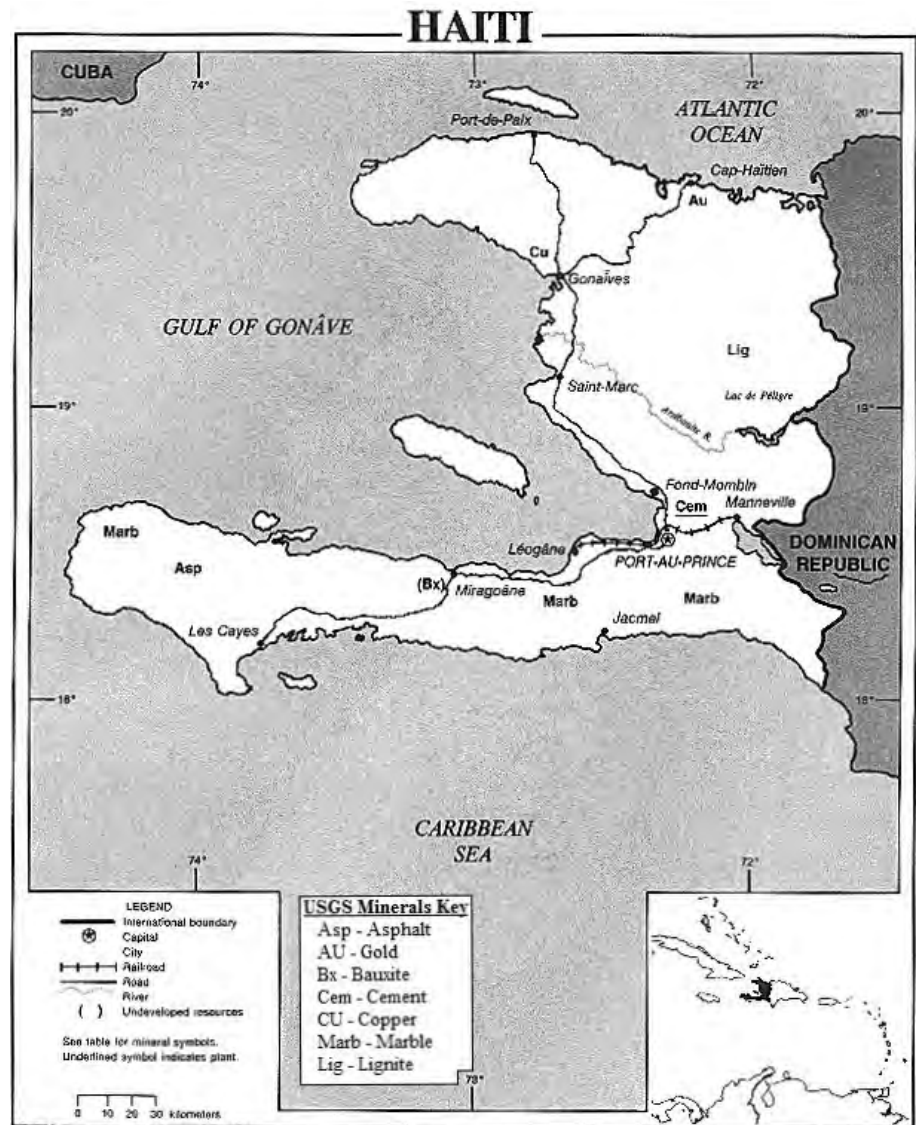
I. Introduction	1
II. Environmental Impact Assessment.....	3
III. Cumulative Impact Assessment	4
EIA Process Costs and Benefits.....	5
IV. Strategic Impact Analysis	6
V. Haitian Environmental Quality Standards	7
Regulation.....	7
Transparency.....	8
No-Go Zones.....	8
Prospecting and Exploration	9
Environmental Impact Analysis.....	9
Water Contamination and Water Use	10
Acid Mine (Rock) Drainage.....	10
Air	10
Energy Consumption	10
Noise	11
Waste Management.....	11
Cyanide	11
Reclamation and Rehabilitation.....	12
Financial Guarantees.....	12
Post-Closure.....	13
Monitoring and Oversight.....	13
Local Communities and Free, Prior, and Informed Consent	13
Participation in Decision Making/Consultation.....	14
Access to Information/Disclosure.....	14
Consent-Benefit and Compensation Agreements	15
Recognizing Women’s Rights and Addressing Gender-Related Risks	15
Labor Rights and Worker-Related Risks	16
Resettlement/Relocation and Compensation	16
Security and Human Rights	17
Reporting.....	17
Accountability.....	17
Transparency.....	17
VI. Infrastructure and Infrastructure Impacts.....	17
VII. Haitian Mineral Survey	18
VIII. Developing Haiti’s Mining Laws and Regulations	19
IX. Royalties and Taxes.....	19
X. Mining Scorecard.....	20

I. Introduction

The goal of this report is to summarize the elements necessary to demonstrate Haiti's capacity to permit and regulate mines in Haiti to ensure that it protects human health and the environment. This includes two primary elements: The completeness and best practices of Haiti's relevant laws and regulations and (2) Haiti's governmental capacity to permit and regulate mines.

The importance of ensuring Haiti's capacity to permit and regulate mines cannot be overstated: major mining activities cause significant impacts to the landscape and people in every place that it occurs. Therefore, it is essential for Haiti's capacity to be in place before mining activities begin.

