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# **Workshop on the acceptance of Mining Environmental Regulations by Small-Scale and Medium-Scale Miners in Guyana**

**Georgetown, Guyana**

**Summary Report**

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**NRCan (CANMET) – GENCAPD Mining Project**

**Our File: M-6763-4 (603430)**

**January 2004**



**SNC•LAVALIN  
Environment**

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**January 2004**

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February 5, 2004

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SUBJECT: Summary report  
Workshop on the acceptance of mining environmental regulations by  
small-scale and medium-scale miners in Guyana.  
PWGSC contract No. 23440-021003  
Our file: M-6763-4 (603430)

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Sir:

Please find enclosed the Summary Report regarding the Workshop on Acceptance of the Mining Environmental Regulations by Small-Scale and Medium-Scale Miners in Guyana, held in Georgetown, Guyana on January 23<sup>rd</sup>, 2004.

Should you have further questions or comments please do not hesitate in communicating with the undersigned.

Yours truly,

**SNC-LAVALIN ENVIRONMENT INC.**

Marc Arpin, M.Sc., P.Geo.  
Project Director

MA/lj

Encl.

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## **1. INTRODUCTION**

### **1.1 General**

The GENCAPD Mining Project held, on January 23<sup>rd</sup>, 2004, a half-day workshop in Georgetown, Guyana on the enforcement and acceptance (by small-scale and medium-scale miners) of the soon-to-be-enacted draft Mining Environmental Regulations. The workshop was facilitated by Mr. Marc Arpin, of SNC-LAVALIN ENVIRONMENT INC.

### **1.2 GENCAPD Mining Project and context of the workshop**

The Canada Centre for Mineral and Energy Technology (CANMET) of Natural Resources Canada has been selected by the Canadian International Development Agency (CIDA) to execute the Guyana Environmental Capacity Development Mining Project (GENCAPD). The project's main partner in Guyana is the Guyana Geology and Mines Commission (GGMC). The objective is to modernize Guyana's environmental protection standards in the mining sector.

Guyana has extensive alluvial gold deposits and artisanal gold mining contributes significantly to its economic development. In the near future, GGMC is seeking to regularize mining activities and to ensure that environmental concerns are integrated within, and become central in mining operations. GENCAPD has been instrumental in promoting the preparation of a new set of Mining Environmental Regulations, whose enactment is expected in 2004. These regulations address specifically small-scale mining issues and call for the preparation of Codes of Best Practice for these operations.

As it is expected that enforcement of these new regulations will face some resistance on the part of the small-scale and medium-scale gold and diamond miners, it was proposed by the Guyana Geology and Mines Commission (GGMC) to look for innovative solutions to achieve enforcement of the regulations as well as their acceptance by the miners. The GENCAPD project assigned SNC-LAVALIN ENVIRONMENT INC. the task of proposing alternative solutions and of facilitating the discussion on these or other potential solutions.

### **1.3 Purpose of the Workshop**

The purpose of the Workshop was to provide GENCAPD's main stakeholders, that is GGMC, the Guyana Environmental Protection Agency (EPA) and the Guyana Gold and Diamonds Miners Association (GGDMA) with potential solutions to achieve enforcement and acceptance of the draft Mining Environmental Regulations. It was made clear from the very outset that the workshop was not intended to amend the regulations but rather to overcome the difficulties that lie ahead for their enforcement.

### **1.4 Methodology**

In order to provide the participants with inputs that would feed the discussions to follow, two (2) presentations were delivered:

- 1) Mrs. Karen Livan, Head of the Environment Department of GGMC, outlined the basic areas addressed by the regulations and discussed point by point. The highlights of her presentation were as follows:
  - Regulations are intended for environmental protection in mining;
  - Promotion of good environment and human health and safety, particularly with regards to Hg and cyanide;
  - Handling and storage of harmful substances such as Hg and cyanide;
  - Inspection for cyanide use. Mines Officers will be trained on inspection;
  - Poisonous water should not be released into waterways;
  - Definition of small, medium and large-scale mining concepts based on tons of material moved in 24 hrs;
  - Codes of practice in Guyana are part of the regulations;
  - GGMC will develop guidelines;
  - The Commissioner determines the number of mines in an area.
- 2) Mr. Marc Arpin, of SNC-LAVALIN ENVIRONMENT INC., gave a detailed account of the factors that usually influence compliance with regulations and proposed a series of approaches to promote and foster compliance.

