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Undermining Communities and the Environment:

A Review of the International Finance Corporation's Environmental, Health, and Safety Guidelines for Mining

September 2007

Introduction

The International Finance Corporation (IFC), the private sector arm of the World Bank, has recently released a draft set of guidelines for managing the environmental and public health impacts of its controversial large-scale mining projects. The guidelines ("Environmental, Health and Safety Guidelines for Mining" [EHS Guidelines]) are marked by significant gaps and omissions, including the failure to specify the performance levels or quantitative measures necessary to protect local communities and environments impacted by these projects. In some cases the guidelines do not even meet the mining industry's existing "best practice" standards. When it adopted its Policy and Performance Standards on Social and Environmental Sustainability in 2006, the IFC stated that the subsequent EHS Guidelines would provide the details missing from the new policy and performance standards. The draft mining guidelines, however, fail to compensate for the lack of specificity of the Performance Standards, which consist of neither firm standards nor measurable criteria for performance.

The weaknesses of the mining guidelines, which are set out in detail below and include the failure to stipulate appropriate protections to prevent contamination of local water sources by toxic chemicals, ensure proper disposal of mine waste or guarantee prior community consultation on the design of mine closure plans, are matched by IFC's refusal to report meaningfully on whether its mining investments actually reduce poverty. The lack of stringent standards and clear threshold levels regarding mine impacts exemplifies IFC's reluctance to meaningfully capture and assess the *net* effects of its mining investments on communities and the environment. We urge IFC to rethink its support for this sector and commit immediately to (1) redrafting the mining sector guidelines with the involvement of independent experts and civil society; and (2) reporting on the positive *and negative* impacts of each of its mining investments on a project-specific basis.

IFC's investments in the mining sector have become increasingly controversial in recent years due to serious environmental problems and strong community opposition at several IFC-financed mines. In 2004, at the giant Yanacocha project in northern Peru, concerns about the lack of local benefits and impacts on local water sources led to massive community protests against the mine's planned expansion. In 2005, an internal IFC review found that the corporation had not adequately complied with its social and environmental impact policies prior to approval of the Marlin project in Guatemala, which subsequently became a focal point of protests over community concerns about water quality impacts. In 2006, a review by the US Environmental

Protection Agency found serious deficiencies in plans for controlling acid mine drainage at an IFC-financed mine in Ghana. The same mine has also sparked concerns about the lack of any long-term solution to the land and livelihood losses suffered by the more than 10,000 affected people in the surrounding farming-dependent communities.

By destroying local land and water resources, displacing communities and generating staggering amounts of toxic waste, large-scale mining can have profound and permanent effects on local communities and environments. Among the most serious and long-lasting impacts is acid mine drainage, an irreversible process by which mined rock begins to generate sulfuric acid that destroys ground and surface water sources. Such contamination can last thousands of years. It is therefore essential to prevent its occurrence and set aside guaranteed funds to treat the problem if it does appear. As the de facto global standards for the mining industry, IFC's mining guidelines, combined with its Policy and Performance Standards on Social and Environmental Sustainability, should establish strong requirements for dealing with these kinds of issues. Unfortunately, they fail to do so and leave much of the responsibility in these areas to the discretion of the IFC's mining industry clients.

The environmental impacts of mining are compounded by the lack of any real long-term sustainable development benefits to impacted communities in the majority of cases, and by mining's poor overall track record as a driver of development. To date, the IFC has refused to actually measure the *net* impacts of its individual projects, preferring instead to release aggregated data from across the sector. Such data is not useful for assessing whether IFC's mining projects are fulfilling its mission to "reduce poverty and improve people's lives." (See the 2006 report "Tarnished Gold: Mining and the Unmet Promise of Development" for more information on this issue: www.bicusa.org/en/Article.2956.aspx)

The lack of strong environmental management guidelines and measures for tracking development impact within IFC policies needs to been seen in light of IFC's stated intention to *increase* investment in the mining sector in countries like Democratic Republic of Congo, Guinea, Vietnam and Indonesia that face significant governance challenges.[1] Such countries often lack adequate regulations or capacity to ensure that mines do not cause undue damage to the environment and local communities. This creates a troubling scenario in which the social and environmental problems that have characterized IFC's past mining investments in countries like Guatemala, Peru and Ghana could increase dramatically. Thus the need for concerted action by IFC to address these issues is all the more urgent.

Presented below is a detailed analysis of IFC's draft mining sector guidelines. The comments have been prepared by a coalition of nongovernmental organizations with extensive experience monitoring the mining sector. The coalition has relied in particular on the expertise of the Center for Science in Public Participation, an organization comprised of technical experts that advises local communities around the world impacted by mining. It is our hope that the IFC will accept the comments contained here, and commit to redrafting the guidelines and to establishing – and publishing – project-level development impact indicators.

[1] "IFC to put more into African Mines," *Business Report*, March 14, 2007; "IFC to invest in Asia mining projects," *Dow Jones/Mindoro Resources*, April 5, 2007.

