

## ***Finding that “Best Balance” between Economic Development and Biodiversity Protection – a Mining Industry Perspective***

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### ***Why seek mineral development at all?***

With the ever-increasing demand for raw materials in an advancing global society, it is likely that commercially viable mineral deposits will be sought and developed. Especially in those countries where significant economic development opportunities are rare, there will be strong pressure to develop mineral resources. But neither the industry nor host country governments want economic development at the expense of the great apes. A mining operation can be a huge economic engine with valuable local and regional benefits for both local people and protection of ape habitat. But mining cannot be done without impacts. The challenge is to find that “best balance” for coexistence.

Extraction of the earth’s mineral resources inherently has environmental and social impacts. This is an especially sensitive issue when exploration prospects are identified within great ape habitat. The forested areas that are home to important primate species include some of the poorest and most underdeveloped regions of the world. These regions often provide inadequate protein and cultivatable food sources and have extensive subsistence cultural practices coupled with an uninformed and sometimes illiterate populace. Unfortunately, man does not get to choose where economic accumulations of the earth’s natural resources occur; but when they are discovered in economic quantities, they represent a significant engine for economic development in the region and a potential mechanism for local people to afford to move away from the bushmeat trade that is so dramatically diminishing great ape populations.

Great apes’ natural habitat is located within several countries in Africa and South-East Asia. Host country governments here are keen to promote economic development, because with it comes access to quality education, medical services and clean water for its people. Exploration licenses and mineral concessions (land areas set aside for exploration and development) are issued to companies allowing them the opportunity to explore for mineral resources. The odds are stacked heavily against the discovery of viable mineral deposits and their development into a commercially profitable mine, but success can bring profound economic benefit to the company, the region and the nation. This is why companies are willing to invest the money and time to complete the exploration, analysis, planning, engineering and environmental studies needed to determine whether or not a mineralized area is feasible for commercial development.

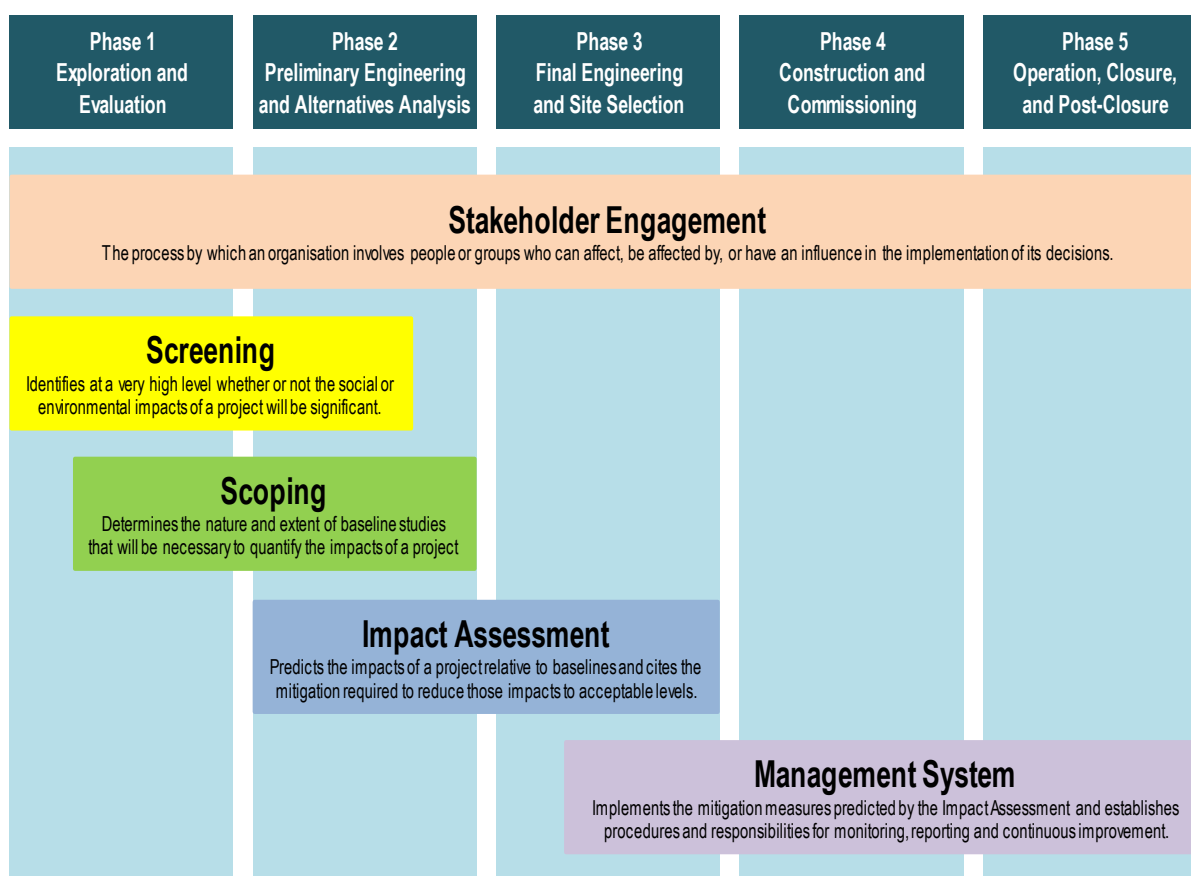
### ***Investors demand responsibility from the companies in which they invest***