These two presentations were followed by a discussion on the feasibility of the different approaches proposed by Mr. Arpin. The discussion has been facilitated by Mr. Marc Arpin.

## **1.5 Participants**

In her quality of GGMC Legal Advisor, Mrs. Rosemary Benjamin acted as Chair Person.

GGMC's Commissioner, Mr. Robeson Benn made the opening remarks. He emphasized that the focus for GGMC with regard to the environment should be to go out to the field, interacting with miners and indigenous people, gather and provide environmental data and information useful to the commission. He mentioned several actions GGMC is undertaking for the protection of the environment. He hoped that participants at the end of the workshop will come to a consensus that the regulations are acceptable and that enforcement will be required to protect the sustainability of the mining industry and interests of the public at large.

Participants representing GGMC, EPA, GGDMA, Hydromet, the Forestry Commission and Toolsie Mining Company attended the workshop. The attendees at the workshop are listed in Appendix B.

## **2. DISCUSSIONS**

After the conclusion of the presentations, there was a 15-minute coffee break. On return, participants discussed several issues regarding why miners are not comfortable with the draft Mining Environmental Regulations. Participants reviewed the difficulties for GGDMA and Miners in Guyana to accept the regulations. The points of discussion are outlined in the next sections below:

### **2.1 Stringency of the regulations**

R. Glasgow: An implementation period of 18 months is too short for application in Guyana. We are learning that it took four years to enforce regulations in Quebec, Canada as mentioned in Mr. Arpin's presentation.

K. Livan: GGMC needs to allow for a phasing-in period so that both miners and GGMC can learn on technical means of achieving limits. Relaxing or flexing limits lower than international standards, until capacity is improved, is also an approach to overcome difficulties for implementing regulations.

M. Arpin: Did GGMC discuss with GGDMA regarding achieving TSS limits or ways of achieving the intended limits?

K. Livan: The reason for employing an Environmental Officer for GGDMA was with this objective. Determining size of ponds and residence time are now the problematic areas. In some areas where clays dominate such as Mahdia, achieving intended results is a problem. The idea of a CEIA is to solve or look into such problems. When tailings impoundment are in place in a proper way limits can be met.

### **2.2 Miners do not have the ability to meet the standards set**

M. Arpin: Asked if BATEA (Best Available Technologies Economically Achievable) are the best way to achieve standards.

K. Livan: That is what GGMC is doing now.

### **2.3 Cost of an EIA is prohibitive**

M. Arpin: The idea of collective EIA would probably be good for miners in reducing costs. It has been tried in Ecuador under a project called *Plan ECO +*. This project was supported by COSUDE, the Swiss Corporation for International Development, and has worked well and it can work in Guyana too.

R. Glasgow: Who will be required to submit an EIA in Mining?

K. Livan: The regulations are silent on EIA matters. Under EPA regulations, medium-scale miners are required to submit an EIA. A set of standard prescriptions can be laid down to mitigate problems over a time along with CEIA or EIA.

M. Arpin: Will a small project need CEIA? Next week, we will talk about this - CEIA as applied to small-scale mining.  
Regulations call for environmental management plans (EMP). Collective approach to EMP might also help to reduce cost.

### **2.4 Reporting requirements**

M. Arpin: This also should have solutions as the others. Do you think this too can have collective approach?

D. McDonald: It is possible but attitude of miners may be a problem. Sometimes they cannot afford it and that getting together with the rest might be difficult.