The mining industry as a whole has significant financial resources and therefore can wield significant financial and political pressure on governments. It is important to recognize that Haiti's mineral wealth belongs to Haiti. If mineral surveys or exploration demonstrate that Haiti has valuable mineral wealth, the wealth should be considered Haiti's. Map 1 shows the United States Geological Survey's (USGS) summary of Haitian mineral deposits.³ This shows



Map 1. USGS Minerals Map of Haiti

³ USGS Minerals Map of Haiti. <http://minerals.usgs.gov/minerals/pubs/country/maps/92839.gif>. USGS Mineral Key added with relevant Haitian minerals identified. Full USGS' minerals key available at: <http://minerals.usgs.gov/minerals/pubs/country/maps/mapkey.html>. The USGS' Minerals Yearbooks, which review the mineral and material industries of many countries, are available for Haiti at the USGS' Latin America internet page: <http://minerals.usgs.gov/minerals/pubs/country/latin.html#ha>.

the dispersed nature of minerals and helps demonstrate how important it is for Haiti to consider all present and future land uses - and not just mining.

Because mining is as-yet largely undeveloped, Haiti has the opportunity and the duty to:

- establish a mineral development strategy
- determine whether or not mining should occur and which mines fit the development strategy
- determine where mining should occur
- determine what other land uses should prioritize over mining
- determine the terms under which mining should occur, most notably ensuring that Haiti and its people profit most from their minerals.

A key step to consider the future of mining in Haiti is for Haiti to establish a development strategy that considers all reasonably foreseeable development sectors (such as tourism, agriculture, aquaculture, fishing, mining, energy development, etc.). By completing such an analysis Haiti can evaluate the various social and economic costs and benefits of each sector and weigh them against each other. When faced with a present economic opportunity it is often easy to ignore or not fully value/consider other opportunities that may not be as fully present. A Haitian development strategy could help balance the benefits and costs in the short-term and long term of each of the reasonably foreseeable sectors. This analysis could then help guide Haiti's mineral development.

Mining may add to Haiti's economic growth - but it may also cost more than the value of that growth if mine impacts are allowed to degrade environmental, human health, and social resources. Haiti should ensure that short-term gains do not come at the expense of long-term expenses. The only way to protect from such degradation is for Haiti to establish and exercise a national mining development strategy and regulate its implementation with a robust regulatory framework and capacity.

Mining could also cost more than the value actual mining growth if mining activities force-out existing sustainable economic engines, such as coffee growth. Haitian coffee represents a potential growth area but if mining occurs in existing or future coffee areas, mining impacts could limit and prevent its continued and future growth. While just one example, it highlights the need to fully assess and compare the benefits and liabilities of potential mining versus existing activities and opportunities.

The key elements to understanding mining impacts and regulation include Environmental Impact Assessment (EIA), Cumulative Impact Assessment (CIA) and individual environmental, health, and social elements that must be considered.

Further, it is critical for Haiti to complete one or more Strategic Impact Analysis (SIA) to evaluate and assess the regulatory scheme that Haiti develops to ensure that the regulations (and laws, plans, and policies) themselves will effectively protect human health and the environment, among other Haitian priorities.

In addition to these assessments, it is important for Haiti to consider the following elements, which are framed for further consideration and discussion:

- Infrastructure and Infrastructure Impacts
- Haitian Mineral Survey
- Developing Haiti's Mining Laws and Regulations
- Royalties and Taxes
- Mining Scorecard

II. Environmental Impact Assessment

The EIA process can evaluate environmental and ecological impacts based on widely accepted, scientific methods. These can provide Haitian regulators and the public with reliable information to evaluate a mine proposal and promote sound decision making. The EIA process can evaluate the direct and indirect impacts of mining.

The EIA process can also capture and consider cultural and social impacts related to mining, such as boom and bust cycles; creation of infrastructure that is unsupportable when the mine closes (whether at the end of the ore reserve or from a change in mineral economics, etc.); and the creation of divergent economic classes when a mine hires outside employees for high-paying high-skill jobs and hires local labor for low paying unskilled jobs. Without an EIA process these issues are unlikely to be considered. These issues are also important to consider when comparing the social, economic, and environmental costs and benefits of mining versus existing and other potential land uses.

The Haitian Senate's suspension of mining permits underscores the importance of the government and public having sufficient data, information, and regulatory processes. Without such information the Haitian government and people may unknowingly permit mining activities that will greatly degrade human health and the environments, cost the Haitian government and people significant fiscal expenses, and negate/counterbalance any benefits mining may yield for the country and its people.

Policy makers, the public, and regulators have to evaluate the trade-off between what is *proposed today* (jobs, money, data, or mine promises that there will be no degradation to the environment or human health) against *impacts that will occur later* in the mining process and after project closure. There are countless examples of mining problems from around the world that have caused tens or hundreds of millions of dollars of damage. The EIA process allows the Haitian government and public to better evaluate the actual impacts and costs associated with a mine *before* decisions are made or impacts occur.

Mining company promises alone are insufficient to evaluate a mining proposal. Evaluation by the government and public requires extensive technical, scientific data - which the mining company possesses - and should supply to the government and public to ensure that the government and public are on equal footing with the company in terms of assessing impacts.

The EIA process helps ensure that there is adequate:

- Data and information to support informed consideration by the government and public.
- Communication and coordination between the government, the company, and the public. This is essential to ensure the process is credible.
- Resources and technical capacity to regulate the project before, during and after mining.
- Accountability: The EIA process allows the government to track the project and progress/impacts - essentially to compare the proposed project (what the mine proposed and analyzed in the EIA) with the actual results of the project.
- The process can also establish processes and regulations to make data available to the public and promote public participation. This is particularly important, as evidenced by recent social unrest around and about Haitian mines.

To pay for the analysis, the mine proponent should provide to the government the funds necessary for the government to perform the EIA process, as well as to regulate potential impacts.

