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PLENARY SPEECH AT THE FIG WORKING WEEK MAY 19-24, 2024, AT LA PALM ROYAL BEACH HOTEL, ACCRA, GHANA

On the Topic

TO MINE OR NOT TO MINE -
The Economic Controversy and its Resolution

Delivered By

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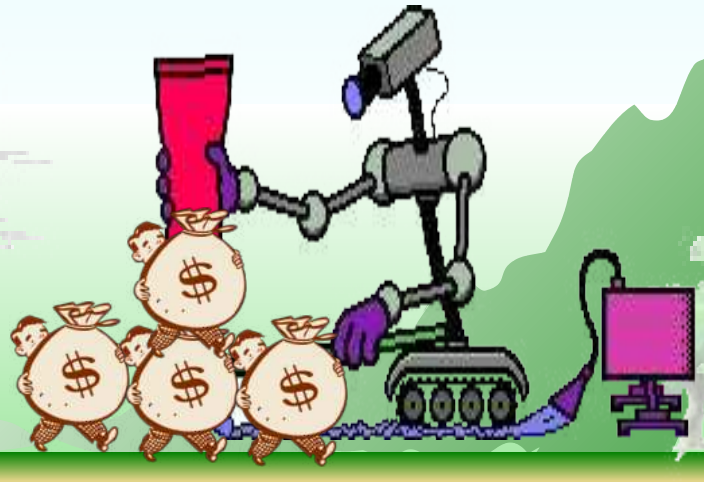
INTRODUCTION

Mining and its concomitant socio-environmental impact have, in recent times, become a matter of public concern and consequently generated a lot of debates.

INTRODUCTION (CONT'D)

On the one hand mining has many benefits:

- Engine of industrialisation,
- Backbone of science and technology,
- Catalyst for economic development.



INTRODUCTION (CONT'D)

On the other hand mining has adverse socio-environmental impacts:

- Destruction of vegetation,
- Land degradation,
- Pollution of streams and rivers,
- Ground vibration and noise,
- Health hazards,
- Promiscuity and crime.

THE CONTROVERSY – A CATCH 22 CASE

"*Santrofie Anoma*" = Mineral

Catching hold of the bird = **Mining the mineral**

Grave misfortunes = **Effects of environmental degradation**

Refusing to catch hold of the bird = **Refusing to mine**

Great fortunes = **Socio-economic benefits of mining**

THE QUESTIONS!

- Do we have any minerals that could be mined profitably?

- If we have the minerals, how do we mine so that the environmental damage is prevented and the socio-economic benefits maximised?

SPEECH AIM, OBJECTIVES AND EXPECTED OUTCOME

Objectives of plenary speech:

- To highlight the minerals potential of Ghana and the mineral deposits that are mined currently.
- To highlight the socio-economic benefits of mining and the attendant environmental degradation in Ghana.
- To outline the legal framework put in place by the government of Ghana to control mining activities so as to make them environmentally friendly.
- To highlight some best mining practices that can prevent or minimise environmental degradation.