M. Arpin: Can that be done through awareness-raising?

D. McDonald: Yes, possible through awareness-raising and some incentives.

### **2.5 Added costs**

M. Arpin: Could tax cuts be a strong incentive?

- A. Legesse: As a matter of principle yes, but how much tax is paid by miners is the main point. Miners' contribution through tax appears marginal. Further reduction may not solve the problem, especially when the environmental management cost exceeds the tax reduction benefit. Access to capital, improved productivity and exploration are key areas for acceptable environmental mining by small-scale and medium-scale miners.
- K. Livan: The Government thinks miners under pay. The Government wants to increase tax and revenues. If miners don't give information for regulators to use, their true income is therefore hard to evaluate. Miners often tend to shy away.
- D. McDonald: On that note, there must be increased and proper awareness-raising work for information gathering. There is secrecy in reporting of production.
- R. Glasgow: The problem is compliance with regulations, and at the same time how to get this message across.
- Toolsie Rep: Tax cuts might help. New miners and all of us should pay tax. It is not possible that miners work free of tax. Government has to obtain revenue. Exemption may sometimes even backfire.
- R. Glasgow: Tax exemptions should be geared at increasing capability – such as exemption for excavators to construct tailings ponds.
- K. Livan: In terms of tax, the whole point of profitability has to be seen – how they can manage their operation with profit has to be taken into consideration. Miners already get tax reductions on equipment. So we have to look at other incentives. We need to work with them on an ongoing basis to know their difficulties. Different levels of EIA, CEIA can be used. Miners are diverse and scattered. Regulators want things to be done on the basis of what is right. We cannot say we can enforce regulations in a predictable manner. This is not to come anytime soon.
- M. Arpin: We have to be cautious in writing regulations likely to be enforced. Unenforceable regulations are meaningless.

## **2.6 Not a level playing field compared to other industries**

A. Legesse: Regulatory requirements depend on the kind of activity an operator is doing. If a miner has to dig a hole in the ground to extract valuable minerals, the site has to be reclaimed properly during the course of the operation or when the operation ceases. Another operation in another industry might be doing some other work where reclamation may not be required or where the cost of reclamation is minimal. That depends on the effect on the environment inherent to the nature of the operation/project.

M. Arpin: Environmental regulatory requirements for miners in Guyana are not different from those demanded to miners elsewhere. Miners in Guyana are not competing against the forestry or the oil industry: they are competing against miners abroad. So this assumption of “Not a level playing field” is irrelevant.

## **2.7 Exploration costs**

M. Arpin: Miners could form joint ventures with overseas companies. Exploration is critical – closely linked to exploitation, otherwise mining will be hit-and-miss kind of exercise. Sustainable tailings management can only be achieved if miners become relatively sedentary. Only through exploration can this type of stability be attained.

M. Arpin: Is there a Stock Exchange in Guyana? Can miners sell shares for raising funds for exploration?

Toolsie Rep: There is a Stock Exchange, DDL and Beharry.

D. Babb: Funding from Stock has not reached that maturity. Rather Government assistance is better. Miners develop programs and submit to Government in Yukon, Canada. The Government partly covers the cost of exploration. That is what is needed in Guyana.

R. Glasgow: Many concessions are not meeting their requirements with regard to exploration. One of the conditions in medium-scale concessions is to do exploration. But that is not happening. Regulators must ensure that this is complied with.

D. Babb: In the new Mining Regulations, it is said that exploration is now mandatory and that funding should be considered.

M. Arpin: Do you think that money from royalties could be used in funding exploration? Or to implement environmental measures?

K. Livan: The miners' revenues are not that much high. I don't think that helps to fund exploration or even to put environment measures in place.

M. Arpin: Do you think that large companies like Omai may be asked to help in funding environmental expenses of small-scale miners. Is it a fair demand?

K. Livan: Already large-scale miners are asked to help in educational areas. So in a sense they are doing it although that is not their responsibility.

## **2.8 Complexity**

M. Arpin: Many requirements involve some degree of complexity for miners. Cost and technical ability will be the main challenges. But there is no option but to comply with requirements. Complexity cannot be called upon for not accepting regulations. The regulations are good and they have to be enforced.