GENERAL COMMENTS

The draft IFC mining guidelines, like their predecessors[2], do not contain sufficient quantitative standards and requirements for IFC project approval. This means that during application almost everything is left to the judgment and discretion of the IFC reviewer of the project. This lack of required quantitative standards and the great discretion given to a very limited number of IFC reviewers has not served IFC or its client countries well in the past. Ultimately, this level of discretion is not protective of communities, countries, or companies.

The guidelines appear to be written more as an instruction manual for IFC reviewers, to be used to partially inform their review of mining projects under consideration for IFC financing than as a standard-setting document for the mining industry. However, when published by IFC, these guidelines will be considered by many to be de facto best practices for mining.

The IFC mining guidelines touch upon many of the topics of environmental concern in the development, operation and closure of a mine. However, the relatively brief document (28 pages) provides limited discussion and guidance on these issues. In contrast, an environmental assessment document for a typical mine can easily exceed 1000 pages, and is frequently accompanied by an even greater volume of supporting technical reports. As this page-comparison implies, much of the detail of complying with the IFC mining guidelines is left to the discretion of the professionals with the responsibility of reviewing the specific mine proposal. In many places, the evaluator is guided to "consider" important standards or targets. The language needs to more clearly establish these as firm requirements rather than options.

The present draft mining guidelines are very similar to the previous IFC 2004 Draft Guidelines for Precious Metal Mining, the World Bank 1995 Open Pit and Underground Mining Guidelines, and the 1998 Base Metal and Iron Ore Mining Guidelines. While, the IFC guidelines have changed very little, improved mining practices that will better protect human health and the environment are now widely recognized and available. As a global lender, the IFC should reflect these changes and improvements in its guidelines.

The introduction to the guidelines state:

> "The EHS Guidelines contain the performance levels and measures that are generally considered to be achievable in new facilities by existing technology at reasonable costs. Application of the EHS Guidelines to existing facilities may involve the establishment of site-specific targets, with an appropriate timetable for achieving them." (p. 1).

However, the draft guidelines fail to provide any universal performance levels or measures. Rather it provides sometimes limited items that should be "considered," in such a manner that there is little guidance or goals suggested. It would be completely possible and reasonable under the guidelines for a mine to decimate air, water, and soil and still be technically in conformity with the guidelines. By failing to require any standards or criteria - or even clearly recommend against particular consequences of mining, the guidelines fail to indicate the policies or procedures by which mine operators and communities impacted by mining can assess a mine or its impacts. Unless these omissions are rectified, the guidelines will not provide adequate

[2] Predecessors include: IFC 2004 Draft Guidelines for Precious Metals Mining, the World Bank 1995 Open Pit and Underground Mining Guidelines, and the 1998 Base Metal and Iron Ore Mining Guidelines.

guidance to ensure that new mines meet accepted criteria for best practices in mine design, operation, and closure.

It is urged that the guidelines be redrafted to specifically identify actual minimum performance levels, not just performance components that should be considered. Throughout, the guidelines state that "Recommended ... strategies include …" but do not advance these as clear, minimum standards that can be implemented, verified and monitored. These recommended strategies should be considered minimum required protections from which there should not be exceptions.

The guidelines should also identify practices that will not be supported by the IFC. The discussion on riverine tailings disposal goes part of the way to doing this, but then stops in terms of giving any guidance on what decision should be made if a project proposes a riverine tailings disposal system. The guidelines must include more specific guidance on issues such as tailings disposal, among others.

Not enough consideration is given to the impacts of climate change on predictive modeling used to determine potential impacts of mining on the natural environment. It is mentioned briefly with regard to determining potential storm events, but it should also be incorporated into any management plans for mitigating biodiversity impacts.

The IFC's Performance Standards themselves do not contain any minimum performance criteria or thresholds; these details are left to the EHS Guidelines. However, as the IFC's draft guidelines on mining reveal, the guidelines themselves lack thresholds or performance criteria. To make up for the general nature of the Performance Standards, the guidelines should have provided specific guidance and interpretation of IFC's environment policy, as it pertains to the mining industry. The lack of specificity in the current draft mining guidelines must be urgently redressed.

SPECIFIC COMMENTS

I. Water Conservation and Quality

The guidelines state that:

> "Management of water quality and its use, in and around mine sites, can be a significant issue. Potential contamination of water sources may occur early in the mine cycle during the exploration stage and many factors including **indirect impacts** (e.g. in-migration) can result..." (p. 2) [Emphasis added].

Indirect impacts are things that are not caused by or tied to the mine. In-migration is something directly caused by the mine or the mine's failure to plan/prepare an adequate water management plan.

This section does not take into account natural water-flow regimes and how the mine may impact these regimes beyond the structural changes that the operation may directly put in place. In all cases, natural water flow and flow regimes should be maintained throughout the area impacted by the mine.