III. Cumulative Impact Assessment

Haiti should expand its environmental analysis process beyond just basic EIAs to review mines for cumulative impacts. Cumulative Impacts (or, cumulative effects) are the impacts to the environment that result from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions.⁴ The actions and impacts are related, regardless of who is taking the action and regardless of the regulatory entities, if any, that will regulate the activity.⁵

⁴ Cumulative impacts will occur when activities co-occur and interact with other activities (each other) and have similar impacts. A general example may be where two mines operate in the same watershed. If each mine releases 10 parts-per-million of a contaminant, and the regulatory and permit limit is 12, each mine is in compliance. But the combined 10 plus 10 will yield 20 parts-per-million, which exceeds the regulatory limit and may harm human health and the environment. There may also be non-mine related operations, including domestic/municipal, that further release contaminants. Cumulative impacts seeks to evaluate all of the releases of all of contaminants to determine the impacts from all of the activities in the area (such as to micro-watersheds and watershed).

There are four common elements that make up cumulative impacts: Coincidence, Sequence, Addition, and Synergy. Coincident impacts occur when two activities or events happen at the same time and/or at the same location. The closer the events are in time and/or space the greater the coincident impacts will be. Sequence refers to the order of the impacts from the different events. Impacts may be greater or lesser depending on when an impact or a management decision (such as governmental permit issuance) occurs. Addition refers to the additive impacts that may result from multiple, individual impacts. Synergy refers to the interactions between multiple activities resulting in impacts that are more, or less, substantial than they would be if the occurred individually.

http://www.fs.fed.us/psw/topics/fire_science/craft/craft/Resources/Cumulative_effects_analysis.htm#intro.

⁵ Cumulative effects may be either additive or interactive. Interactive effects may be either countervailing (net cumulative effect is less than the sum of the individual effects) or synergistic (net cumulative effect is greater than the sum of the individual effects). (From US EPA)

Other primary types of impacts to consider, as both comparison and for completeness, include:

Direct Effects - are those effects resulting from the action and occurring in the same general time and place as the action.

Indirect Effects - are those effects resulting from the action but occurring at a later time or at a greater distance from the action.

In the US, there are 8 principles for Cumulative Impacts Analysis.⁶ All are important to consider when viewing, reviewing, and evaluating cumulative impacts from mining in Haiti.

1. Cumulative effects are caused by the aggregate of past, present, and reasonably foreseeable future actions.
2. Cumulative effects are the total effect, including both direct and indirect effects, on a given resource, ecosystem, and human community of all actions taken, no matter who (federal, nonfederal, or private) has taken the action.
3. Cumulative effects need to be analyzed in terms of the specific resource, ecosystem, and human community being affected.
4. It is not practical to analyze the cumulative effects of an action on the universe; the list of environmental effects must focus on those that are truly meaningful.
5. Cumulative effects on a given resource, ecosystem, and human community are rarely aligned with political or administrative boundaries.
6. Cumulative effects may result from the accumulation of similar effects or the synergistic interaction of different effects.
7. Cumulative effects may last for many years beyond the life of the action that caused the effects.
8. Each affected resource, ecosystem, and human community must be analyzed in terms of its capacity to accommodate additional effects, based on its own time and space parameters.

The importance of evaluating cumulative impacts cannot be overstated. Impacts from individual mines and projects may significantly impact the project's respective, local geographies. However, the cumulative impacts of multiple projects may be much greater than just adding together the sum of their individual impacts. It is impossible for Haitian regulators or the public to know the impacts mining may have to the region (social, economic, environmental, etc.) without government agencies, policymakers, and the public, considering cumulative impacts.

Past, present, and reasonably foreseeable future actions conducted by agencies and private parties should determine whether they were relevant to the cumulative effects analysis for the proposed project. These activities should be reviewed to determine if they have had or could reasonably result in any impacts that potentially could affect the human and natural environment of the area or whether their effects on regional population would overlap with workforce requirements for the proposed project. Without such analysis, the actual costs and benefits from mines in Haiti will be largely unknown until those costs and benefits are manifested - leaving the government and public to respond to problems when it may be too late.

EIA Process Costs and Benefits

Reasonably Foreseeable Future Actions – are potential federal, non-federal, or private actions that have been publicly announced for development with a reasonable likelihood to occur, and which would overlap with the geographic and temporal scope of the cumulative effects analysis. Potential actions which are currently considered speculative would not be identified as reasonably foreseeable. (From US EPA)

⁶ *Considering Cumulative Effects Under the National Environmental Policy Act* (DIRS 103162-CEQ 1997).

In 2007 the European Union commissioned a study examining the relative costs and benefits associated with implementation of Environmental Impact Assessment in selected countries within the European Union.⁷ The study was reported in two parts: the first looked at project EIAs and the second looked at Strategic Impact Assessment. The focus here is on project EIAs. The report dispels many myths that conclude EIA processes yielding low results, creating excessive costs, or not having significant benefits. Selected conclusions include:⁸

- Based on the case study findings Project EIA's are usually completed in less than 2 years in the Netherlands and United Kingdom. This timescale is also achieved in Greece and Spain, although there appear to be additional exceptions to the rule.
- EIA studies are usually conducted in 6-12 months. Where the proposed development is located in an environmentally sensitive area, data for a full year of should normally be provided, but this process can be shortened if the information is already at hand.
- EIA delays can occur for many reasons but where EIA delays occurred they were largely due to actions or inactions by the developer or consultant (such as lack of proper scoping or failure on the part of the developer, or consultants to undertake a systematic study, and provide relevant, or sufficient, data) resulting in the need for supplementary information.

In the majority of the case studies, all the participants confirmed that the EIA process had assisted decision-making, in one or more of the following ways:⁹

1. key environmental issues had been identified in 94% of cases
2. the quality of the project design had been improved in 83% of the case studies
3. higher standards of mitigation had been achieved than would otherwise have been expected in 83% of cases
4. a better framework for preparing conditions and legal agreements to govern future operation of the project had been provided in 72% of cases
5. environmental concerns had been incorporated from an earlier stage in the design process in 61 % of cases
6. better decision- making had been achieved in 61% or more of the case studies due to :
 - a. a more systematic and structured framework for analysis,
 - b. more objective and credible information,
 - c. increased rigor in evaluating environmental information,
7. the environmental credibility of the developer had been enhanced in 61% of cases,
8. environmentally sensitive areas had been avoided through project re-siting or re-design in 56% of cases

The report noted many ways to improve the EIA performance. This and other similar analyses provide Haiti with the opportunity to build its mining analysis process based on the successes and recommendations of other countries.

