

THE GOLD EXPO

REPORT 2022



THE POTENTIAL OF MINING FOR SUSTAINABLE DEVELOPMENT



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PARTNERS





**GHANA GOLD EXPO
MINING WEEK 2022**





**INTERIM REPORT OF THE
GHANA GOLD EXPO UNDER THE AUSPICES OF
WESTERN REGIONAL COORDINATING COUNCIL, GHANA**

**1ST - 2ND APRIL, 2022
GHANA MINING WEEK
THE POTENTIAL OF MINING FOR
SUSTAINABLE DEVELOPMENT**

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Western Regional Minister, Ghana

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Executive Director- Ghana Gold Expo

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Head of Trading

Ana Manduley Atoradian
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INTERNATIONAL ADVISORY BOARD



HON KWABENA OKYERE DARKO-MENSAH
(MP & WESTERN REGIONAL MINISTER)

Kobby as he is popularly addressed has lived all his life in the city of Takoradi. Educated from Services Primary Takoradi to MFANTSIPIM School in Cape Coast to the Kwame Nkrumah University of Science & Technology(KNUST) and the University of Cape Coast(UCC).

He holds a Bachelor of Science (Hon) Degree in Biochemistry, a Masters Arts Degree in Law & Development and a Diploma in Information Communication Technology from South Africa. Kobby is an avid businessman and an advocate of Private



MR. STEVEN BLESSING ACKAH
(EXECUTIVE DIRECTOR, GHANA GOLD EXPO)

Steven Blessing Ackah, is a Ghanaian based, award-winning young professional and award-winning Africa Achievers Merit Award 2016. Steven was called by the leading Regional Peace-Building Organization, (WANEP) and the Ghana National Peace Council, Kofi Annan Peacekeeping and Training Centre and Legon.

Centre for Diplomacy as the youth representative to assist the Election Situation Room as an Electoral Analyst and on the committee of youth and women during 2016 election held in Ghana a USAID Coordinated Project.



MR SELIM FENDI
CEO AURUM MONACO

Mr. Selim Fendi, a serial entrepreneur with more than 30 years of experience on the American, European, Emirati, and African markets in the precious metal industry.

Mr. Fendi's entrepreneurial career started in 1992 by working in a commercial real estate M&A in Canada covering the Caribbean market. Following the sale of his real estate interests he launched a new career in NYC by founding Alterama, a trading platform of precious metals and Forex, qualified for management of Derivatives, Futures and hedging products.



ANA MANDULEY
VICE PRESIDENT
(IN-CHARGE OF OUTREACH OF GHANA GOLD EXPO)

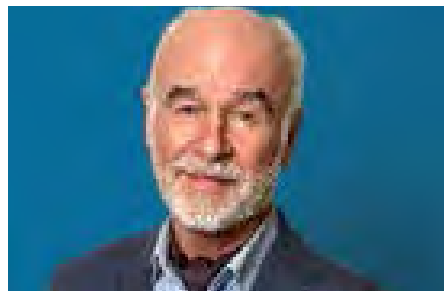
Business Development Specialist (Spanish F/18 A/C/SH-2 Helicopters/HARM Missiles program, Japanese Naval Program, Brazilian & Mexican & Peruvian Naval Programs), proposal management & wins (Mexican Navy Usumasinta Tank Landing Ship, Chilean Air Force A/C Sales, Nucletron oncology units for Brazil.)



NAWALAIT-HOCINE
HEAD OF COMPLIANCE

An experienced and accomplished senior sustainability, legal & compliance professional with a reputation for delivering effective solutions in complex international environments. A strategic minded, resourceful, commercially astute executive, with strong analytical, negotiation and influencing skills.

Able to operate at the most senior levels both within an international organisation and with third parties, and to create successful relations based on trust and a partnership approach.