FOCUS OF CONCLUSION

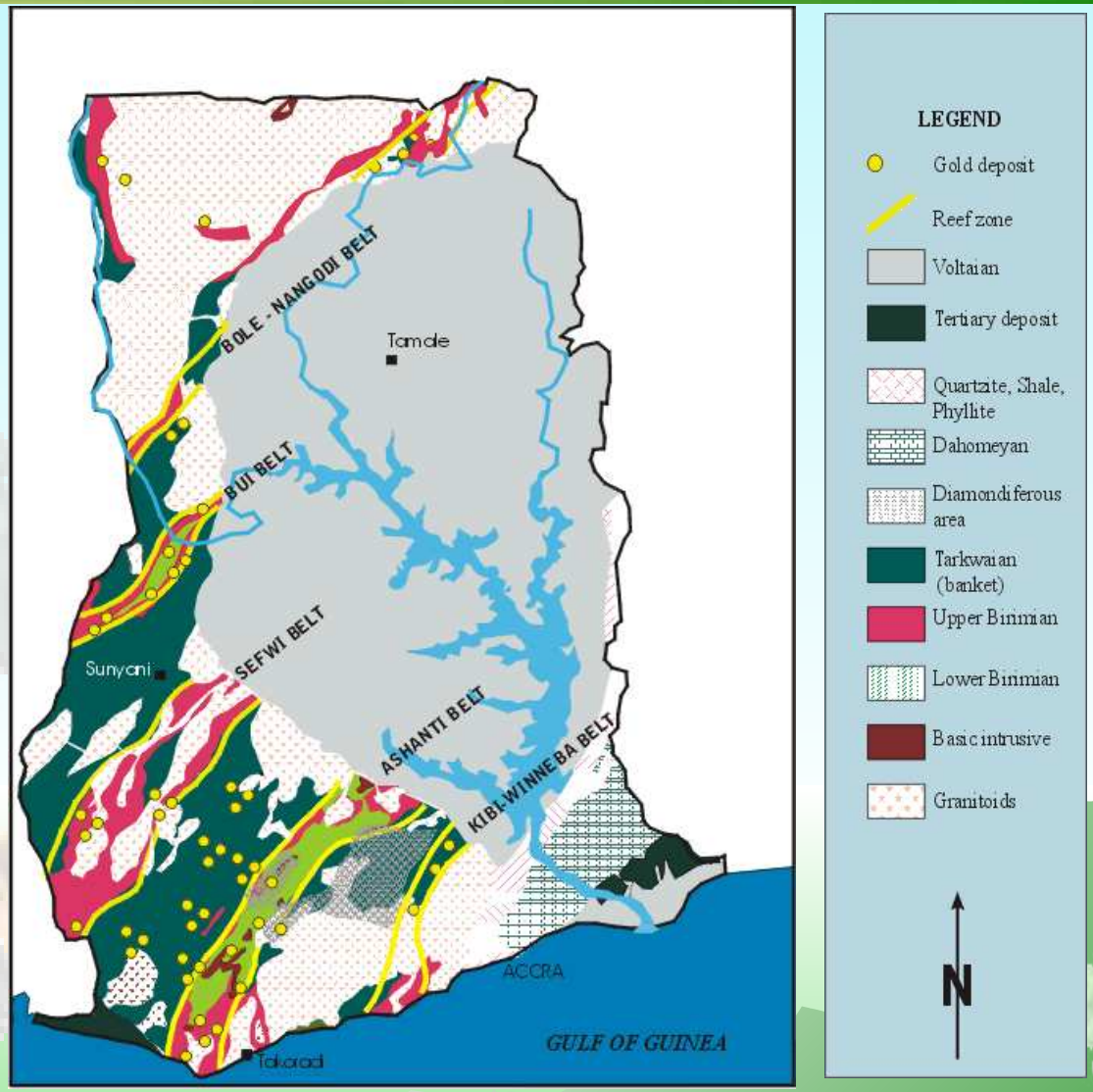
- Ghana has minerals that can be mined profitably with little or no socio-environmental damage;
- We need to make use of geo-spatial data on the geo-environmental settings and value of our minerals;
- Captured through exploration and environmental baseline studies;
- To employ suitable mining and processing methods and adopt best practices to prevent or mitigate any potential socio-environmental damage resulting from mining.