IV. Strategic Impact Analysis

⁷ Institute for Environmental Studies, Frans Oosterhuis. Costs and benefits of the EIA Directive Final report for DG Environment. May 2007. Downloaded from the internet at:

<http://ec.europa.eu/environment/eia/pdf/Costs%20and%20benefits%20of%20the%20EIA%20Directive.pdf>.

⁸ *Ibid.*

⁹ *Ibid.*

In addition to evaluating environmental impacts, because Haiti does not have a comprehensive mining regulatory scheme it is important for Haiti to assess its planning and development of a mining regulatory scheme to ensure that it will be effective. Such an assessment is completed thru a Strategic environmental assessment (SEA).

The SEA process seeks to ensure that policy and planning aspects of government are evaluated for their environmental, social, health, and other impacts. An SEA review of Haiti's existing and proposed mining regulations will be critical to ensuring not only that Haiti's regulatory scheme appropriately regulates and promotes an appropriate level of mining in Haiti but an SEA will help ensure that the regulatory scheme also protects human health and the environment.

Like an EIA or other environmental reviews, it is critical that the SEA process is transparent, invites and promotes meaningful public review and comment (public participation) and creates a clear record of development and decision making.

V. Haitian Environmental Quality Standards

It is recommended that Haiti undertake a full review of its environmental standards for their topical completeness and to ensure that they represent the most protective standards available elsewhere in the world. This should apply to all areas of environmental and health science, including but not limited to surface and ground water quality; air quality; hazardous and toxic waste creation, use, and disposal; greenhouse gas emission (and credit), etc. The following elements provide a starting point for understanding these standards and how they specially pertain to Haiti.

Regulation

Regulation depends on two principal components that are both essential to governmental regulation:

- (1) Mining Laws and Regulations. Sound, widely accepted criteria by which the federal and local governments, communities, NGOs, and industry can measure mine impacts and performance—and ultimately the environmental, social, and health impacts (and acceptability) of mining projects.
- (2) Governmental capacity to effectively oversee and regulate permitting and mining activities. This includes all phases of mining, including but not limited to prospecting and exploration, permitting, mine development and mining, mine closure, and post-closure. This also includes all Haitian government Ministries.¹⁰

¹⁰ Individual ministries must be adequately staffed, trained, funded, and independent (free from undue outside influence) to perform their individual regulatory functions. Individual bureaus must have the expertise to implement mine review, permitting, and oversight (for example, the Bureau of Mines must have adequate specialists in the environmental disciplines to evaluate all aspects of mining).

The Ministry of Agriculture may have to comment on potential mining impacts to coffee plantations, as would the Ministries of Commerce and Industry and Finance and Economy. The Ministry of Health and Population may need to evaluate a mine for its impacts to human health, including impacts to domestic and agricultural water and sources of food. This would require that ministry to have staff capacity to evaluate the technical aspects of mine impacts to

All aspects of Haitian capacity must be in place before mining activities commence. Otherwise there is a grave potential for unintended consequences from mining and lasting and expensive impacts to human health and the environment.

It is strongly recommended that all mining activities be implemented by Haiti's regulatory agencies according to Haiti's mining laws and regulations. In the past there appear to have been Parliamentary actions regarding specific mine activities, such as prospecting and exploration. While this may seem expedient and beneficial, it allows for inconsistent application of Haiti's laws and may ignore full environmental, public health, and economic - and public participation - that are critical for complete, consistent, and fair analysis of projects. To ensure that Haiti's laws and regulations are fully and transparently applied, it is essential for the Parliament and other governing bodies to leave the application of Haiti's laws to the appropriate regulatory agencies. This underscores the importance that Haiti's regulatory agencies have the quantitative and qualitative capacity¹¹ to regulate mining from exploration thru reclamation and post-closure activities.

The sections below identify key elements that should be in place before mining commences in Haiti. It may be incorporated into numerous things, such as part of a Regulatory Scorecard to evaluate Haiti's preparedness or a technical-legal outline and tool for use by the government (notably the Senate in light of its ban on mining) or NGOs to educate the public.

Transparency

The public should have unrestricted access to data and other information, including permitting and regulatory decisions, to ensure that the public can assess mining activities, potential impacts, mitigation measures and reclamation, payments to the government, etc. All information should be available in an appropriate language and format to ensure that it is accessible to the public.

No-Go Zones

Mining permanently alters the landscape. One of the most fundamental, and appropriately early, decisions for Haiti is to identify areas where mining may not occur. These areas, by definition, would also be areas where exploration should not be permitted. The criteria for No-Go Zones should be developed based on Haitian priorities for lands that are sufficiently important to determine that the long-term values from historic or current uses are more important to Haiti than mining's potential short-term gains. Examples may include, but are not limited to, particularly important or sensitive ecosystems; national parks or estuaries; cultural or historical sites; high-

these resources. Similarly, the Ministry of Tourism may need the capacity to evaluate mines for potential mining impacts to a growing tourism industry.

The individual ministries and bureaus must also effectively consult and cooperate with each other to ensure that all Haitian resources are considered. The final decision to issue or deny a permit (and the permit's conditions) will rest with one Ministry, but that Ministry must ensure that it effectively considers the input from all of the other Ministries and their bureaus. The government's capacity therefore must run through all structures and levels of the government.

¹¹ This includes, but is not limited to funding, training, staffing, autonomy and independence, authority, accountability, and respect from government, the public, and industry.

value and priority agricultural lands, etc. Haiti's development strategy and regulatory framework should recognize these areas as off-limits to prospecting, exploration, or mine development.