Mining companies have a responsibility to their owners to conduct their business safely and responsibly. Most are publicly traded on one or more of the global stock exchanges and as a public entity have a duty to their investors to conduct their businesses in an environmentally and socially responsible manner. Increasingly corporate and private investors pay attention to the environmental and social performance of a company, and most will expect operations and planning to address these areas.

A mining project is capital-intensive to build and start up. Most companies do not have the financial resources available from investor proceeds to fund the development of a project internally, and so typically turn to lending institutions to also invest in the project, and/or in project development financing. Companies often build their projects on borrowed money until such time as the mine is producing saleable products. This then allows the company to repay the bank loans from the proceeds from sales before or concurrent with providing returns to shareholders.

Most lending institutions big enough to finance a mining project are signatories to the Equator Principles ([www.equator-principles.com](http://www.equator-principles.com)). Equator Principles are a credit risk management framework that cross-reference and incorporate the environmental and social performance standards of the International Finance Corporation (IFC). IFC ([www.ifc.org](http://www.ifc.org)) is the private investment arm of the World Bank Group. Financial institutions which are signatories to the Equator Principles apply the Principles to all transactions exceeding US\$10 million. Because nearly all mining projects exceed US\$10 million in capital investment and require external financing, mining companies will typically conform to both Equator Principles and IFC Performance Standards as an inherent part of their project planning. This obliges rigorous social and environmental impact assessment and the implementation of detailed management systems to reduce project impacts to acceptable levels.

**FIGURE 1 Typical development cycle for a mineral prospect**



*Graphical representation by Barbara Filas*

### ***Anticipation of environmental and social impacts and the project cycle***

The process by which a company determines whether or not a deposit can be economically developed is painstaking, requiring significant expenditure to determine if the prospect is commercially viable. The typical development cycle for a mineral prospect is shown in Figure 1 relative to the environmental and social evaluations.

Not every company will formally publicize each of the evaluation steps, and some may use other terms to describe their process steps than those in Figure 1. However, the environmental and social implications of project development are considered from the onset of field exploration and each general step is logically followed. This is because good companies know that being a good corporate neighbor and environmental stewardship are essential parts of doing business. They also know that environmental and social responsibility costs money, a lot of money. They have no choice but to estimate and include those costs when they assess the viability of the mineral deposit for development.

#### Screening

Once a company receives authorization to conduct exploration activities within a given area by the host country government, a preliminary exploration program is planned. Screening (Figure 1) at a very high level is typically initiated prior to initial field activities, and aims to determine whether developing the prospect might give rise to potentially significant social, environmental or other impacts. Screening determines whether any environmental or social impacts may be insurmountable, affecting project viability. Local and regional stakeholders are identified during this phase and relationship development is evaluated.