STÉPHANE BRABANT
SENIOR PARTNER, PARIS

Stéphane Brabant is the Senior Partner of Trinity International AARPI (Trinity Paris). Prior to joining Trinity Paris in 2021, Stéphane was a partner at Herbert Smith Freehills and held global key roles, including co-Chair of the Africa practice, Chair of Global Mining, Co-head of Business and Human Rights group and Head of the Crisis Management group for Africa.

Stéphane has over 30 years of experience as a projects and transactional lawyer, primarily in the mining and energy sectors in Africa, with a particular focus on the structuring of complex investments between multinationals and States, crisis prevention and management and dispute resolution (including arbitration).



MRS ISABELLE STRAUSS KAHN
ADVISOR, WORLD GOLD COUNCIL
FORMER LEAD FINANCIAL OFFICER, WORLD BANK
FORMER MARKETS OPERATIONS DIRECTOR, BANQUE DE FRANCE

Isabelle Strauss-Kahn is a consultant, expert in financial issues, particularly governance, policies and asset management. She also is the Treasurer of the Paris Advanced Studies Institute. She worked at the World Bank Treasury (Lead Financial Officer: 2008-2018), the Banque de France (Market Operations Director: 2003-08; Deputy: 1999-2003; Head of Risk Management: 1995-99) and the Bank for International Settlements (Head of Middle Office: 1990-95). She received her MBA in France and graduated in Economics at the University of Chicago. She is a Board member of nonprofit organizations



NAWALAIT-HOCINE
HEAD OF COMPLIANCE

After a career in the global precious metals industry spanning four decades working across four continents for major bullion banks and financial institutions.

Jeffrey founded Rhodes Precious Metals Consultancy DMCC in 2013 offering specialist advisory and management services to the global precious metals industry. RPM's wide range of clients has included Banks, Regulated Exchanges, Government Entities, Refineries, and Wholesale Bullion Traders.



TETRETE OKUAMOAH SEKYIM
FORESTRY COMMISSION BOARD
CHAIRMAN

PREAMBLE

Minerals and metals make a major contribution to the global economy and modern societies. The global mining industry is important to all countries with mineral resources, in particular developing countries, like Ghana. It offers the potential to facilitate broad-based economic development, reduce poverty and assist countries in achieving sustainable development when managed effectively and properly.

Ghana is often recognized as a mining nation and one of Africa's fastest-growing economies. The mining sector plays a vital role in the country's economy as it attracts more than half of all foreign direct investment (FDI), generating more than one-third of all export revenues, and is the largest tax-paying industry in the country. The sector makes a significant contribution to the entire gross domestic product (GDP) and employment creation.

The commercially exploited minerals in Ghana include gold, manganese, bauxite, diamond, and others, of which gold is by far the largest, contributing over 95 percent of the country's total mineral revenue. In the last two years, Ghana has been Africa's largest gold producer. Mining undoubtedly is economically critical for the global economy with many developing countries like Ghana being significantly dependent on it. However, mineral wealth does not always mean positive economic growth. Ghana, just as any other mineral endowed nation has the sovereign right to develop its mineral resources according to the national development priorities and responsibility regarding the exploitation of resources.

The Ghana Gold Expo Mining Week is an initiative that gathers the industry regulators, large and small-scale miners, mineral processors, mining surveyors, environmental management experts, equipment manufacturers, banking and financial consultants, and academia to craft a new course for the industry. The initiative has

been running since 2020, with the President of Ghana as the Special Guest of Honor. On the 1st & 2nd of April 2022, the 3rd edition was hosted in Takoradi, the Western Region of Ghana. The event covered speeches, presentations, and panel discussions on various topics concerning the Ghana Mining sector. The 2022 Ghana Gold Expo Mining Week report presents the various discussions that took place during the event. It comprises 4 main sections, as summarized below.