Prospecting and Exploration

Haiti has a unique two-phased 'exploration' rubric that separates prospecting and exploration. It may not be necessary to change this two-phased approach but the two activities are so closely tied that it may be beneficial to the government and mining companies for the government to combine the two under a single set of "exploration" laws and regulations. It is beyond the scope of this report to provide details about such joinder but most countries combine two as demonstrated in those country's laws and regulations.¹² Exploration can cause significant environmental and other impacts necessitating a detailed law and regulations that encompass many of the key features of full-scale mining, albeit on a smaller scale.

Independent of joining or not joining prospecting and exploration into one regulatory rubric, details of a proposed prospecting and exploration project and potential impacts should be clearly identified, including impacts to local communities and area residents. As a subset of mining activities, prospecting and exploration regulations should include plans of operation, reclamation plans, and financial guarantees to ensure that mine companies are responsible for prospecting/exploration operations, cleanup, monitoring, and appropriate post-operational activities.

Environmental Impact Analysis

Environmental Impact Analysis is the essential to protecting Haiti's natural resources and human health from mining impacts. Key elements for Haiti should include:

- The EIA process should ensure that communities, NGOs, and the public have adequate notification, time, and access to supporting information necessary for effective public participation in the EIA process. Further, the company proposing mining in Haiti should provide financial support to impacted communities pay for community technical assistance and expertise.
- Companies should collect adequate baseline data before and during the EIA process.
- Environmental costs, including those associated with regulatory oversight, reclamation, closure, and post-closure monitoring and maintenance should be included in the environmental impact assessment.
- Environmental assessment should include worst-case scenarios and analyses of off-site impacts. This is particularly important given Haiti's hurricane and earthquake history. Companies should work with potentially affected communities to identify potential worst-case emergency scenarios and to develop appropriate response strategies. Because emergency services, including electricity, may be limited in some areas mining companies should ensure that their emergency response capacity is fully contained on-site. This should include emergency services, monitoring backup, and hurricane-proof

¹² A good example of mining law and regulations, including exploration, is available from the US state of Montana. Its Hard Rock Mining Law is available at: http://leg.mt.gov/bills/mca_toc/82_4_3.htm. Its regulations under this law are available at: <http://deq.mt.gov/dir/legal/Chapters/CH24-01.pdf>.

and earthquake-proof electrical generation for necessary processes, such as environmental treatment, groundwater pumping, and mill and other chemical procedures.

Water Contamination and Water Use

Water contamination and water use are both critical for Haiti's people and environment. Mining company and government reports about contamination to surface and ground water should be available to the public, including background and "raw" data. Further, water use (withdrawal) from surface and ground sources should be regularly reported to the public and government.

Moreover, water use by mines should be consistent with non-mining goals and uses to ensure that mining does not unfairly compete for water with other uses, such as agriculture and domestic/municipal consumption.

All mine planning and permitting should include minimizing water use as a stated goal. Mine dewatering should be minimized if not prohibited. A qualified, independent professional should certify that neither water quality treatment nor groundwater pumping will be necessary in perpetuity (or beyond active mining dates) to meet surface and ground water quality standards.

Acid Mine (Rock) Drainage

Acid mine drainage can cause expensive, long-term impacts to Haiti's natural resources. To ensure that AMD is accurately predicted and prevented (to the extent possible), companies should conduct adequate pre-mining and operational mine sampling and analysis for acid-producing minerals. All activities should employ accepted practices and appropriately documented site-specific professional judgment. Sampling and analysis should be conducted in accordance with the best available practices and techniques and results should be available to the public.

Air

As an island nation, Haiti is no less susceptible to air quality impacts than other countries. Therefore, companies should model/predict and monitor and publicly report airborne hazardous emissions. These are particularly important regarding mercury, lead, and greenhouse gases (see below).

Energy Consumption

As an island nation in a tropical/hurricane region, Haiti should pay particular attention to how mining may impact global warming and greenhouse gas emissions. Mining can be a high source or greenhouse gas emissions. Any mining activities in Haiti should therefore include low energy use and greenhouse gas emissions - both of which should be stated mine planning and management goals.

Environmental protection processes that require constant electrical power (such as monitoring, well pumps, treatment facilities, etc.) should include hurricane proof and earthquake proof

backup power to ensure that functions necessary to protect human health and the environment are not interrupted by natural forces.

Noise

Mining can be a very noisy activity. To protect adjacent communities from noise impacts, maximum noise level requirements should be implemented at the mine's project boundary.

Waste Management

- Tailings impoundments and waste rock dumps should be constructed to minimize threats to public and worker safety, and to decrease the costs of long-term maintenance. Impoundments of contaminants should be constructed with full-footprint liners to ensure to prevent seepage and thereby prevent groundwater contamination. All waste facilities should have adequate monitoring and seepage collection systems to detect and collect any contaminants released in the immediate vicinity.
- All waste handling and storage facilities should be designed to tolerate maximum predictable weather and seismic events.
- To prevent or isolate acid mine drainage, net acid-generating material should be segregated and/or isolated in waste facilities.
- The public should have access to permitting and mine planning for hazardous material minimization and disposal and emergency response plans.
- Rivers should not be used for the disposal of mine waste.
- The ocean should not be used for the disposal of mine wastes (neither shallow nor deep).

Cyanide

Cyanide is extremely toxic to humans and can cause significant impacts, including death, to fish and wildlife and the environment. It is used in mining to separate gold from rock. A threshold question for Haiti is whether or not it wants to allow cyanide use in mining.¹³ If Haiti determines to allow cyanide use in mining then mine operators should be required to adopt the Cyanide Management Code,¹⁴ and third-party certification should be utilized to ensure that companies implement safe cyanide management. Beyond Cyanide Management Code requirements, Haiti should ensure that:

- All cyanide discharged into the environment is neutralized prior to discharge (cyanide destruct process).