#### Scoping

To understand scoping (Figure 1), a definition of common mining development terms may be helpful. “Resource discipline” means areas of expertise in mineral, air, surface and ground water, land, human, and flora and fauna. “Project alternatives” means the identification of various methods and/or locations of development investigated and preliminary assessment of potential mitigation and types for each option. Scoping provides the background required to design the impact assessment in detail and to determine the nature and scope of specialist studies required. This is the stage when site-specific baseline studies are laid out for each of the potentially affected resource disciplines relative to the footprints of the more probable project alternatives. It is also a phase when estimates of the cost of the impact study are compiled.

It is important to keep in mind that screening - and to a lesser extent scoping - activities occur very early in the project cycle, when little or no subsurface exploration has been conducted. The company does not know yet if the geologic indications they have identified on the ground will prove commercially feasible for development. All efforts are focused on determining whether or not the mineral resource is worth pursuing further. Accordingly, land disturbance associated with initial exploration activities will usually be limited. Small excavations, pit digging and/or drilling activities may unavoidably involve opening up corridors through the forest to access mineralized zones. Early-stage exploration is typically systematically widely spaced to determine the extent of the mineralization. Advanced-stage exploration

will then involve infill drilling between the wider-spaced excavations done for those preliminary investigations to more clearly define the specific nature and extent of the deposit.

### Impact Assessment

The impact assessment (Figure 1) is the process by which the impacts of project development, operation and closure on the local environment and people are evaluated. It includes the collection of detailed site-specific data that characterizes potential impacts for all resource disciplines. Baseline data is typically collected for at least a year to adequately characterize seasonal variations in certain resources, and may require longer periods depending on site-specific circumstances. In particular, surface water, groundwater, and flora and fauna species are usually subject to seasonal variation so it is important that the characterization study period is sufficient to adequately document these variations.

Once baseline conditions are characterized, discipline-specific resource experts will “superimpose” or model the development, operating and closure plans onto the resource baseline conditions and predict the impacts associated with the development over the life of the project. Depending on impact significance, experts will identify mitigation measures that can be taken to reduce predicted impacts to acceptable levels. That is not to say that project impacts are eliminated; mining has impacts, both positive (economic development) and negative (affected resources) over the short and long term. The impact assessment is the means by which that “best balance” can be found between the positive and negative effects.

Note that mining industry professionals and the consultants involved become keenly aware through the scoping and impact assessment research that *not* developing a mineral resource can itself have a negative impact. Ape habitat is harder to protect and faces greater threats if impoverished local communities have no livelihoods, and resort to hunting and the illegal bushmeat trade for protein and income. The questions are 1) Can impact mitigation measures adequately balance the economic development needs so that, over the long term, ape population numbers and habitat are better protected? and 2) Can local people develop better protein sources and move away from historical cultural practices that currently have a negative impact on ape populations without development?

### Management systems

Management systems (Figure 1) define the specific steps by which the mitigation measures identified in the impact assessment will be implemented on the ground. The management system cites the system philosophy, relevant corporate policies, organization and management responsibilities, and the systems required to identify, organize, manage and monitor impacts. For some resources, discipline-specific management plans will be needed to further detail the specific actions and responsibilities for implementing mitigation.

The management system also includes provisions for audit, assessment and continuous improvement of all implementing actions and defines the reporting process and methods for assuring transparency. An important element of the management system is the implementation schedule and budget, which specifically defines the monitoring, additional studies and future activities to which the company has committed. It includes a capital and operating cost estimate for their implementation throughout the

construction, commissioning, operation, closure and post-closure phases of the project. This allows for all environmental and social program costs and the timing of their expenditure to be adequately and accurately factored into the overall project financial evaluation.