Forestry Rep: Duration of lease is one area to be improved. No man wants to invest in an area of high EIA costs for short-term lease. It is also unfair to ask other companies for others' fault. As operations get larger, companies' environmental costs increase and they cannot afford to pay for other companies' responsibility.

D. Babb: Tax exemption may be good for companies that do exploration and comply environmental requirements.

R. Glasgow: It is very difficult to do that. Concession owners currently pay nominal fee. It is evident that they are in business because they make profit. So they should pay their tax obligation.

M. Arpin: Tax refund should be towards improving environmental management. Remember my presentation: you must identify what group the miners belong to: 1) Those who spontaneously comply? 2) Those who resist compliance? and 3) Those who comply when they realize that there are fines and penalties against the offenders?

Forestry Rep: Reward is good but tax cannot be waived as a whole. Other incentives such as renewal of concession is another way.

M. Arpin: A combination of requirement and incentives should be the solution.

R. Glasgow: There is a problem of implementation. Social impact by miners is different for different mining districts. In some areas it can affect downstream population. In others, miners may work in an area where there is no population. So these things have to be looked at.

M. Arpin: Does that mean that spatial approaches should be taken into consideration for implementing regulations, according to the presence of downstream communities?

Toolsie Rep: Mining can be source of good revenue. Miners will have to try to be eligible based on the regulations. It is a far-reaching workshop. We need more miners to come next week. On that I say thank you.

W. Alleyen: People should be responsible for the damage they make for downstream pollution. I agree for miners to be more educated on workshops like this.

GGMC's concern in the mining industry of Guyana has been the feeling of **Externality** of the environment to miners. Participants discussed this aspect in relation to the new regulations.

M. Arpin: Obligation of reclaiming environmental liability should not be left to others. At this time, the miners believe the environment is not their concern. It used to be an externality to them, but these regulations make it internal.

R. Glasgow: Six to eight guys work on a claim or concession. Often none of them owns the concessions or the equipment. The GM is acting on behalf of the owner. He pays little attention to the environment. Everybody here is external to the environment. Ultimately the regulations impose that miners should be careful for the pollution they make. All needed is to enforce them.

D. Babb: The issue of externality to the environment is addressed in the new mining regulations too. The mine owner and his manager are responsible for the environment.

K. Livan: I agree on education. A combination of enforcement and continued awareness is required. Miners and communities are aware of the environmental responsibility. But there is this attitude by miners that once they get away with the damage they make, their responsibility ends there. Most miners are aware of effects on the receiving environment. With the environmental regulations coming on stream, they have to minimize or avoid the effects. They are desired to do so in an economic way as well as in an acceptable manner.

Participants agreed that the Draft Environmental Regulations should be enacted by the Government and enforced by the regulatory body for the proper care of the environment in mining areas.

The meeting was concluded at 12:30 and lunch was served thereafter.

### 3. CONCLUSION

Guyana's draft Mining Environmental Regulations are now awaiting promulgation at the Parliament. No further amendments are to be made to them neither to soften their stringency nor to make them more acceptable. Their enforcement will be a serious challenge for GGMC and a test of its institutional capacity of finding innovative ways to fulfill its mission of ensuring sustainable mining.

Among the tools that are suggested to foster compliance with the new regulations we find:

- Economic incentives (e.g. tax cuts or exemptions, subsidies, taxation of emission of contaminants).
- Legal incentives (e.g. a legal status in exchange of environmental compliance).
- Phasing-in period for enforcement (with implementation milestones), grandfathering.
- Technical assistance programs (pilot projects, Best Available Technology Economically Achievable).
- Collective EIAs and reporting.
- New sources of funding for environmental measures (e.g. Environmental Fund).
- Foster exploration through new sources of financing (e.g. Joint Ventures with foreign companies, Stock Exchange, etc.).

It is recommended also to take into account not only technical and financial factors but also socio-cultural and psychological factors that influence compliance.