¹³ Most countries and states regulate and/or limit cyanide use. Some jurisdictions prohibit cyanide use in mining, recognizing that cyanide is especially toxic and that alternatives are available. Such limitations may increase the cost of mining to the mining company but in those jurisdictions it is considered an acceptable cost of doing business.

¹⁴ The "International Cyanide Management Code For the Manufacture, Transport, and Use of Cyanide In the Production of Gold" (Code) was developed by a multi-stakeholder Steering Committee under the guidance of the United Nations Environmental Program (UNEP) and the then-International Council on Metals and the Environment (ICME). <http://www.cyanidecode.org/>.

The Cyanide Management Code is specific to gold mining. Haiti should independently decide if it wants to allow cyanide use in gold mines and if it wants to allow cyanide use at non-gold mines.

- All facilities that store or use cyanide are designed to tolerate maximum predictable weather and seismic events.

Reclamation and Rehabilitation

Mining permanently impacts natural resources. Reclamation and rehabilitation are essential to minimize these impacts in their severity and duration. Because Haiti does not yet have any major mining impacts, it has an opportunity to enact and enforce strong reclamation laws and regulations to actually minimize permanent impacts.

- Companies should develop a reclamation plan before operations begin that includes detailed cost estimates. The plan should be periodically revised to update reclamation practices and costs.
- Companies should restore all disturbed areas so that they are consistent with future uses.
- Companies should re-contour and stabilize disturbed areas. This should include soil salvage, storage, and replacement to ensure adequate and maximum growth medium.
- Haitian regulations should establish quantitative standards for re-vegetation (including alpha and beta diversity and aerial and ground coverage, to be included in all reclamation plans). The regulations should define clear mitigation measures that will be implemented if the reclamation standards are not met.
- Where acid-generating materials are exposed in a mine's rock walls, companies should backfill the mine pit if this would minimize the likelihood and environmental impact of acid generation. Backfilling options must include reclamation practices and design to ensure that contaminated or acid-generating materials are not disposed of in a manner that will degrade surface or ground water.
- Where subsidence is considered likely, companies should backfill underground mine workings to prevent negative environmental impacts.
- As a small island nation, Haiti's land is particularly important. Underground workings and pits should be backfilled to minimize the size of waste and tailings disposal facilities.

Financial Guarantees

Financial sureties are essential to protect Haiti from mine company failures.

- Sureties should be reviewed and upgraded on a regular basis (such as every 3 or 5 years) by the permitting agency, and the results of the review should be publicly disclosed.
- Sureties should take into account and specially provide for response to reasonably maximum predictable weather and seismic events to ensure that should a hurricane or earthquake damage the mine or its facilities - and the company does not appropriately respond - the government can declare special bond default and respond appropriately.
- The public should have the right to comment on the adequacy of the reclamation and closure plan, the adequacy of the financial surety, and completion of reclamation activities prior to release of all or part of a financial surety.
- Financial surety instruments should be independently guaranteed, reliable, and readily liquid.
- Financial sureties should be regularly evaluated by independent analysts using accepted accounting methods. Self-bonding or corporate guarantees should not be permitted.

- Financial sureties should not be released until reclamation and closure are complete, all impacts have been mitigated, and cleanup has been shown to be effective for a sufficient (representative) period of time after mine closure.

Post-Closure

Because a mine has completed mining and reclamation does not indicate that the mine is really closed, that reclamation has been successful, or that impacts are all known and/or prevented. Reclamation plans should include plans for post-closure monitoring and maintenance of all mine facilities, including surface and underground mine workings, tailings, and waste disposal facilities. The plan, or a special plan, may be necessary to consider hurricane or seismic impacts to the post-closure mine site. The plan should include a funding mechanism for these elements that is fully funded prior to cessation of mining and departure of the company. These activities should also be included in the financial surety calculations.

Monitoring and Oversight

This is one of Haiti's most critical elements because it is highly unlikely that the Haitian government currently has sufficient regulatory capacity to fully monitor and oversee active mines. Prior to permitting any mine the Haitian government and people must ensure that the government itself has the technical, logistical, financial, and other resources necessary to permit, monitor, and oversee mining in Haiti.

When problems do occur:

- The Haitian regulatory authorities should quickly respond both on-site and administratively.
- If permit violations occur, companies should commit to rapidly implementing corrections in order to maintain clean surface and groundwater.
- The environmental performance of mines and the effectiveness of the Haitian regulatory agencies should be addressed in an independent environmental audit. These audits should be conducted on a regular basis and the results should be made publicly available.
- Communities should have the right to independent monitoring and oversight of the environmental performance of a mine. This should include access to raw data, environmental reports, and government inspection and other reports.¹⁵

Local Communities and Free, Prior, and Informed Consent

Free, Prior, and Informed Consent (FPIC) is increasingly considered by mining companies, governments and international financial institutions such as the World Bank. As it begins to consider mining, Haiti should require companies obtain the free, prior, and informed consent of

¹⁵ For example, in the United States one of the easiest routes for public access to data is thru the government's files. Mines generally must provide data to the regulating government agencies and the public generally has access to the government's files.

local communities before exploration begins and prior to each subsequent phase of mining and post-mining operations.¹⁶

Participation in Decision Making/Consultation

The most efficient and effective mining regulations include public participation in all phases of mining permitting and operations. Haiti should ensure that the public has the right to participate in mining decisions.

- Companies should negotiate with affected indigenous peoples and community men and women before exploration. Such negotiations should continue throughout the life of the mine.
- Companies should conduct consultations that are culturally appropriate, using mechanisms and institutions that are recognized by the affected indigenous peoples and community women and men in the area in which they wish to operate.
- Indigenous peoples and community women and men should be provided with sufficient resources to hire their own technical experts to evaluate a project in order to decide whether, and how, they would like it to proceed.
- Companies should not try to extract a community decision in support of mining (or encourage governments to do so for them) prior to the FPIC process as this may divide communities and create dissent.