THE MINERALS POTENTIAL OF GHANA

Ghana has substantial resources, the major exploited ones being:

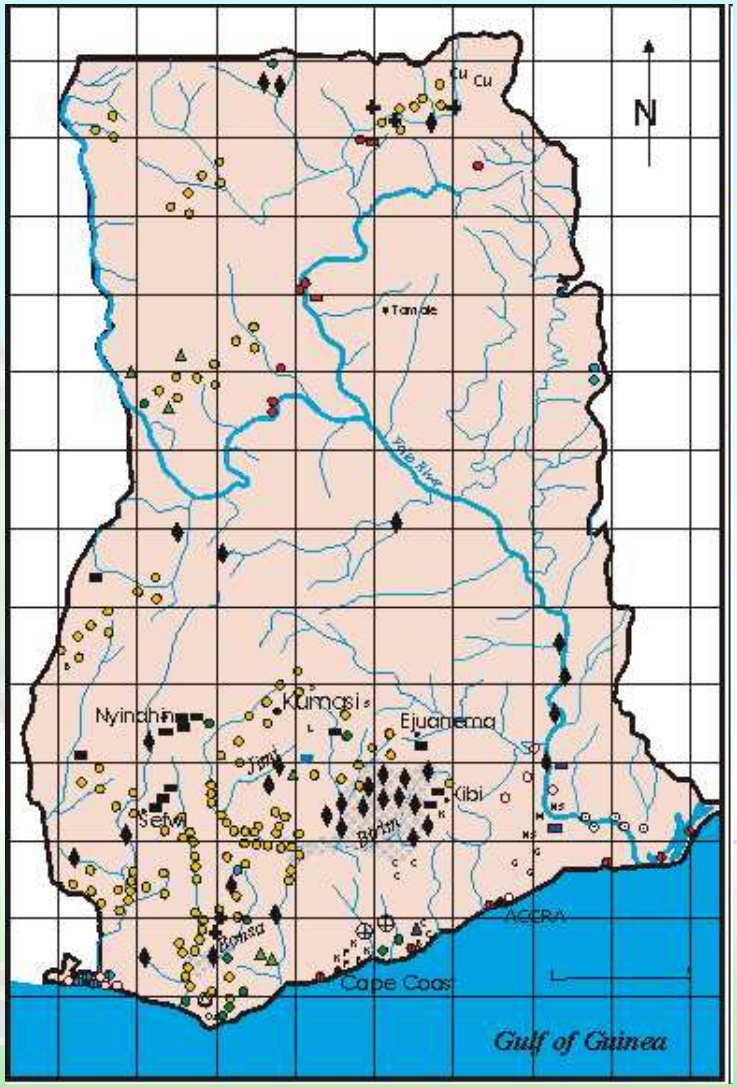
- **Gold;**
- **Diamond;**
- **Manganese;**
- **Bauxite;**
- **Salt;**
- **Sand;**
- **Gravel; and**
- **Lithium**

THE MINERALS POTENTIAL OF GHANA



Gold Belts of Ghana

THE MINERALS POTENTIAL OF GHANA



LEGEND

- Gold deposits
- Diamondiferous areas
- Manganese ores
- Bauxite
- Iron ores
- Cassiterite
- Chromite and asbestos
- Limestone and marble
- Oil and butumen
- Salt
- Andalusite
- Barite
- Mica
- Talc
- Shell banks
- Silica
- Garnet
- Felspar
- Nepheline syenite
- Sandstone
- Beryl
- Columbite
- Lithium
- Monazite
- Copper
- Kaolin

Mineral Deposits of Ghana

THE VITAL QUESTION

Do we mine the minerals and suffer the effects of environmental degradation or do we stop mining and forgo the economic benefits?

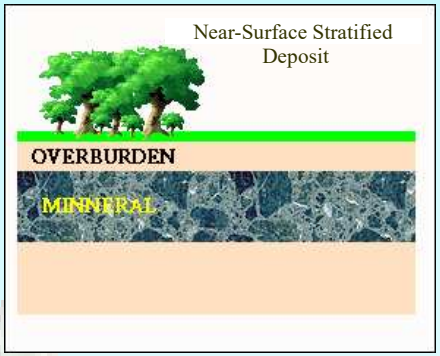
In Shakespeare's style,

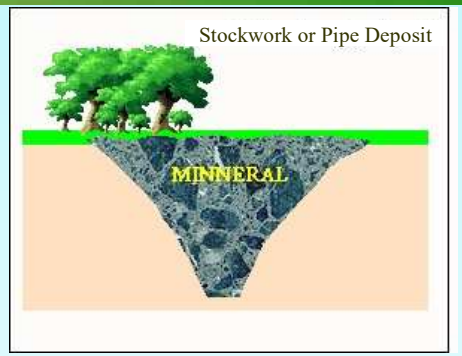
"to mine or not to mine"