The Guidelines on Land Use and Biodiversity includes the following "recommended strategy": "Consultation with key stakeholders (e.g. government, civil society, and potentially affected

communities) to understand any conflicting land use demands and the communities dependency on natural resources and/or conservation requirements that may exist in the area." Given how important water resources can be to community health and livelihoods, a similar recommendation should be included in the section on water conservation and quality (e.g. through the insertion of the following phrase):

> "Consultation with key stakeholders (e.g. government, civil society, and potentially affected communities) to understand any *conflicting water use demands and the communities' dependency on water resources and/or conservation requirements* that may exist in the area…"

Water Conservation

The guidelines state that:

> "Mines use large quantities of water, mostly in processing plants and related activities, but also in dust suppression among other uses. Water is lost through evaporation in the final product but the highest losses are usually into the tailings stream." (p. 2)

The highest losses will vary depending on the mine plan but also the post-mine land use. If there is a pit lake, or pit water discharges, these could have a greater loss of water over time than the tailings stream, which generally lasts only during the mine life. The guidelines should not generalize to water loss, but instead should require adequate water quantity monitoring and planning to ensure that surface and ground water are protected. Protection should include pre-mine uses, but also the level/amount of pre-mine uses. Similarly, uses should be protected during mine operations and after mine closure/reclamation.

Water Quality

In this section the guidelines state:

> "In addition, discharges to surface water should not result in contaminant concentrations in excess of local ambient water quality criteria outside a scientifically established mixing zone." (p.2)

Discharges to surface water should not be allowed to cause:

- Degradation below ambient water quality standards;
- Reduction in pre-mine biologic quality, uses, or activities.

Mixing zones for contaminants that cause acute aquatic impacts or that pose significant carcinogenic risk to humans should not be permitted. A mixing zone is an improper means of using the natural environment as a mine's water treatment system. Mixing zones should only be allowed under limited circumstances when the aquatic uses within the mixing zone will not be significantly impacted.

Discharge information should be made publicly available in a regular and timely fashion.

The guidelines should clearly state that IFC will not support mining in zones or using practices that may result in devastating aquatic impacts if affected by tectonic movements, cyclones, or tsunamis in geographic areas in which such events can occur.

Mine dewatering should be minimized to prevent all undesirable impacts on ground and surface waters, including seeps and springs.

Stormwater

- *Stormwater Diversions Design Event*

Most mines have operating lives longer than 10 years, which would make the probability of exceeding the 10-year 24-hour design event very likely. There should be some clear technical basis for establishing a criterion like the 10-year 24-hour precipitation event as a design standard. While the 10-year 24-hour event is commonly utilized as the storm design event, this is largely because of historical practice rather than the rational basis of an appropriate technical standard. In addition, predicting the magnitude of these events is usually difficult due to lack of adequate precipitation data.

Water quality exceedances related to stormwater events are very common, and are poorly monitored and regulated in most jurisdictions. Many, but not all, of these stormwater water quality problems are related to suspended sediment in the stormwater discharge. Proper design of settling ponds to retain and settle stormwater would minimize this problem. However, stormwater holding ponds are typically under-designed.

This problem could be addressed by requiring that stormwater handling facilities be designed to accommodate the largest event that is likely to be experienced during the life of the mine. For this reason, the minimum design event should be the 25-year/24-hour event (or larger, if it is apparent that the life of the mine will exceed 25 years).

- *Stormwater Discharge Water Quality*

The guideline proposed by the Draft is:

> "Sediment control facilities should be designed and operated for a final Total Suspended Solids (TSS) discharge of 50 mg/l …"

This TSS standard is significantly less stringent than both the USEPA standard of 20 mg/L, and the Canadian Metal Mine Effluent Regulations of 15 mg/L. And, as mentioned above, suspended sediment typically contributes significantly metal contamination in stormwater discharges. The guidelines should require that Total Suspended Solids be limited to 15mg/L or lower.

Acid Mine Drainage and Metals Leaching

The Acid Mine Drainage Section states:

> "Management of PAG, AMD and ML should extend for as long as there is a need to maintain effluent quality to the levels required to protect the local environment, and, if necessary, into the decommissioning, closure, and post-closure phases of the mine." (p.3)

To protect human health and the environment, management of acid materials and leachate should extend as long as there is the possibility that the acidic material itself or any leachate could threaten or impact human health and the environment. The final phrase "and, if necessary, into the decommissioning" suggests that it will be the exception, not the rule, that such management will be necessary after active mining has ended. In reality, most mines with potential or actual

acid drainage/leachate problems must actively manage for acid mine drainage long after closure – in many cases for decades, if not longer. The guidelines should not minimize this threat and should require that management of acid materials and leachate extend at least five years beyond the end of visible contaminated effluent discharge. Acid mine drainage/leachate can be one of the most costly and long-lasting impacts from a mine and should be treated as the serious threat that it is.

Groundwater Resource Protection

- *Leaching*

In this section it is stated that:

> "Adequate liners and sub-drainage systems to collect, recycle, or treat solution, and minimize ground infiltration." (p. 4)

Ground infiltration should be prevented, or the goal should be absolute prevention. There should also be a hierarchy of prevention/protection goals. The priority should be liners and surface collection systems to prevent any infiltration. Where this fails, backup systems should be pre-planned to ensure that collection of "lost" drainage is possible and effective.