### ***The challenge of cooperation between mining companies and NGOs***

Coordination and cooperation between mining companies and NGOs during the earliest phases of prospect development could be quite helpful. All too often, the agendas of the parties are very far apart with little room to constructively work together. Mining companies understand that they must limit the adverse impacts of their activities not only to great apes but to all environmental and human resources. But, at this early stage, companies are still trying to determine whether or not a commercially viable resource exists. Their goal is to delineate the resource and keep all other spending to a minimum until such time as a decision is made to move the project forward. This decision is made at the end of Phase 3 (Figure 1), after the company has committed several years and millions, if not tens of millions, of dollars to evaluating the prospect.

NGOs, on the other hand, are singularly focused on protecting the great apes and their habitat. They appear to believe the most logical way to limit impacts on apes and their habitat is to disallow mineral exploration and development altogether. Subsequently, working together at the project evaluation stage seems impossible because the goals of the parties appear diametrically opposed: the company needs to cost-efficiently delineate a viable resource and NGOs need to exclude human presence to minimize impacts.

The position of ape range state governments is usually somewhere in the middle. Countries with suitable habitat for great apes will usually be party to international conventions for the protection of sensitive, threatened and endangered species. But range state governments are also anxious to promote both economic development **and** species survival, despite the possible conflicting goals of the two. Governments will often set aside biodiversity preservation areas and have laws on the books for their management and enforcement, but in reality can commit very little in terms of manpower and financial resources for their effective management.

The NGO community plays a key role in assisting governments in protecting critical habitats. They often bring international funding and local manpower together to work with government toward their common conservation goal. But governments want to balance conservation with economic development, so while they may promote habitat preservation and species conservation through some programs, they may also be issuing exploration and mining concessions in those same areas through other programs. This fuels conflict between the mining industry and NGOs rather than fostering the cooperation needed to find that “best balance” of coexistence. The socio-economic, environmental and conservation knowledge of NGOs could be an important asset to mining companies, and there is potential for constructive partnerships. But there are obstacles to cooperation that include donor attitudes and restrictions, lack of trust, and reputational risk on both sides. Overcoming such obstacles will benefit both NGOs and industry and consequently ape habitat protection overall.

It is important to note that NGOs hold several common misconceptions about the mining industry. Most companies operate in good faith and do far more than pay lip service to responsible resource development. It is possible to identify companies that have made mistakes or operate on the edge of the law. Just as some NGOs may not have always been good stewards of their donor funds, some companies have not lived up to their commitments. Generally speaking however, just as most NGOs are extremely vigilant about the wise use of their funding, so also are most mining companies vigilant about wise use of the funds their investors provide. It makes sense for mining companies to protect the environment as much as possible from the outset and throughout project lifecycles because this means lower costs overall and a higher return on investment over time.

***It takes a special effort, but alliance between industry and NGOs makes good business sense***

It is important to recognize and accept that mining professionals and primate experts think and speak from very different perspectives. Starting a dialogue early in a project assessment is important if they are to partner, because there will be a lot of learning for both sides as a fruitful working relationship is developed. It is especially important for companies to understand the depth and breadth of studies that need to be done to conform to IFC Performance Standard 6 regarding biodiversity, critical habitats, and to identify and enumerate each of the species present. The industry understands that these studies must be done to afford accurate predictions of impacts, and is keenly aware that the studies take time, money, and qualified experts to do the work.

It is equally important that NGOs realize that mining companies usually hire consultants to perform the environmental and social research work required to prepare the impact assessment and initial management systems (Figure 1). When the company asks a candidate consultancy if they are qualified to do the work required, most will represent their firms as having fully qualified experts on the team, including qualified primate experts. Companies rely on the expertise of their consultants because their employees are experts in exploration, mining, and mineral processing – not in biodiversity, critical habitats and other environmental and social disciplines. While some consultants are indeed qualified experts, some are not, and it is not always easy for mining professionals to tell the difference. NGOs could be a valuable partner in helping to identify qualified consultants. In some instances NGOs – as employers of qualified primate experts - may be in a position to perform the services required by the company to characterize the baseline conditions, analyse impacts and recommend mitigation measures.