Section 1: The Potential of Mining for Sustainable Development

The President Nana Addo government together with his appointees designated for the country's mining industry have on various platforms acknowledged that the country's mining activities should maximize social and economic benefits, as well as effectively address negative environmental and social impacts. In this regard, the government seeks to build strong capacities to develop, manage and regulate the mining industry, in the interest of sustainable development. This section of the report covered the speech of the President of Ghana and his designated officials during the event on the theme for the event. It also details the sustainability story of Gold Fields Ghana Limited, as presented by the acting Executive Vice President, Joshua Mortoti.

Section 2: Environmental Management and Sustainability

Whereas the mining industry provides vital raw materials and energy for a large number of other industries, its operations are viewed globally as a threat to the natural surroundings, with environmental effects on the air, water, and soils. In recent times, there has been a renewed debate about mining and its sustainability owing to public concern about the current degradation of the environment.



Some of the highlighted potentially serious environmental impacts of mining include chronic soil erosion, heavy metals overloading, and acid mine drainage. Therefore, the main hurdle for industry players is to prove that they contribute to the well-being of the current generation without compromising the quality of life of the next generation. Companies in the mining industry are expected to respond positively to these challenges by assuming responsibilities in community and national development. And must be able to deal with the compatibility between their production operations and the environment.

Industry players in the Ghanaian Mining space discussed the environmental, implications of their activities, whilst attempting to find sustainable solutions to the resulting environmental concerns. These discussions are presented in this section of the report.

Section 3: Mining and Investment

The mineral sector has attracted billions of US dollars in investment in the form of FDI representing over 56%, of total FDI to Ghana for mine expansion and rehabilitation, mineral exploration, and mines development, with over 80% of the investment going to the gold mining sector. The investments have resulted in a significant increase in mineral extraction and export particularly gold, out of the country and have led to tremendous growth in the sector's contribution to the foreign exchange earnings of the economy. The Ghana Gold Expo Mining week presented an opportunity for industry players to discuss investment in the mining sector. The Chief Executive Officer of the Minerals Income Investment Fund of the government of Ghana together with the Chief Executive Officer of the Ghana Chamber of Mines and some other industry players discussed how the

mineral income of the country is being put to use, as well as promoting feasible fiscal policies in the sector to promote local participation and investment into the exploratory sector of the mining sector.

Section 4: Gold Trading and Export Formalization

Artisanal Small-scale Gold Mining (ASGM) has become a growing source of employment in Ghana) but formalization is still a big challenge and constitutes the root of a substantial number of problems and negative impacts associated with ASGM. Like other mining activities, ASGM is cyclical, and because of some unique structural and financial characteristics, it is acutely sensitive to economic variations. It can appear to be transitory due to its characteristically short-term nature; the available evidence strongly suggests that ASGM is not going to diminish as an economic activity in the short term. However, the high levels of informality and illegality pose a difficult, but necessary question that was addressed by the Bank of Ghana and other stakeholders during the Ghana Gold Expo Mining Week, 2022. The section reports on the progress so far with the Bank of Ghana Gold Purchasing Program, the efforts of the Ghana Revenue Authority in promoting the export of gold, and the impact of blockchain technology on the formalization of the supply chain.



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(Western Regional Minister, Ghana)



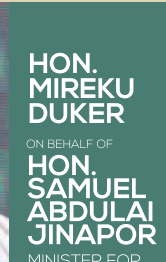
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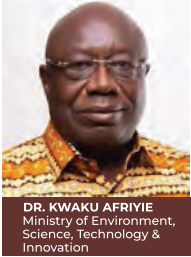
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DR. KWAKU AFRIYIE
Ministry of Environment,
Science, Technology &
Innovation

The Minister for MESTI, Dr. Kwaku Afriyie is a Medical

Doctor by profession and has previously served as Minister of the Ministries of Health, Lands and Natural Resources, Western Regional Minister, and **Minister of State Interests and Governance Authority (SIGA)** at various stages of his political career.

As a former Minister of Health from 2001 to 2005, Dr. Afriyie led the introduction of the **National Health Insurance Scheme**, from concept, through legislation, to implementation.