- *Solution Mining*

Under Solution Mining the guidelines state that:

> "Proper location and operating practices based on the characteristics of the confining strata, to ensure the movement of leaching solution is minimized beyond the extraction area;" (p. 4)

The guidelines and mine plan should seek to ensure the movement of leaching solution is prevented beyond the extraction area - not simply minimize leaching or other solutions go beyond the extraction area. Monitoring wells should be sufficient to allow them to be used for pumpback or other remedial purposes if off-site solution contamination results. Further, the extraction area should be defined and planned to ensure that residual solutions do not remain or cannot migrate after mining/leaching ends.

Ensuring that "... the movement of leaching solution is minimized..." and that "Sufficient monitoring wells should be installed ..." does not fully address the desired result -- protecting resources off the solution extraction site.

The guidelines should specify that aquifers outside the mining area not be contaminated. After all, groundwater is the resource that is at risk, and that should be protected.

II. Wastes

Waste Rock Dumps

The guidelines discuss topsoil salvage only briefly on page 5, under Waste Rock Dumps. This is inadequate. Topsoil with any formed A, B, and/or C horizons should be salvaged and stored from all sites disturbed by mining. If the material is to be stored for more than one year, then these topsoil storage piles/areas should be revegetated to maintain biologic and physical capacity.

Because of the importance of topsoil materials to revegetation and reclamation success, all available topsoil materials should be salvaged and stored, not just those areas that are convenient and not based on a reclamation goal (such as the mine's proposed reclamation plan) that requires less topsoil than is available for salvage.

There is a high correlation between increased topsoil and increased reclamation success. Mining companies often seek to minimize topsoil salvage because it is an up-front (before mining yields profit) cost. However, it is critical to reclamation and should therefore be protected.

The recommendations in the guidelines for Waste Rock Dumps ignore the possibility or propriety of backfilling waste rock into pits or underground. The guidelines should require backfilling of all mines unless backfilling could lead to greater environmental degradation.

Tailings

- *Tailings Management Strategies*

The Tailings recommendations (p. 5) recommend the "Consideration of zero discharge tailings facilities." Zero-discharge should be the required goal, not merely a consideration. Tailings facilities for any wet tailings disposal, or for dry materials that could become wet, should be designed with:

- natural and synthetic liners that cover the entire footprint of the area to which tailings or tailings solutions will be disposed;
- leak detection systems -- e.g. monitoring wells sufficient to detect leaks; and,
- pumpback and collection systems should be planned so that leaking solutions can be collected and returned to the impoundment.

Structures that will contain tailings that will remain wet, could become wet, or could be thixatropic should be built to withstand a PMF geologic/flood event. The draft guidelines suggests a 100-year event (p.5), which is insufficient for structures that must forever contain environmental and human health contaminants.

In addition to the "Recommended tailings management strategies" listed in the Draft, these should also include:

- use of both top and bottom liners to isolate tailings seepage from groundwater; and,
- establishment of a financial surety to fund long term maintenance and monitoring of tailings dams and waste rock dumps.

- *Riverine and Marine Tailings Disposal*

IFC's position on riverine and ocean disposal of tailings disposal is much improved over that of the previous guidelines. Although the wording against riverine and shallow marine tailings disposal is very strong, it does not outright prohibit these practices. Many mining companies also say they will not use riverine or shallow marine waste disposal, however only a few companies have put this pledge in writing. There is a difference between saying that these practices are "not considered good international practice" and saying that these practices "will not be used."

In addition to tailings, the disposal of all mine waste, including tailings and waste rock, should be banned from rivers and shallow marine areas. Significant damage has been done to coral

reefs by the disposal of waste rock, and significant water contamination can result from dumping waste rock with high metal content into the ocean. The guidelines should specifically forbid riverine and shallow marine tailings and waste rock disposal.

Barring adequate independent research to address the potential environmental and social impacts of deep sea tailings disposal, and given the significant concerns expressed by local communities over the implications of this practice on their livelihoods, the guidelines should also indicate that IFC will not support deep sea tailings disposal unless independent, scientific analysis can confirm minimal environmental and social impacts.

Leach-pad Waste

The guidelines should require that any cyanide use be consistent with the International Cyanide Code. All cyanide should be neutralized, such as with H_2O_2, such that after leaching is complete no residual cyanide remains in the leach pads. All cyanide in any solution should be neutralized before it is sent to a tailings pond or otherwise disposed of (e.g. ground application).

Potentially Acid Generating Material

The guidelines should mandate that Companies conduct adequate pre-mining and operational mine sampling and analysis for acid-producing minerals, based on accepted practices and appropriately documented, site-specific professional judgment. Sampling and analysis should be conducted in accordance with the best available practices and techniques.

Hazardous material minimization, disposal, and emergency response plans should be made publicly available.

The guidelines state:

> "Blending of PAG materials with non-PAG or alkaline materials should be employed to neutralize acid generation." (p. 6)

Blending PAG materials with alkaline materials should not be the only method employed at any mine to protect against acid mine drainage and metals leaching because such treatment is limited chemically, physically, and temporally. The timing of the formation and release of acid may not coincide with the formation and release of alkaline materials. Blending does not guarantee that acidic and basic solids/solutions will actually physically contact each other, which is necessary for neutralization. It is quite possible that the alkaline materials will not yield sufficient and available alkaline releases - such as if they are coated or otherwise made physically or chemically unavailable.