Another area where NGOs can enhance industry's performance is in reclamation practices. All mines are required to reclaim their land disturbances at the completion of mining if not by law in the host country, then by required compliance with international standards of operation and capital investor oversight. Except for preserving the evidence of mineralization and perhaps donating certain constructed features to government or the private sector to support post-mining land uses, all site disturbances and features are removed, closed and reclaimed. As part of reclamation planning, NGO primate experts could provide valuable input on reclaimed land configurations, securing post-mining natural and man-made hazards, species selection and aerial layouts for re-vegetation, and post-closure monitoring programs. When mineral extraction and effective reclamation are complete, especially if re-vegetated with forage

attractive to great apes, the free-ranging animals are likely to repopulate the area once the human presence ends.

A focus on reality is sometimes the best way for all parties to arrive at that “best balance.” If government wants both economic development and species protection, then both will inevitably happen in the country. And, if both do not happen together, then neither will likely happen because species protection is extremely costly and external funding from the international community is simply not enough. Governments in the developing world do not have the financial means to effectively support species protection without economic development. That is reality. Without the resources to police the forest, educate the people and provide alternative food and livelihood choices, people living at subsistence levels will continue to hunt bushmeat, probably until it is gone. So while mining companies and NGOs might believe they are at opposite extremes on the issue of protecting the great apes, they may actually instead be inextricably linked.

### ***Effective implementation of impact-mitigating actions is challenging and often needs to consider offsite areas***

Effectively mitigating the impacts of mine development on great apes is truly a challenge. There is no avoiding displacement if the mineralized zone is located within habitats used by apes. Mitigation efforts must consider alternative suitable habitat into which displaced animals can move and the pathways by which they can get there. One of the concerns with IFC’s Performance Standard 6 is that industry performance is measured directly within the area of project impacts and not on a more regional basis. Free-ranging animals that move away from human activity to locations outside the study/concession boundary will be considered a “loss” and an unacceptable impact under the Standard if they are displaced outside the immediate project area under the Standard, even if they may have moved to more favorable and suitable conditions outside the concession.

It is well appreciated that critical habitat for great apes is ever-diminishing and must be protected, but it is also appreciated that economically viable mineral deposits are extremely rare. As global urban development continues with its ever-increasing demand for raw materials – minerals in particular for alternative energy items such as electric cars, wind, and solar power - deposits are likely to be developed in time. There are many options for the siting of support facilities but there is no choice as to the location of the mineral deposit. Underground mining methods are less disruptive to surface features than surface methods, but the mineral deposit configuration nearly always dictates the safest and most economic mining method to be used. In these instances, offsite mitigation opportunities for free-ranging primates are the only logical options for mining projects in the short term because areas within the mineral concession are by definition within the mineralized zone that government has set aside for mining.

Government, industry and NGOs would do well to work as partners to identify the best available alternate habitats in the region that are not in conflict with mineral deposits and consider withdrawing certain areas as critical habitat for the apes. These withdrawals must be done after due consideration is given for balancing the potential of the land for both economic development and biodiversity preservation. Withdrawals must not be considered in areas where land use concessions have already



been issued because mining companies (and other industries like forestry and oil and gas) typically spend millions of dollars to evaluate a prospect. Potential withdrawal of offsite habitats cannot be done by the industry because companies only have land control rights within their mineral concessions, and those rights are usually only valid until the mineral resource is exhausted, the land reclaimed, and returned to the government. As such, government must lead any effort when setting aside public lands and such efforts must be carefully orchestrated, balanced, and fully transparent to all parties.