This report has been prepared par Marc Arpin, M.Sc., P.Geo., project manager and reviewed by Benoit Demers, M.Sc.A., Eng., Director, Mining and Environment.

**SNC-LAVALIN ENVIRONMENT INC.**

Marc Arpin, M.Sc., P.Geo.  
Project Manager

Verified for conformity  
with ISO 9001 by :

\_\_\_\_\_  
Benoît Demers, M.A.Sc., Eng.  
Director  
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MA/lj

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## **APPENDIX A**

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### **Workshop agenda**

**AGENDA**  
**WORKSHOP ON ACCEPTANCE OF MINING REGULATIONS BY MINERS IN**  
**GUYANA**

**January 23, 2004 (AM), Venue: Hotel Tower, Georgetown**

*Facilitator: Mr. Marc Arpin, M.Sc., P.Geo.*

*Chair: Mrs. Rosemary Benjamin, Legal Advisor, GGMC*

- |             |   |
|-------------|---|
| 08:00-08:45 | Registration  |
| 08:45-09:00 | Preliminary remarks by Mr. Robeson Benn, Commissioner GGMC.   |
| 09:00-09:15 | Introductory remarks by Mr. Marc Arpin  |
| 09:15-09:30 | Presentation by Mrs Karen Livan, Head of GGMC's Environment Division, on the draft Mining Environmental Regulations |
| 09:30-10:00 | Presentation by Marc Arpin, from SNC-LAVALIN ENVIRONMENT INC., on possible solutions to overcome difficulties       |
| 10:00-10:20 | Coffee break  |
| 10:20-11:30 | Discussion on proposed solutions or alternative solutions   |
| 11:30-11:45 | Closing remarks   |
| 11:45       | End of workshop   |
| Lunch       |   |

## **APPENDIX B**

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### **List of participants**

**List of Participants**  
**Environmental Regulation Workshop held on**  
**Friday January 23, 2004 at Hotel Tower, Main Street, Georgetown**

	<b>Mr/Mrs</b>	<b>Name</b>	<b>Institution</b>	<b>Position</b>
1	Mr.	Robeson Benn	GGMC	Commissioner
2	Ms.	Karen Livan	GGMC	Manager, ED
3	Ms.	Diane McDonald	GGMC	Manager, MM
4	Ms.	Rosemary Benjamin	GGMC	Legal Adviser
5	Ms.	Euliene Watson	GGMC	SEO II
6	Mr.	Sydney Edwards	GGMC	SME I
7	Mr.	Dereck Babb	GGMC	SME II
8	Mr.	Jack Morgan	GGMC	CMO
9	Mr.	Wendell Alleyen	GGMC	OSHO
10	Mr.	Ronald Glasglow	GGMC	SME
11	Ms.	Diane Miggins	GGMC	Senior Chemist
12	Ms.	Aretha Crawford	GGMC	Geologist
13	Ms.	Preya Rampersaud	EPA	SEO II
14	Mr.	Ronald	EPA	Env Officer II
15	Mr.	Evan Persaud	UG	Co-ordinator Geology
16	Mr.	Ramnarine Sharma	Toolsie Persaud Ltd	Manager
17	Mr.	Zahid Khan	Forestry Commission	Deputy Commissioner
18	Ms.	Jolyn Jafferally	Hydromet	Hydro Specialist
19	Mr.	Lloyd Andrews	Ministry of Amerindian Affairs	Regional Dev. Officer
20	Mr.	Ronald Singh	Local Government Ministry	Regional Dev Officer

**Power point presentation**



# Workshop on acceptance of mining environmental regulations

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Marc Arpin, M.Sc., P. Geo.  
Hotel Tower, Georgetown, Guyana.