Finally, even if it works as planned, blending does not protect against metals leaching. Arsenic, selenium, antimony, and thallium are common in neutral leachates from mine waste dumps.

III. Land Use and Biodiversity

The emphasis on this section is placed mainly on habitat alteration. While this does comprise a significant potential impact from mining, it is not the only one. More consideration should be given to the possible impact on wildlife (especially related to migratory birds) and the introduction or spreading of non-native invasive species (referencing Performance Standard 6,

which explicitly states that a client will not knowingly introduce new non-native invasive species).

In general, the guidelines focus more on mitigating potential impacts on biodiversity and call on the evaluator to "consider" the most serious negative biodiversity impacts (operations in protected areas and losses of endangered species), with no guidance for how a decision should be made after these impacts have been "considered."

Similarly, the guidelines recommend that the client/evaluator carry out "consultation with key stakeholders," to "understand any conflicting land use demands and the communities dependency on natural resources," but do not provide any guidance or requirements regarding what should be done in the event that there are conflicting land use demands and/or that a mine will (irreversibly or temporarily) alter the landscape/natural resources and affect communities' ability to use the land/natural resources for residence, to support their livelihood or to derive other benefits. Recommending 'appropriate mitigation measures,' including compensation of direct users, is not sufficiently specific to ensure adequate community protection against adverse impacts of mines on land use.

"Whether any critical natural habitats will be adversely impacted or endangered species reduced" (Page 8, first bullet point in column 1) should be replaced with:

> *Whether any critical natural habitats or species at risk or of conservation concern will be adversely impacted.*

Management strategies for critical natural habitats and species at risk that are adversely impacted should be outlined in the Biodiversity Action Plan required by PS6.

On biodiversity offset projects (third bullet point on page 8): These should only be considered after all efforts to first avoid and then minimize biodiversity impacts have been taken into account. "Biodiversity offsets" are particularly inadequate if they are not areas of comparable conservation importance and not likely to be destroyed on the short-term independently of mine activities. Offset projects should be *in addition to* efforts to avoid and minimize negative biodiversity and ecosystem impacts, and should only be considered after a stakeholder engagement process has been conducted to assess the suitability of the offset project and agreement on the "unavoidable impact" has been reached. In addition, funding of conservation science projects should not be used to justify or facilitate mining in inappropriate areas or using inappropriate methods.

Terrestrial Habitat Alteration

The guidelines consider the possibility of endangered species, but fail to ensure that mining activities do not cause local extinctions or contribute to regional extinction of any species.

The guidelines should specifically require the assessment and monitoring of species - including cumulative impacts from regional sources - to ensure that mining does not cause significant negative impacts to biodiversity.

The guidelines do not establish a hierarchy of "avoid-minimize-mitigate" of negative impacts. The first paragraph of this section should read:

> *Clients should seek to avoid temporary and permanent terrestrial habitat alteration. After considering alternatives to terrestrial habitat alteration, the client should develop a management plan that minimizes and mitigates unavoidable negative impacts. The client's consideration of alternatives to terrestrial habitat alternation should be reviewed by qualified international experts and, where relevant, NGOs with specific expertise in the habitat impacted*.

The above should be added at the beginning of the aquatic and marine habitat alteration sections as well.

The recommended strategies are inadequate for minimizing mining impacts on biodiversity. As stated previously, strategies ought to be requirements for IFC approval, not recommendations. "Consideration of … whether any critical natural habitats will be adversely impacted or endangered species reduced" implies assessment only.

Add bullet points on page 8, column 2:

> *Siting facilities or mining operations within existing or proposed protected areas (IUCN I-VI) is not an acceptable practice and should not be supported by the IFC.*

In addition, facilities or mining operations that are near such protected areas and have the potential to negatively impact those areas should not be supported by the IFC.

In areas of potential high conservation value such as the Global 200 ecoregions (WWF) or biodiversity hotspots (Conservation International), additional zones that are off-limits to mining should be established according to a participatory process that involves local communities and national and international conservation experts. The High Conservation Value network provides an example of this process. This identification of zones that are off-limits to mining ought to occur before mining activities with IFC support take place in order to ensure that conservation values are protected. Mining activities in or near mining exclusion zones established by this process should not be supported by the IFC.

Regarding the following text: "which may include baseline inventories, evaluations, and eventual rescue of species." (page 8, column 2, second to last bullet point), it is unclear what is meant by "eventual rescue of species"– does this refer to ex-situ conservation? Baseline inventories of habitat and species should be required as part of developing a Biodiversity Action Plan that includes adaptive management strategies for addressing biodiversity issues related to development and closure of the site.

Mining operations should avoid introduction of invasive and non-native species.

Aquatic Habitat Alteration

Although the discussion of Marine Habitat protection (p 10) includes hiring experts and complying with international treaties, the guidelines should specifically require protecting existing marine habitat and maintaining marine biologic and economic integrity.

Mining in any marine protected areas (IUCN I-VI) is not considered environmentally or socially responsible practice and should not be supported by the IFC. Operations that may adversely

impact marine biodiversity must address how ecosystem services provided by marine biodiversity, including critical species, aquatic habitats, and food for local communities will be maintained (as per the Biodiversity Action Plan).