PROF. RICHARD K. AMANKWAH
Vice Chancellor Of UMAT

Richard Kwasi Amankwah is a Professor in the Department

of Mineral Engineering at the University of Mines & Technology in Tarkwa, Ghana. Richard Amankwah joined the University of Mines and Technology, then Kwame Nkrumah University of Science and Technology School of Mines in 1993.

Richard Amankwah, a visiting scholar at Queens University, received his PhD in 2005 and is credited with a number of publications in high profile academic journals



JOSHUA MORTOTI
EVP & Head Of Gold Fields W/a

Joshua Mortoti is a Mechanical and Mining Engineer with over 25 years'

experience in the mining industry. His areas of expertise include managing mine operations, engineering, strategic planning and business development.

Additionally, he is knowledgeable in energy management and accounting.

He joined Gold Fields in April 2021 as Vice President – Operations for the West Africa Region and became the Acting EVP and Head of the Region on 1 January 2022.



HON. BARBARA OTENG GYASI
Chairperson Of Minerals
Commission

Barbara Oteng Gyasi born October 5 1964 is a Ghanaian politician and the Member of Parliament of Prestea Huni-Valley constituency of the Western Region of Ghana.

She is a member of the New Patriotic Party and the Deputy Minister for Lands and Natural Resources in Ghana.

She obtained an L.L.B and an E.M.B.A from the University of Ghana as well as a Bachelor of Law from the Ghana School of Law.

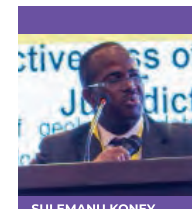


HON. GEORGE MERIKU DUKER

Deputy Minister - Ministry Of Lands & National Resources

George Mireku Duker is a Ghanaian politician and member of the Seventh Parliament of the Fourth Republic of Ghana representing the Tarkwa-Nsuaem Constituency in the Western Region on the ticket of the New Patriotic Party.

He obtained an M.Sc in Oil and Gas Management from the University of Plymouth, U.K,a B.ED in Accounting from the University of Education, and a Cert A from Komedra College.



SULEMANU KONEY
CEO Of The Ghana Chamber Of Mines

Mr. Sulemanu Koney is the Chief Executive Officer of the Ghana Chamber of Mines the former Director for Analysis, Research and Finance.

As a Director, he managed the industry's engagements with stakeholders in the development of supply chain regimes, addressed security concerns and technical issues of the industry, in addition to the core scope of his portfolio.

Additionally, he is knowledgeable in energy management and accounting.

He joined Gold Fields in April 2021 as Vice President – Operations for the West Africa Region and became the Acting EVP and Head of the Region on 1 January 2022.



MR. STEPHEN OPATA
Director - Financial Market
Department - Bank Of Ghana

Stephen Opata is Director of the Financial Markets

Department at the Bank of Ghana and a member of the Monetary Policy Committee.

He joined the Bank of Ghana in 2006 and serves on the Reserves Management, Investments and Auctions Committees at the Central Bank.

He has been one of the architects of the central bank's domestic Gold Purchase program and represents the Bank of Ghana on a few technical committees including the Ghana Petroleum Funds' Investment Advisory Committee and Capital Market Master Plan Committee.



MR. MARTIN KWAKU AYISI
CEO of Minerals Commission

Martin is a consultant with M&A and is a renowned international

lawyer with a vast experience in policy and regulations in Mining, Oil and Gas sectors. Martin has consulted widely for the Ministry of Petroleum and Mining in drafting the new Mining Act and the various regulations there-under, and in doing so he has engaged with the M&A team greatly in stakeholder consultations.

He has also consulted for various international firms such as Smith International, the World Bank and the Wood Foundation. He holds an LLM in Energy, Natural Resources and Environmental Law (Canada) and PHD in Mineral Law in Africa (South Africa) and is also a Commissioner with the Ghana Minerals Commission, therefore bringing a great wealth of experience to the team.