January 23, 2004



# Agenda

**Word of welcome and opening remarks**

**1- Introduction (Marc Arpin)**

**2- Summary of the regulations (Karen Livan)**

**3- Some potential practical solutions (Marc Arpin)**

**4- Coffee break**

**5- Discussion on proposed and alternative solutions.**

**6- Final remarks**



**Warning !**

**We are not here to change the  
regulations.**

**We are here to find ways of  
better enforcing it**

# What we will need today

◆ Imagination

◆ Creativity

◆ Open-mindedness

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# Factors that influence compliance

Instill into the human behavior an  
« environmental compliance habit »

Create a « compliance mood »

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# Economic factors

- ◆ The higher the cost the lower is the compliance.
- ◆ Fines should be at least as high as implementation cost

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# Institutional factors

- ◆ **Compliance with laws is often a question of culture (varies from one country to another).**
- ◆ **Regulatory Body must gain credibility.**
- ◆ **Credibility can be achieved through stiff and aggressive enforcement or via a trust-building period**

# Socio-cultural and psychological factors

In any target group, there is always three types of persons with respect to regulatory or legal compliance:

- ◆ Those who spontaneously comply
- ◆ Those who resist compliance
- ◆ Those who comply when they realize that there are fines and penalties against the offenders

# **Socio-cultural and psychological factors** *(cont'd)*

**To achieve compliance it is important that:**

- ◆ **Incompliances are likely to be detected**
- ◆ **Response from authorities is immediate and predictable**
- ◆ **Response from authorities will include a penalty and...**
- ◆ **All three aforementioned factors be felt !!!**

# **Socio-cultural and psychological factors *(cont'd)***

**The prestige of being a good and Responsible citizen varies according to the cultures and also within the same culture in function of maturity.**

**Its value can be very low in newly created informal mining districts whereas it can reach high levels in areas with established mining tradition.**

# **Socio-cultural and psychological factors *(cont'd)***

**In every community there are leaders, whose attitude toward compliance with the law is of outmost importance.**

**It will be the « good » leaders or the « bad » leaders who will have the most influence in the compliance mood of any given community**

# Technological factors

- ◆ Compliance must be technically feasible
- ◆ The persons involved must know what they have to do.
- ◆ They must know they have access to the required technology
- ◆ They must know how to apply and operate that technology

# How to promote compliance ?

Experience shows that the best results are achieved using a combination of legal requirements and incentives

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# **Education and technical assistance**

**Education and awareness-raising are fundamental to break the ignorance barrier but...**

**they must be complemented by technical assistance (training) and long-term follow up to ensure sustainability.**

# Community participation

The affected population is a powerful ally in promoting compliance. It can act as a watch dog if it is informed about the causes and short and long-term consequences of mining pollution.

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Women can play an active role !!

# Publicization of positive examples

The public image of the mining company can be substantially improved by a positive publicity.

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# Innovative sources of funding

- ◆ Cost is usually a major obstacle to implementing environmental measures.
- ◆ The Government can be instrumental in creating different types of financing for environmental purposes
- ◆ Examples: mining or income tax reductions. Tax exemptions

# Innovative sources of funding

*(cont'd)*

- ◆ An Environmental Fund could be created using a percentage of mining royalties.
- ◆ That Fund could help finance environmental actions under the condition that the operator pays a substantial portion (e.g. 60%).

# Economic incentives

- ◆ **The Government may subsidize environmental expenses through tax exemptions or tax cuts.**
- ◆ **It may tax emission of contaminants.**
- ◆ **NGOs can set up this type of incentive through technical assistance programs.**

# Legal incentives

- ◆ For some informal miners, the informality is a major obstacle for their development.
- ◆ A legal status in exchange of environmental compliance can be, in some cases, a very powerful incentive.

# What are the difficulties?

## For GGDMA:

- ◆ Regulations are too stringent (a means to put them out of business).
- ◆ Miners don't have the ability to meet the standards set.
- ◆ Cost of EIA is prohibitive.
- ◆ Reporting requirements.
- ◆ Added cost.
- ◆ Not a level playing field compared with other industries.

# What are the difficulties?

For GGDMA (*cont'd*)

- ◆ Exploration costs.
- ◆ Complexity.

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# What are the motivations

## For GGMC

- ◆ Miners have the ability to regulate themselves.
- ◆ Guyana must not be maverick with respect to global trends in mining regulations.
- ◆ There are easy and cost efficient means of self regulation.