***The industry is willing to commit resources to primate protection very early in the project cycle, but investment must be in line with other costs and development probabilities***

The likelihood of critical habitats and presence of primate species are typically identified at the screening stage, focusing special attention on protecting important species from early in the project cycle. From the onset of awareness, the vast majority of companies are quite willing to do what they can to limit impact on primates providing it is in reasonable proportion with other project costs. Early on, companies will usually put in place standing policies regarding non-tolerance of bushmeat hunting and consumption, which are typically integrated into their training and awareness programs. Those policies make it clear to employees that the practice is illegal and anyone found participating in bushmeat hunting, trade, or consumption will have their employment terminated immediately – a message that resonates strongly with employees who wish to retain their regionally rare, higher-paying jobs.

There is a need for financial support for the regional assessment of habitat quality to determine where the best value can be realized for the cost of preservation. That effort should be initiated as the need for set-aside areas grows rather than early in the project cycle. Funding can be sourced through volunteer participation of all industries affecting natural resources (e.g., mining, oil and gas, logging) or funds may be generated through land acquisition fees, production taxes or other means. However, if additional taxes or costs are levied, they must be fully vetted and completely transparent so companies understand the cost of doing business in the country before, not after, millions of dollars are spent on exploration.

Many companies will voluntarily invest in community initiatives for a variety of local projects from the outset to introduce themselves locally as a good corporate citizen. Community development in forest areas will usually include a variety of initiatives, but most will have a central focus on education, health, agriculture, and micro-business support. Protein alternative food source production and anti-bushmeat initiatives through micro-credit programs and training of local residents in the raising of alternative protein products are often among these initiatives.

Once the final engineering and site selection (Figure 1) are completed and the prospect is determined to be commercially feasible, financing arrangements are made for the development of the project. This is when the management systems (Figure 1) are well underway and are continually being improved as the construction commences and on-the-ground experience is gained at the site. Biodiversity management plans that were prepared during the planning stage should now be implemented, usually requiring additional field inventories beyond the baseline characterization and other actions to be carried out in advance of or concurrent with land disturbance. These inventories and activities will have been defined by the initial management plan and incorporated into the overall project financial model that was used



to determine the feasibility of the project and formed the basis for project financing. As such, it is critical that the management system incorporates complete and technically adequate programs for each resource discipline and accurate estimates of their cost and schedule for implementation. That way, the company has adequate resources to implement all aspects of the management system commitments in advance of commercial production through the up-front project financing.

### ***Traditional rights and anti-bushmeat initiatives – a conundrum***

A challenge to finding that “best balance” is the fact that local indigenous people are often allowed traditional hunting rights by their governments. Companies must protect these traditional values pursuant to Equator Principles and IFC Performance Standards pertaining to indigenous people while at the same time conforming to its obligations to protect biodiversity and critical habitats. These obligations are often in conflict.

Most companies will commit to preferential employment of local community members and indigenous people over job-seekers from other areas for positions for which they qualify. Very early in the project cycle, companies typically employ local people to open roads, excavate exploration pits, assist with drilling, and reclaim exploration disturbances.

Giving local people employment to open access routes into the forest for exploration is good local business, but it also gives people first-hand knowledge of the access routes and very probably the location and variety of animals. This is not an excuse for the increase in illegal hunting that can follow infrastructure construction, nor is it likely that hunting is only done by indigenous people, yet it does complicate the issue given that hunting by indigenous people is not illegal in some countries, while companies are compelled by the Equator Principles and IFC Performance Standards to respect and promote indigenous people’s preservation of traditional values.

### ***A case study of cooperation***

A successful partnership between the companies and NGOs can go a long way toward finding that “best balance.” An example is the stipend recently provided by Geovic Cameroon plc to the IUCN/SSC Primate Specialist Group Section on Great Apes, allowing them to organize a panel of experts to act in an advisory role in collating and assessing the results and recommendations made by a company consultant regarding critical habitats for primates. The panel also provided expert advice on the appropriateness of mitigation measures and management commitments regarding biodiversity protection in the vicinity of the company mining concession in Cameroon. The IUCN/SSC Panel did not work for, or report to, Geovic Cameroon as the consultant did; it acted strictly as a panel of experts to help guide the consultant’s work.