Access to Information/Disclosure

A critical measure of Haiti's commitment to public participation is ensuring that people and communities are guaranteed full disclosure and full access to pertinent mining information. This includes company and government reports but access to the underlying data and information upon which the company and government make decisions.

- The company and government should provide full disclosure of pertinent information regarding a mining project to both women and men, as well as to marginal groups within potentially affected communities, in culturally appropriate forms and in locally accepted languages, as well as in English.
- The company should provide accurate information regarding employment opportunities for local people at the mine project, especially for women, indigenous peoples, and marginal groups in the community, as well as information regarding positive and negative economic impacts on non-employed members of the community, and "just transition" arrangements for employees and the community post-closure. Employment information should include skill-levels required for different types of jobs and how the company will ensure that Haitians are given the opportunity to train for these positions.

¹⁶ Companies should negotiate with affected indigenous peoples (community men and women) before exploration and continue those discussions throughout the life of the mine. Consultations must be culturally appropriate and employ mechanisms and institutions that are recognized by the affected indigenous peoples. Where necessary, the mining company should provide sufficient resources for community evaluation - and companies should not try to influence/extract a community decision in support of mining. The consultation should be documented and community discussions and resolutions recorded in writing to ensure that a valid, complete record of the process is available.

- If requested by the community, companies should facilitate site visits to other mines they operate. Communities should be allowed to choose the sites they wish to visit, and such visits should be designed to allow communities to fully explore the company's operations, including the opportunity to speak freely with other community members, as well as with critics, if any, of the mining company.

Consent-Benefit and Compensation Agreements

All agreements and commitments regarding mining should be in writing. These include, but are not limited to, agreements between the mining company and the Haitian government, between the Haitian government and its people, and between the mining company and the people.

- Companies should enter into binding contracts with communities that specify the terms under which a particular phase of a mining project may proceed. Such agreements should be mutually agreed upon and enforceable through the Haitian national court system or through mutually acceptable arbitration procedures.
- Indigenous peoples and community women and men have the right to deny consent to a project if the project changes substantially or if the company does not honor its previous or ongoing binding agreement with the community.
- If a community has withheld consent for a mining project, no further requests for consultation by that company or any other should be made within a five-year period unless the community first indicates otherwise.

Recognizing Women's Rights and Addressing Gender-Related Risks

Throughout the world women tend to have less opportunity and economic autonomy than men. Mining in Haiti may benefit women but it requires the Haitian government to develop and implement regulations that seek to ensure mining benefits flow to both men and women.

- Haitian regulations should ensure that mining companies conduct and consider Gender Impact Assessments in conjunction with Environmental, Health, and Social Impact Assessments before mining starts.
- Haitian regulations should require that companies develop, implement, and enforce a code of conduct for employees that covers responsible use of alcohol, relations with local women, increased risk for sexually transmitted diseases and HIV/AIDS, and gender sensitivity training in the workplace and in the community. Gender Code of Conduct enforcement should be a matter of permit enforcement.
- Haitian regulations should require that mining companies comply with international labor standards that safeguard women with equal pay for work of equal value; safe and healthy working environments; and freedom from discrimination, violence, and sexual harassment.
- Through the Haitian government, mining companies should encourage and provide employment training opportunities for women in the formal mining sector in all areas of work, including underground mining and blasting, not just in "traditional" clerical positions. Companies should also provide training and jobs for women in social and environmental impact monitoring.

- The Haitian government should develop the appropriate capacity, allocate sufficient resources, and foster the political will necessary to develop, implement, and enforce successful policies and legislation that reflect human rights and labor standards and address all aspects of relations between mining companies and local community women and women mine workers.

Labor Rights and Worker-Related Risks

To ensure that Haiti's workers have appropriate rights and protections, Haiti should ensure that its mining and other relevant laws and regulations ensure protecting workers and worker rights. In a depressed economy there is a tendency for the government to seek jobs at any cost. However the costs to workers and ultimately the country as a whole are best served by worker-protection regulations and government enforcement.

Topics for Haitian regulation include, but are not limited to:

- Employee rights to join a union and the right of their employees to bargain collectively.
- Mining companies should provide job training to local community members so that they can employ a maximum percentage of their labor force locally and also employ local and Haitian citizens in the highest paying jobs, which tend to require specialized skills.
- Government regulation should ensure equal pay for equal work, as well as equal employment opportunities and protections for workers of any race, ethnicity, religion, caste, sexual orientation or political opinion.
- Because mining development tends to expand HIV/AIDS the Haitian government should require mining companies to develop awareness training, protective policies, medical services, and other services necessary to limit HIV/AIDS infection and maximize treatment.

Resettlement/Relocation and Compensation

Mining often displaces individuals and communities. To ensure that such displacement is reasonable and equitable, Haitian regulations should ensure that mine-related resettlement or relocation is transparent, informed, consensual, and based on written, binding agreements between the government, the company, and members of the public.

Haitian regulations should specially ensure that:

- Absence of legal title should not constitute a barrier to compensation through the resettlement process.
- Resettled individuals should be better off in their new situation than they were before resettlement.
- No displacement should take place until all likely risks and outcomes have been independently assessed for men and for women, a binding agreement is in place, compensation has been provided, alternate land has been allocated, people have had a chance to start rebuilding in the new location and policies and facilities are in place that allow resettled people to preserve or increase their standard of living. In addition, resettled individuals should be able to access an independent complaint and dispute resolution mechanism.

- Performance bonds or resettlement insurance should be provided in case these efforts do not provide better livelihoods in the timeframe originally agreed upon.
- All payments and expenses related to resettlement and compensation should be publicly disclosed to ensure accountability and transparency and to counter charges of corruption or misuse of funds.