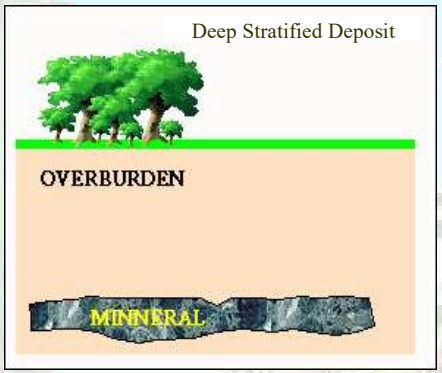
that is the question!

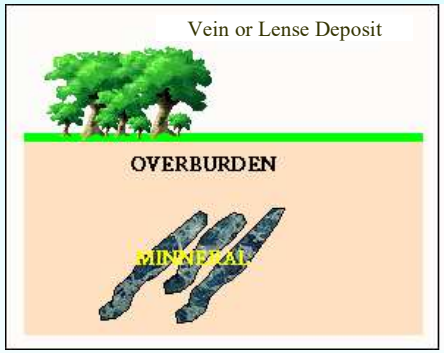
TYPES OF MINERAL DEPOSITS

By the nature of deposition and geological setting









Types of Mineral Deposits

TYPES OF MINERAL DEPOSITS

By environmental setting:

- **Most of the minerals in Ghana occur in forest areas where there may be valuable timber species as well as food and cash crops.**
- **They may occur far from inhabited areas or near villages and urban centres, or in villages and towns.**
- **Near surface deposits may occur on hills, on hill slopes, in flat ground, in valleys, along the banks of rivers and even in river and stream beds.**

CHOICE OF MINING METHOD

No matter the geological and environmental settings of a mineral deposit,

- **near-surface deposits can be mined only by surface mining methods; and**
- **deep-seated deposits will be mined by underground mining methods.**

SOCIO-ECONOMIC BENEFITS OF MINING IN GHANA

The mining industry in Ghana:

- **Provides employment and social benefits.**
- **Generates foreign exchange and internal revenue.**
- **Produces raw materials for local industries.**

EMPLOYMENT

	Estimated No. of People
Large scale mining	≈ 34 363
Small scale mining	≈ 1 000 000
Indirect employees	≈ 480 000
Total no. of employees	≈ 1 514 363
Total no. of dependants	≈ 1 514 363
Total no. of beneficiaries	≈ 3 028 726

SOCIAL BENEFITS OF MINING

Social benefits from the mining industry include:

- **Provision of roads;**
- **Provision of potable water;**
- **Provision of electricity;**
- **Provision of schools and clinics; and**
- **Support for sports and various institutions like universities and hospitals.**

FOREIGN EXCHANGE AND INTERNAL REVENUE

Contribution to foreign exchange earnings	41%
Contribution to GDP	5.7 %
Royalties	5 (10%?)