IV. Air Quality

In the 2004 Draft mining guidelines, air quality limits specific to mining were listed in a table. These emission guidelines were much more specific to mining than the general air quality guidelines now listed in IFC's General EHS Guidelines for Air Emissions and Ambient Air Quality (30Apr07).

IFC should retain the draft Ambient (Table 6, IFC, July 2004) and Emission Air Quality guidelines (Table 3, IFC, July 2004) from the 2004 Draft.

Companies should monitor and publicly report and minimize airborne hazardous emissions (particularly mercury, lead, and greenhouse gases). Reducing energy use and greenhouse gas emissions should be a stated and implemented (with conservation, solar and wind power) mine-management goal

Dust

In addition to the loading suggestions, the guidelines should require that vehicular transport, such as by trucks or barges, require that loads be topped with covers sufficient to prevent materials from spreading during transport.

V. Energy

The guidelines contatin few linkages or direct references to the requirement in Performance Standard 3 for IFC clients to implement energy conservation measures and to promote recycling alternatives, either at the plant (operations) level or at the business end of the client's operations. The mining industry uses a tremendous amount of energy (especially the aluminum sector) and new IFC projects should support the latest technologies for lower energy use in smelters and other mining operations. The guidelines' recommendations regarding the minimization of energy use and energy efficiency at mines should be strengthened.

VI. Geotechnical Safety

In the Draft it is stated:

> "Planning, designing, and operating all structures such as open pits, waste dumps, tailing dams, containment facilities and underground excavations such that geotechnical risks are appropriately managed throughout the entire mine cycle. … During operations, stability of active works should be sufficient for climatic events with a return period of 1:10 years." (p. 14)

Many mines, especially base metal mines, have operating lives longer than 10 years. Using design events with a frequency of occurrence in 1:10 years virtually assures the design standard will be exceeded during the operational life of the mine.

Sanctioning the design of facilities with a significant likelihood of failure does not facilitate responsible development or adequately protect safety concerns.

VII. Tailings Dam Safety

In the Draft it is stated:

> "Dams, wet tailing impoundments, and other major wet containment facilities represent a potential risk depending on their location with regards to human settlements and other community resources." (p. 17)

More guidance needs to be provided in this section as to the design standards that are necessary to protect human health and the environment. The statement above only asserts the obvious; it does not provide specific guidance to a mine reviewer on what standards are to be applied to tailings dam and waste rock dump design to protect non-mine resources, especially the environment. Protecting human health is obviously paramount, but inadequately designed and/or constructed waste facilities can lead to devastating long term impacts on the productivity of the land, and lead to huge costs to governments and communities, even if they do not directly impact human settlements.

Specific Tailings Dam Risk Management Strategies should also recognize that:

- if a tailings dam does not have a spillway, then the dam should be able to store the Probable Maximum Flood, plus any ice or snowmelt loads;
- construction of downstream and centerline-type dams should be encouraged and upstream dam construction methods only used in circumstances where the underlying foundation material (usually tailings) can be clearly demonstrated to be unsaturated; and
- the Maximum Credible Earthquake should be taken into consideration for mine closure. The MCE should be used as the Design Basis Event if significant risk to human health or the environment would result from a dam failure.

VIII. Land Subsidence

The guidelines state:

> "Considering alternate uses for void caverns following extraction (e.g. storage for natural gas or other products, **such as industrial wastes** or compressed air)..." (p. 18) [emphasis added].

If subsidence is a concern at a site, it seems inconsistent to insert potentially contaminating wastes into the workings/void that would be crushed. This could cause the wastes to be released into the ground where it would contaminate ground and/or surface water via mine workings/porous spaces. Any material that is inserted into the ground, especially areas that could subside, should be inert or otherwise non-contaminating. Further, the material should be isolated from groundwater.

It is suggested that an additional bullet point for addition to this section to address groundwater contamination concerns related to subsidence:

- Potential degradation to ground and surface waters from mine drainage due to infiltration from surface subsidence.

IX. Emergency Preparedness and Response

The guidance provided for emergency preparedness and response is:

> "Emergency preparedness and response arrangements should be commensurate to the potential consistent with the recommendations of the UNEP APPEL for Mining: Awareness and Preparedness for Emergencies at the Local Level process." (p. 18)

Emergency preparedness planning is still an area where many mines do not adequately meet the needs for dealing with emergency situations and for communicating with surrounding communities. The APELL document was developed to guide preparations for these situations, and compliance with APELL should be considered a minimum requirement.

The IFC guidelines should specifically state that an Emergency Response Plan be prepared, in accordance with the guidance provided by APELL. This is more direct than to say that emergency preparedness "... should be consistent with the recommendations of UNEP APELL for Mining..."

X. Mine Closure and Post-Closure

The guidelines state:

> "Mine sponsors should prepare a Mine Reclamation and Closure Plan (MRCP) in draft form **prior to the start of production..."** (p. 18) [emphasis added].