DR. CELESTINA ALLOTEY
VP & Head Of Sustainable
Development - Gold Fields

Dr. Celestina Allotey has over 20

years' experience as a Geoenvironmental Engineer, researcher and consultant. She joined Gold Fields in August 2020 as Vice President and Head of Sustainable Development.

Prior to joining Gold Fields, Dr Allotey worked at Golder Associates as Senior Geoenvironmental / Tailings Engineer and later as the company's Regional Manager for West Africa.

She was also the Senior Manager for Environment and Closure at AngloGold Ashanti Ghana, following her time with AMEC Earth and Environmental in Ontario, Canada as a Geoenvironmental Engineer.



TETRETE OKUAMOAH SEKYIM
Forestry Commission Board
Chairman



ANGELA LIST
CEO Adamus resources Limited
and Northern Ashanti mining

Angela Djala List is Non-Executive Director of the Company. Angela is a director of BCM Investment Limited ("BCM"), which following its participation in the Company's

recent fundraise announced on 27 September 2017, is interested in approximately 20.08 per cent. of the Company's issued share capital. BCM is part of the wider BCM Group of companies ("BCM Group"), which are one of Africa's largest private contract miners. Her trusted network throughout Africa extends from Government authorities through to the local communities where the BCM Group operates.

Most recently, Angela was instrumental in the BCM Group acquiring a 90 per cent. interest in the Nzema Mine in Ghana, formerly owned by TSX-listed Endeavour Mining Corporation.



DR. NAWAL AIT-HOCINE
IT-HOCINE, Founder & CEO
A Positive Impactn Sarl

Nawal Art-Hocine is an independent compliance, sustainability and legal

professional with 20 years' experience in executive positions, managing and protecting corporate risk and reputation while shaping industry best practice in several sectors.

In her current work, Nawal is driving sustainability and compliance projects to embed triple bottom line strategies. This includes the design of several sustainability, risk management and compliance strategies (including policies and procedures, communication and training), as well as of due diligence programmes, running investigations and coordinating certification audits.

Expert SPEAKERS



Mr. Attakumah has thirty years' experience in the mining industry spanning project development, operations management, sustainability, and corporate affairs. Prior to joining Asante, he was the Executive Vice President and Managing Director of Asanko Gold Ghana Limited.

MR. FREDERICK ATTAKUMAH
COO of Asante Gold Corporation



and African markets in the precious metal industry. Mr. Fendi's entrepreneurial career started in 1992 by working in a commercial real estate M&A in Canada covering the Caribbean market.

MR. SELIM FENDI
CEO - Aurum Monaco

Mr. Selim Fendi, a serial entrepreneur with more than 30 years of experience on the American, European, Emirati,

Following the sale of his real estate interests he launched a new career in NYC by founding Alterama, a trading platform of precious metals and Forex, qualified for management of Derivatives, Futures and hedging products.

In 2010, he came back to Europe to oversee the setup of Forex, Oil & Gas and Precious Metals Desk at Market Securities in Geneva.



EMAD DERAZ
Executive Director - Gold Coast Refinery

Gold Coast Refinery deems it a strategic responsibility to ensure its support for

legal and sound extractive practices to promote sustainable development.

The company takes into consideration the importance of the environment, making use of every raw material and operating under very friendly, safe and healthy conditions.

The company has engaged the services of an international firm to develop environmentally sustainable models for skilled craft miners (Small and medium enterprises).



the Sixth Parliament of the Fourth Republic of Ghana representing the Bantama Constituency in the Bantama on the ticket of the New Patriotic Party Kokofu was born on 5 October 1960.

He hails from Adiebeba- Kumasi, a town in the Ashanti Region of Ghana. He attended the Kwame Nkrumah University of Science and Technology and obtained his Bachelor of Science degree in Natural Resource Management in 1971. In 2007, he acquired a Master of Science degree in Agroforestry from the same university. He also attended Ghana School of Law and obtained his Bachelor of Laws degree in law.