PROVISION OF RAW MATERIALS FOR LOCAL INDUSTRIES

These include:

- **Alumina for the production of aluminium and aluminium products;**
- **Salt used for the manufacture of pharmaceutical products;**
- **Kaolin used in the production of "local powder";**

PROVISION OF RAW MATERIALS FOR LOCAL INDUSTRIES (CONT'D)

These include:

- **Clay for the ceramic industry;**
- **Gold for the local jewellery industry;**
- **Silica sand for the glass factory; and**
- **Sand and gravel for the construction industry.**

ENVIRONMENTAL DEGRADATION BY MINING

The main negative environmental impacts of mining are the following:

- **Vegetation destruction and land degradation;**
- **Air pollution;**
- **Ground vibration and noise;**
- **Water pollution; and**
- **Social problems.**

LEGISLATIVE AND INSTITUTIONAL FRAMEWORK

The main legislative instruments are:

- **The Minerals and Mining Act, 2006 (Act 703);**
- **Minerals and Mining (General) Regulations, 2012 (LI 2173);**
- **Minerals and Mining Law Act (Amendment), 2019 (Act 995);**
- **Environmental Assessment Regulations, 1999 (LI 1652);**
- **Mining Regulations, 1970;**

LEGISLATIVE AND INSTITUTIONAL FRAMEWORK (CONT'D)

The main legislative instruments are:

- **Ghana's Mining and Environment Guidelines, 1994;**
- **The Water Use Regulation, 2002 (LI 1692);**
- **Environmental Protection (Mining in the Forest Reserves) Regulations, 2022 (LI 2462).**

LEGISLATIVE AND INSTITUTIONAL FRAMEWORK (CONT'D)

The main institutions responsible for the enforcement of the laws are:

- **The Minerals Commission; and**
- **The Environmental Protection Agency.**

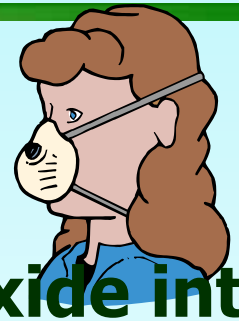
These institutions are empowered by law to stop any mining activities that do not comply with the laid down regulations.

LEGISLATIVE AND INSTITUTIONAL FRAMEWORK (CONT'D)

- **What is apparently missing is a law or regulation on the management of Corporate Social Responsibility (CSR) to sustain the welfare of the Mine Local Community (MLC).**

MEASURES FOR MITIGATING ENVIRONMENTAL DEGRADATION

Measures against Air Pollution



- Emission of arsenic and sulphur dioxide into the air when sulphide ores are roasted can be prevented by using bioxidation processing method to treat the ore.
- Dust cannot be prevented but it can be controlled by dust suppression systems and by ensuring that workers wear dust masks.

MEASURES FOR MITIGATING ENVIRONMENTAL DEGRADATION (CONT'D)