Reclamation and closure plan(s) should be available to the public for comment before mine permitting. This is necessary to ensure that post-mine land uses and reclamation objectives and the plan's reasonableness are considered before the mine is permitted or progresses. Reclamation and closure plan(s) are the only means available for the public to assess that the mining company will not extract the valuable resources and leave the damage and costs for the public. There are countless sites around the globe, including in countries with developed mining regulations, where a mine had an inadequate reclamation and closure plan - and inadequate bond to finance the reclamation and closure activities - and left the public responsible for extensive and ongoing reclamation liabilities and costs.

Later in the same section the guidelines state:

> "The MRCP should address beneficial future land use (seeking synergies with public plans and other industrial or commercial uses), be previously approved **by the relevant national authorities and be the result of consultation and dialogue with local communities and their government representatives**" (p. 18) [emphasis added].

Consultation and dialogue must provide meaningful opportunities for informed input by affected communities into the MRCP must be meaningful, and must precede approval of the plan by relevant authorities.

It is recommended in the Draft that:

> "Closure and post closure plans should include appropriate aftercare and continued monitoring of the site, pollutant emissions, and related potential impacts thereof **for a minimum period of three years** after closure, or longer if site conditions warrant it.

> The timing for finalization of the MRCP is site specific and depends on many factors, such as potential mine life, however all sites need to engage in some form of progressive restoration during operations." (p. 19) [emphasis added].

Three years is too-short a period to determine: (1) if vegetation will be successful in reestablishing at the site; (2) if ARD or ML might develop; or, (3) if unforeseen conditions develop to threaten human health and the environment. The best example of this is that AMD may take ten years or more to begin causing a problem - or even become measurable. There are countless examples around the globe where acid mine drainage caused unforeseen problems years later than expected.

The minimum duration of monitoring should be based, at a minimum, on these considerations. If tailings dams or waste rock piles are a feature of the mine, then financial provisions for long term monitoring and maintenance of these facilities must be incorporated.

Ten years would be a more appropriate and realistic minimum period for post closure monitoring.

Reclamation

The guidelines should require that "Companies must develop a reclamation plan before operations begin that includes detailed cost estimates. The plan should be periodically revised to update reclamation practices and costs. 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 should include a funding mechanism for these elements.

Companies should restore all disturbed areas so that they are consistent with future uses.

Quantitative standards should be established for re-vegetation in the reclamation plan—and clear mitigation measures should be defined, to be implemented if these standards are not met.

Where subsidence is considered likely, companies should backfill underground mine workings to prevent negative environmental impacts.

Underground workings and pits should be backfilled to minimize the size of waste and tailings disposal facilities.

Financial sureties should be reviewed and upgraded on a regular basis by the permitting agency, and the results of the review should be publicly disclosed.
The public should have the right to comment on and reject the adequacy of the reclamation and closure plan, the adequacy of the financial surety, and completion of reclamation activities prior to release of the financial surety.

Financial surety instruments should be independently guaranteed, reliable, and readily liquid. 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 period of time after mine closure.

Re-vegetation should be clearly mandated by the guidelines.

Financial Feasibility

To cover the lasting environmental impacts of the exploration phase, companies should provide adequate financial guarantees to pay for prompt cleanup, reclamation, and long-term monitoring and maintenance.

When discussing Financial Feasibility, the guidelines state that:

> "Funding should be by a cash accrual system of some form (e.g. escrow account, sinking fund, bond). Accounting (e.g. paper) accrual systems are not generally sufficient unless backed by an acceptable guarantee." (p.19)

The amount bonded at any time should be the cost of reclamation at that time plus the indirect costs that would be incurred by a non-mine entity (e.g. government regulatory agency) to oversee completion of the reclamation.

CSP2 has conducted a great deal of research on mine reclamation bonding, and the following table summarizes the indirect costs that should be taken into consideration in establishing a mine bond:

INDIRECT COST GUIDELINES

CSP2* **Recommended** ***Percentage of contract costs***		**USFS**** **Recommended** ***Percentage of contract costs***			
			Minimum	Maximum	
Contingency	10%	Contingencies:			
			6%	20%	- Scope Contingency
			10%	20%	- Bid Contingency
Mobilization / Demobilization	10%	Mobilization and Demobilization	0%	10%	
Engineering Redesign	3%	Engineering Redesign	2%	10%	
Engineering, Procurement, Construction Management	5%	--			
Contractor Overhead	15%	Contractor's Costs:			
			3%	3%	- Performance & Payment Bonds:
			0%	5%	- Estimated Sales Tax:
Contractor Profit	10%		15%	30%	- Profit & Overhead:
Agency Administration	10%	Agency Project Management	2%	7%	
Inflation	3% /yr	Inflation	0%	3%	
	======		======	======	

TOTAL	66%	38%	108%

References:
* Hardrock Reclamation Bonding Practices in the Western United States, James R. Kuipers, PE, Center for Science in Public Participation, February 2000.
** Training Guide for Reclamation Bond Estimation and Administration, For Mineral Plans of Operation Authorized and Administered Under 36 CFR 228A, USDA Forest Service, Minerals and Geology Management, April 2004.

The financial surety (bond) should be based on the amount of disturbance caused by the mine that is to occur during the term of the bond.