DR. HENRY KOKOFU
CEO of EPA

Henry Kwabena Kokofu (born 5 October 1960) is a Ghanaian politician and was a member of



Captain Johan Zietsman grew up near the ocean on a farm in South Africa and began fishing with his father at five years old.

All holidays and free time were spent fishing for trout, carp, and bass in the mountains.

In 1990, Zietsman moved to Kenya where he was introduced to offshore fishing.

MR. JOHAN ZIETSMAN
Director, Volta Ghana LTD



LAURENT PIAT
Managing Director, Veolia Ghana Ltd

A graduate of the French Engineering School, CPE LYON, France, began his career Laurent Piat in 2002 as a Sales Engineer at the GE Water Process

Technologies before joining Veolia Paris Head Office (France) in 2007 where he was a Project support & Cost Engineer in the construction of the Sydney Desalination Plant, 250 MLD / Gold Coast Desalination Plant, 125 MLD and the Fujairah II desalination plant, 135 MLD.

He was later promoted to Deputy Site Manager in Aruba (Carri bean) for the construction and operation of the ARUBA desalination plant, 24 MLD.

Two years later he was appointed as Contract & Tender Manager for Veolia North America in the specialised field of brine & salt management.



experience. He started his professional working career as a Management Consultant at PriceWaterhouseCoopers in 1999.

Prior to his appointment as the Chief Executive Officer of the Minerals Income Investment Fund (MIIF), Mr. Koranteng was the Regional Head of East, Central and Southern Africa for Ghana International Bank plc (GIB) in the United Kingdom, stationed primarily in Nairobi, Kenya. He was also responsible for GIB's energy and mining portfolio.

EDWARD NANA YAW KORANTENG
CEO - Minerals Income Investment Fund

Edward Nana Yaw Koranteng is an investment banker and lawyer with over twenty-two years corporate

Among Edward Koranteng's many achievements under the GIB mandate are the successful development of a funding structure for the Reserve Bank of Malawi to support Malawi's dollar reserves.



MR. MARTIN KWAKU AYISI
CEO of Minerals Commission

Martin is a consultant with M&A and is a renowned international

lawyer with a vast experience in policy and regulations in Mining, Oil and Gas sectors. Martin has consulted widely for the Ministry of Petroleum and Mining in drafting the new Mining Act and the various regulations there-under, and in doing so he has engaged with the M&A team greatly in stakeholder consultations.

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NIRALI SHAH
CPO Of Responsible Gold Supply Chain

Nirali is the Chief Operating Officer of Responsible Gold Supply Chain

LLC (RGSC) and has over 20 years' international experience in designing and delivering sustainable solutions for multinational organizations, having spent most of her career in professional practice. Since qualifying as a financial auditor in 2004, Nirali focused on transferring her audit skills and experience to the corporate sustainability field.

Until recently, Nirali led Deloitte UK's sustainability services for the extractives sector, working with international mining houses on their environmental, social and governance footprints, risk and impacts assessments, stakeholder management and reporting frameworks, and independent assurance engagements.



COL. KWADWO DAMOAH (RTD)
Ghana Revenue Authority (GRA)

Col K Damoah (Rtd) is currently the Commissioner of the Customs Division of the Ghana Revenue Authority (GRA). He was appointed Acting Commissioner on 30th May, 2019 and subsequently confirmed on 19th May, 2020.

Prior to his appointment as Commissioner, he had been a Board Member of the Ghana Revenue Authority from May 2017. He was appointed a Technical Advisor to the Commissioner General from October 2017 to June 2019.



NANA AKWASI AWUAH
Acting Managing Director Of The Precious Minerals Marketing Company (PMMC)

Nana Akwasi Awuah is a young passionate lawyer and until

recently was the Managing Partner of Parkwood and Mossane, a boutique law firm located at East Legon, Accra.