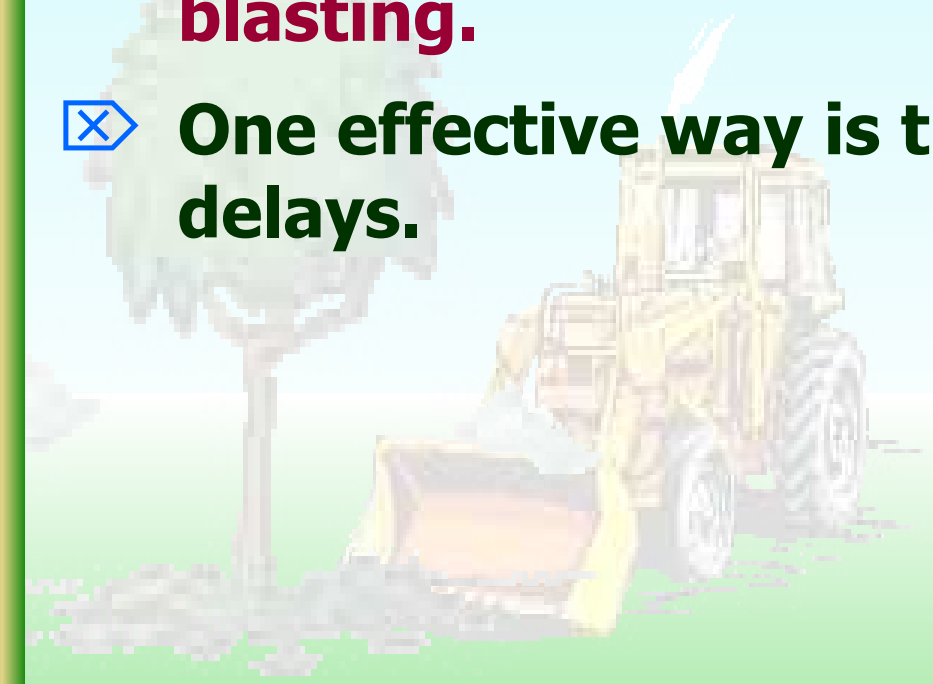
Measures against Noise

- Noise cannot be prevented but the use of earplugs and muffs by workers in areas where noise levels are above the permitted limits will protect their health.

MEASURES FOR MITIGATING ENVIRONMENTAL DEGRADATION (CONT'D)

Measures against Vibration

- Blast vibration can be reduced to harmless levels by using well designed control blasting.
- One effective way is the use of millisecond delays.



MEASURES FOR MITIGATING ENVIRONMENTAL DEGRADATION (CONT'D)

Measures against Water Pollution

- Water from washing plants can be directed into settling ponds and then recycled.
- Effluents from tailings dams can be directed into impoundments and detoxificated before they enter the natural drainage.
- Leach pads are constructed in such a way that will prevent the seepage of the leachate into the ground.

MEASURES FOR MITIGATING ENVIRONMENTAL DEGRADATION (CONT'D)

Measures against Water Pollution

- The quality of both surface and ground water can be monitored by testing them for the presence of contaminants.
- Where water pollution cannot be completely prevented, the local communities can be provided with potable water.

MEASURES FOR MITIGATING ENVIRONMENTAL DEGRADATION (CONT'D)

Measures against Land Degradation and Land Use Conflict

- Lands affected by mining can be rehabilitated to their original state even though the process will take a long time.
- Land use conflict can be resolved through negotiation and by paying realistic compensation for affected farms and other properties.

MEASURES FOR MITIGATING ENVIRONMENTAL DEGRADATION (CONT'D)

Measures against Land Degradation and Land Use Conflict

- Where resettlement of a community comes in, everything can be based on negotiation.
- The underlying principle of resettlement should be to make to the socio-economic life of the Mining Local Community (MLC) better.

COST OF MITIGATING ENVIRONMENTAL DEGRADATION AND MANAGING SOCIAL RESPONSIBILITY

It is estimated that the cost of mitigating environmental degradation is as high as 20%-30% of the total cost of mining or even more.

while the cost of managing CSR ranges from 1% to 2% of the total revenue from mining depending on the vital needs of the MLC.

Owing to these high costs, mining companies tend to use cheaper, ineffective measures that yield unsatisfactory results.

CONCLUSIONS

- Mining is very beneficial to the economy and people of Ghana.
- Mining can cause serious environmental degradation if it is not properly carried out.
- There are good mining methods, processing technologies and good practices by which mining can be carried out with little or no damage to the environment.
- Also, there are good ways to manage CSR to sustain the livelihood of the MLC.

CONCLUSIONS (CONT'D)

- Since the costs of mitigating the environmental degradation by mining and managing CSR are high, these costs must be properly estimated and included in the economic evaluation of any mining project before making a statement on the profitability of the project.
- If after this, the evaluation shows the project to be viable, then we can answer the question of whether we mine the mineral or not.

CONCLUSIONS (CONT'D)

- if we make use of geo-spatial data on the geo-environmental settings and value of our minerals,
- captured through exploration and environmental baseline studies,
- to employ suitable mining and processing methods and adopt best practices to prevent or mitigate any potential socio-environmental damage resulting from mining,

CONCLUSIONS (CONT'D)

- then we can mine our minerals profitably and enjoy the socio-economic benefits with little or no socio-environmental damage.

This constitutes the resolution of the economic controversy associated with mining and the environment.

Thank you very much for your attention and may God bless you all