The consultant performed the fieldwork and prepared an independent report which was reviewed by the IUCN/SSC panel at the draft stage and their input integrated into the consultant’s final report. The panel also prepared its own independent report, providing opinions and observations on the consultant’s work as well as on the work that the company had accomplished to date.

It is worth noting that neither the company representatives nor the panel members were satisfied with the other's work at this preliminary stage of the project, because neither fully understood the objectives of the other. During exploration, the company had displaced primates by its human presence and also opened access corridors that appeared to have been used by hunters. It also had limited ability to police the extensive boundaries of its mining concession. These actions will inevitably get bad marks from the primate experts whose goal is to eliminate impacts.

Geovic Cameroon, on the other hand, had done other kinds of mitigation, which were either not communicated to, or not appreciated by, the panel. The company had a standing policy that no bushmeat would be allowed on company property or in its vehicles. To the extent that it could be enforced, hunting was not allowed within the property the company controlled. Employee orientation programs made it clear that bushmeat trade and consumption was illegal and anyone found participating in bushmeat hunting, trade, or consumption would have their employment terminated immediately. The termination of several employees with bushmeat in their possession made other employees fully appreciate the seriousness to which company was committed to enforcing this policy.

The company also made significant investments in community health, agriculture, education, and micro-business initiatives from the earliest days of exploration. Many of those initiatives focused on protein alternatives and anti-bushmeat initiatives through micro-credit programs and training of local residents in the raising of alternative protein products. In most cases, programs were done in cooperation with the health and agricultural ministries of the Cameroon Government. Support for education among the poorest indigenous groups was a priority, because those groups were subsistence hunters and farmers and bushmeat consumption was a normal and regular part of life. The company provided financial support to an established local religious non-profit committed to educating the children of those indigenous groups.

***Education of the local population is essential, but it takes effort, money, and most significantly, time***

The industry believes that education is the best means to make headway in the fight against bushmeat consumption and trade. Community development programs must devote significant effort to assisting with the education of local people in the region, particularly children. This may include curriculum enrichment in local schools, supporting improvements to facilities, improving access to education, providing supplies and equipment, and leading training events. But it is not the company's responsibility to educate the public and it does not have the necessary expertise; education is the responsibility of government. The company should be a value-added partner to government in carrying out the government's role as public educator. Frequently, companies must first educate government officials about the value of this kind of public outreach.

The extractive industries are the economic engine that can fund community development initiatives, not only through direct community investments, but far more significantly through tax benefits from company payrolls, secondary and tertiary employment, corporate taxes and other beneficial financial effects spurred by their presence. Only when local income opportunities and available alternative protein sources are coupled with education and understanding of the ecological and economic

consequences of species survival will attitudes toward protection of endangered species versus bushmeat trade and consumption start to change among local communities.

The NGO community can bring world-class expertise to help educate the public, companies and their consultants. NGO contributions to a company's biodiversity, reclamation and other management system planning can only enhance the industry's performance in protecting the long-term survival of primates. Good companies are committed to doing development right, but development doesn't happen overnight and neither does changing a culture of bushmeat consumption; it takes education, alternative food options, and most importantly, it takes time – often generations.

***Real cooperation is the only way to achieve that “best balance”***

There is clearly more work to be done to protect the great apes from the impacts of extractive industries, and while specific mitigation strategies to offset immediate losses to primates are warranted and appropriate, the longer-term goal is to change the mindset of local people. The extractive industries can be an economic engine in local communities for years to come, investing in public education, assisting government programs for stronger law enforcement, and helping communities to develop sustainable alternative protein food supplies.

A strong partnership between governments, NGOs and the mining industry can provide the sustainable building blocks that, in time, will begin to curb the bushmeat trade and enhance long-term species protection. Reality dictates that economic development and species protection are intrinsically linked. NGOs and industry must not see one another as opponents in protecting the great apes. Together they can help governments achieve better results through better legal frameworks and policies that are properly implemented at the local level. Only when we put the best brains together will we find that “best balance” between economic development and biodiversity protection.