# What are the motivations

## For conservationists

- ◆ Miners must behave like any other respectful and responsible citizen.
- ◆ Environment is an externality to miners: they leave to others (Amerindian communities, nature, etc.) the burden of dealing with their obnoxious legacy.
- ◆ Guyana's pristine environment is being spoiled.

# What we will need today

◆ Imagination

◆ Creativity

◆ Open-mindedness

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**What has been done  
elsewhere ?**

**Elsewhere ??????????????**

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# **Beaten paths are scarce in small-scale mining**

**Global trends in environmental regulations  
(such as high fines, administrators'  
responsibilities, environmental  
management program (ISO), etc.) are  
hardly applicable to small-scale miners**

# Regulations are too stringent

- ◆ Regulations were not intended to put undue pressure onto the industry but to protect it.
- ◆ Phased enforcement (with implementation milestones).
- ◆ Grandfathering.
- ◆ Training and pilot/witness projects during the phasing-in period.

# Miners don't have the ability to meet the standards set

- ◆ Best available technology economically achievable (BATEA).
- ◆ Technical assistance program (GGMC+EPA).
- ◆ Pilot projects turned into technological showcases.

# **Cost of EIA is prohibitive**

## **Collective EIA and Environmental Management Plan (EMP)**

**Based on the following principle:**

***Mining operations of similar characteristics located within areas of similar environmental characteristics are likely to produce the same impacts and therefore to require the same mitigation measures***

# Collective EIA and EMP

## Advantages:

- ◆ Miners obtain an EIA and EMP at a fraction of the actual cost.
- ◆ The EIA is of broader scope.
- ◆ Miners most reinvest a part of the money they saved into environmental measures in their operation.
- ◆ A monitoring and follow up is included in the EMP.

# Collective EIA and EMP

**A good example:**

**ECO+ Plan** in Ecuador

**Proyecto Minería sin Contaminación**  
(Swiss Cooperation Agency and Projekt Consult)

# Collective EIA and EMP

**GGMC**

**Consulting  
firm**

**Miners**

SNO...LIN

# Reporting requirements

**In an ECO+ type project, follow up, monitoring and reporting is done by the consulting firm.**

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# Reporting requirements

**Within the framework of a regional EMP, miners can collectively hire one specialist to handle reporting and monitoring for the operations addressed by this EMP.**

**Added cost**

**Alternative and innovative  
sources of funding**

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# Innovative sources of funding

- ◆ Cost is usually a major obstacle to implementing environmental measures.
- ◆ The Government can be instrumental in creating different types of financing for environmental purposes
- ◆ Examples: mining or income tax reductions. Tax exemptions

# Innovative sources of funding

*(cont'd)*

- ◆ An Environmental Fund could be created using a percentage of mining royalties.
- ◆ That Fund could help finance environmental actions under the condition that the operator pays a substantial portion (e.g. 60%).

# Economic incentives

- ◆ **The Government may subsidize environmental expenses through tax exemptions.**
- ◆ **It may tax emission of contaminants.**
- ◆ **NGOs can set up this type of incentive through technical assistance programs.**

# **Not a level playing field compared with other industries**

- ◆ **This is no rational argument.**
- ◆ **A Government is free to decide which sectors of its economy deserve special attention.**
- ◆ **Miners are not competing against the forestry sector. They are competing against other miners abroad. And those miners are also subject to similar regulations nowadays.**

# Exploration costs

- ◆ Mineral exploration and ore reserves estimations are the key to sustainable mining in Guyana.
- ◆ Exploration is a risky venture.
- ◆ Risk can be rewarding for those willing to take it or who can afford it.

# Exploration costs

- ◆ Unite with others (in the same region) and look for foreign partners in JV.
- ◆ Stock exchange in Guyana ?
- ◆ Emission of shares
- ◆ Tax incentives for individuals investing in exploration

# Complexity



SNC ◆ LAVALIN