The form of the surety should be one that makes the bond money immediately available to the responsible agency. Significant costs (e.g. operating a water treatment plant) have been incurred at bankruptcy by responsible regulatory agencies, and bond monies have not been available when needed to cover costs. This has led to significant operating and funding problems for these agencies.

Ecological Integrity

Re: "The Mine Reclamation and Closure Plan should contain comprehensive measures…" (pg. 19)

NGOs and international experts should be included along with local governments and communities in the approval of the plan.

Emissions and Effluent Guidelines

In this section it is stated that:

> "Guideline values for process effluents in this sector are indicative of good international industry practice as reflected in relevant standards of countries with recognized regulatory frameworks." (pp. 20-21)

The guidelines presented in Table 1 – Effluent Guidelines (p. 21) in the Draft reflect the minimum level of treatment expected for an undiluted mine discharge. **It must be recognized that these limits are not protective of aquatic life or human health.**

In addition, there are a number of important constituents commonly seen in mining discharges that are potentially harmful, including selenium, antimony, thallium, aluminum, silver, uranium, ammonia, and nitrate/nitrite, that are not addressed by the proposed IFC minimum standards.

These guidelines do not approach the water quality standards of most nations in the world today. It must be assumed that these guidelines are presented so that a mine cannot just discharge with no attempt at minimization or treatment of contamination.

As presented, the IFC water quality guidelines are actually more harmful than having no numeric guidelines at all since they could be used as justification for treatment only to those levels, while still inflicting significant risk and damage to the environment and human health.

Environmental Monitoring

Environmental monitoring is critical not only to compliance with regulatory permits, but also in guiding operating procedures, and perhaps most importantly in reassuring the public that a mine is operating in the manner promised.

The guidelines use an overly optimistic and under-protective timeline when it suggests:

> "Environmental monitoring programs for this sector should be implemented to address all activities that have been identified to have potentially significant impacts on the environment, **during normal operations** and upset conditions. Environmental monitoring activities should be based on direct or indirect indicators of emissions, effluents, and resource use applicable to the particular project. In some mining projects monitoring should extend for a minimum period of **three years after closure or longer** if site conditions warrant." (p. 21) [emphasis added].

Monitoring should extend beyond normal operations, begin when mining activities begin and continue until at least ten years after reclamation is complete. As discussed above, the three-year timeframe is too short as a minimum guideline. Ten years is more realistic, although it may still be too short. Monitoring should continue until at least ten years after reclamation is complete - or until the end of the last mine-related contamination - whichever is longer. It is not sufficient to stop monitoring or release a security bond while contamination is still being released or before pre-established criteria (based on background/pre-mining values) are met.

In order to meet its operating goals, and to provide timely and accurate information to the public:

- a mine should prepare a monitoring plan that describes the places, frequency, and sample collection procedures for monitoring at each monitoring point; and,
- environmental monitoring data should be made available to the public.

IFC should mandate that these conditions be met as part of its investment requirements for any IFC-supported mining operation.

We are concerned about the absence of stringent guidelines regarding regular monitoring and reporting on environmental, as well as ***health and livelihood*** impacts from the mine throughout its life and until at least 10 years after reclamation is complete, or until the end of the last mine-related contamination. IFC guidelines should set a high standard for industry actors regarding regular monitoring and reporting – particularly the importance of third-party monitoring, community involvement in the design and implementation of monitoring procedures, and of public disclosure of monitoring reports.

The environmental performance of mines and the effectiveness of the regulatory agencies responsible for regulating mines 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.

Assessment Phase needs

The guidelines should clearly mandate the following assessment phase requirements:

Details of the exploration project and potential impacts should be made available to affected communities and area residents in an appropriate language and format, and should be made accessible to the public.

Stakeholders should be given adequate notification, time, financial support to pay for technical resources, and access to supporting information, so that participation in the EIA process is effective.

Companies should collect adequate baseline data 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. Companies should work with potentially affected communities to identify potential worst-case emergency scenarios and to develop appropriate response strategies.

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About Us:

The Center for Science in Public Participation (CSP2) provides technical advice to public interest groups, non-governmental organizations, regulatory agencies, mining companies, and indigenous communities on the environmental impacts of mining. CSP² specializes in mining, especially with those issues related to water quality impacts and reclamation bonding.

EARTHWORKS is a non-profit organization dedicated to protecting communities and the environment from the destructive impacts of mineral development, in the U.S. and worldwide.

Oxfam International is a confederation of twelve development agencies that work in 120 countries throughout the developing world to find lasting solutions to poverty, suffering and injustice.

WWF has been protecting the future of nature for more than 45 years. The largest multinational conservation organization in the world, WWF works in 100 countries and is supported by 1.2 million members in the United States and close to 5 million globally. WWF's unique way of working combines global reach with a foundation in science, involves action at every level from local to global, and ensures the delivery of innovative solutions that meet the needs of both people and nature.

Bank Information Center (BIC) is a non-profit, non-governmental organization that partners with civil society in developing and transition countries to influence the World Bank and other international financial institutions to promote social and economic justice and ecological sustainability.