Security and Human Rights

Haitian laws and regulations should prohibit the government or mining companies from operating in conflict zones, use government or private military force or excessive security to maintain mining operations or address conflicts between the company and community. Haitian law should recognize major international human rights agreements, international humanitarian law, and refugee law.

Reporting

Haitian regulations should require that companies report their progress toward achieving concrete environmental and social goals through specific and measurable indicators that can be independently verified. Such information should be disaggregated at a project or site-specific level.

Financial institutions should report the environmental and social risks associated with their lending in the mining sector.

Companies should report money paid to political parties.

Accountability

Haitian law should ensure that independent dispute resolution mechanisms are established/available so that communities can count on fair resolution of concerns they may have with mining companies.

Transparency

Haitian law should ensure that both the government and company are required to publicly report payments made to central governments, state or regional governments, and local government and authorities, and these payments should be compared to revenues governments receive, as well as to government budgets.

VI. Infrastructure and Infrastructure Impacts

Infrastructure is a significant and unique area of “impacts” to consider. In addition to the actual mine facilities required for mining, mines require significant related resources, often grouped together under the name “infrastructure.” These are the roads, power lines, railroad lines,

distribution ports, worker and community housing, and other necessary mine and mine-related facilities.

As part of its mining analysis, Haitians should consider what infrastructure is available and what infrastructure is needed. Particularly in light of Haiti's 2010 earthquake, the government and people should consider how mining may dominate or monopolize both infrastructure development and infrastructure use. The analysis includes environmental, social, health, economic, and other considerations.

Because infrastructure is comparatively limited in some parts of Haiti, high minerals prices may pose particular developmental pressures on remote or less-developed regions. Moreover, there are economic and social considerations about whether it is appropriate to develop infrastructure for mining when many people in both urban and rural areas do not have certain infrastructure services that were impacted by the 2010 earthquake.

The existence of infrastructure related to one mine tends to facilitate other developments and mines, especially if they are owned by the same company. For example, a mine that requires electricity may provide electrical generating capacity or seek to have the government or other entity extend existing power lines/grid to the mine site. This in turn may promote other exploration and mine development. The mine could also promote more or bigger roads and/or railroad (spur) development or expansion. Increased roads and rail access could lead to increased logging or other resource exploitation. An increased mine worker population will likely lead to increased population pressures, such as housing, shopping, and hunting/fishing/recreation.

Many factors will impact how infrastructure is developed, including economics; public support or opposition; local peoples and communities' capacity, interests, participation, and goals; and the lack of a comprehensive development-growth plan.

VII. Haitian Mineral Survey

There has been discussion in Haiti about pursuing a mineral survey of Haiti's potential resources to help guide mineral development. There may be pros and cons to this approach.

Developing a mineral survey could help the government estimate and understand its potential mining probabilities, geographies, types, and values. This could inform and impact the priority the government expenditures regarding mining activities. Developing a mineral survey will also create some accompanying political pressure to develop the identified mineral resources.

Whether or not mining is likely to yield large-scale or long-term mining prospects may significantly alter how the government acts on the continuum between promoting and prohibiting mining. For example, if mining will yield multiple, major, long-term projects then the government may weight differently the need for a robust regulatory framework or incentives to companies. The government's understanding of its resources may significantly alter how it

engages with and/or negotiates/contracts with the World Bank, mining companies, the public NGOs, and other fiscal and mining interests.

VIII. Developing Haiti's Mining Laws and Regulations

There has been much discussion in Haiti about whether to develop mining and what is needed. As described above, no mining activities should begin before appropriate mining laws and regulations are in place (and the government has the capacity to implement those laws/regulations). The World Bank has provided technical assistance to BME (Mining's office) to develop Haiti's mining laws. This paper does not take a position on the World Bank's role. However, development of such laws and regulations should be in an appropriate timeframe that ensures that Haiti - and not external interests - develops the law and that Haitians have the opportunity to provide meaningful participation and comment on the process and its results.

To be credible the process must be transparent and provide for meaningful public participation at all stages. It should be controlled by a panel of Haitians to ensure that representatives of all appropriate Haitian sectors are engaged - and that it is not unduly swayed by industry or financial institutions that may have incentives and goals that are not Haiti's priorities and interests. There are many international institutions from many countries that engage in mineral extraction. It is recommended that Haiti first rely on its internal resources to ensure that it engages its own people and organizations. It is then recommended that Haiti seek assistance from other nations' regulatory agencies.

For example, the United States' Environmental Protection Agency has decades of experience protecting natural resources and engaging mining companies. Such an agency may be able to provide expertise and experience without bias or ulterior incentive or goals. Because of the risk of conflicts of interest or bias, financial and industrial entities should certainly comment on the development of Haiti's mining laws and regulations but they should not be allowed to control or direct the process.

IX. Royalties and Taxes

If Haiti decides to develop mining it could yield income to the government in the form of royalties and taxes. Before income is earned, it is important for Haiti to ensure that it has appropriate policies to identify and secure monies paid by mining companies to the government. This includes, but is not limited to, appropriate accounting and reporting procedures to ensure that standard accounting practices are employed to account for all related income and expenditures.

Expenditures also require appropriate policies to ensure that monies paid to Haiti are spent under an equitable policy that prioritizes Haiti's needs and benefits all of its peoples. There are examples all over the world where mining payments to government are squandered or lost because the government did not establish a clear policy for how monies will be expended and the

country did not create and enforce clear transparency requirements that allow the public to see and understand what mining money is earned and how that money is expended.

X. Mining Scorecard

To assess Haiti's capacity (readiness) to engage in mining, it has been proposed that a "scorecard" be completed. This scorecard could be easily used to "score" each of the essential items described above to help identify Haiti's strengths and weaknesses. This is the only true measure of "capacity" described above.

It is strongly recommended that Haiti delay permitting mining activities until appropriate scorecard elements meet Haitian governmental goals.