Nana Awuah's law practice focused on Corporate and Commercial Law, Regulatory Compliance, Real Property Law, Alternate Dispute Resolution, Intellectual Property Law, Family Law, Human Rights, Industrial Relations Law, Constitutional and Administrative Law.

In 2017, Nana Awuah was appointed by the President of the Republic of Ghana to serve on the Board of Directors of the Precious Minerals Marketing Company (PMMC).



MR. STÉPHANE BRABANT
Senior Partner Of Trinity International Aarpi (Trinity Paris)

Stéphane Brabant is the Senior Partner of Trinity International AARPI (Trinity Paris). Prior to joining Trinity Paris in 2021,

Stéphane was a partner at Herbert Smith Freehills and held global key roles, including co-Chair of Global Africa practice, Chair of Global Mining, Co-head of Business and Human Rights group and Head of the Crisis Management group for Africa.

Stéphane has over 30 years of experience as a projects and transactional lawyer, primarily in the mining and energy sectors in Africa, with a particular focus on the structuring of complex investments between multinationals and States, crisis prevention and management and dispute resolution (including arbitration).

GHANA MINING WEEK 22

THE POTENTIAL OF MINING FOR SUSTAINABLE DEVELOPEMENT

SPONSORS & PARTNERS

 <p>OFFICIAL ORGANIZERS</p>	 <p>HEADLINE SPONSOR</p>	 <p>RESPONSIBLE SOURCING SPONSOR</p>	 <p>RESPONSIBLE REFINERY SPONSOR</p>
 <p>GOLD & BRANDVOICE SPONSOR</p>	 <p>UMAT - DEVELOPMENT RESEARCH PARTNER</p>	 <p>OFFICIAL RESPONSIBLE INVESTMENT FUND PARTNER</p>	 <p>DEVELOPMENT PARTNERS</p>
 <p>MAIN STAGE SPONSOR</p>	 <p>CONSERVATION MINE SPONSOR</p>	 <p>DEVELOPMENT PARTNER</p>	 <p>DIGITAL PLATFORM SPONSOR</p>
 <p>LOCAL CONTENT PARTNER</p>	 <p>LOCAL CONTENT SUPPORT</p>	 <p>LOCAL CONTENT PARTNER</p>	 <p>LOCAL CONTENT PARTNER</p>



VIEWTAG

GHANA GOLD EXPO

www.ghanagoldexpo.org





GHANA GOLD EXPO

The Western Regional Coordinating Council and Viewtag-Ghana as a policy advocacy body that focuses mainly on Promoting Zero Mercury (Responsible Gold Production) in local mining. It provides a platform to advance against the application of the deadly chemical in mining by the Minamata Convention on Mercury and Gold trade traceability.

With the support of the Government of Ghana, through the Western Regional Coordinating Council and with the partnership and support of international agencies like Aurum Monaco, Forbes Monaco, UN Environments Branch, Swiss Better Gold Association, 4bird Company, View-Tag, and all other stakeholders in the mining industry across the globe, the Ghana Gold Expo organized its maiden expo in March 2020, in Takoradi which saw the participation of 1,080 attendees from over 25 countries, with 20 Exhibitors, 300 Mining Executives, 250 Small Scale Miners, 10 gold refineries, 150 Investors and over 100 Government Representatives.

Our areas of work

Ghana Gold Expo & Mining Week Forum

Conservation Mine & Reclamation Award & Programme

Gold Trading & Supply Chain Programme

Air Bullion Transport

Gold Expo Report

Earn to Give Initiative

Ghana Mining Hub & Due Diligence Policy

Diplomatic Mining Tour

LAYOUT

REGISTRATION & OPENING CEREMONY

KEY NOTE SPEAKERS & PRESENTATIONS

CONSERVATION MINE & RECLAMATION AWARDS DINNER NIGHT

MINING POLICY FORUM

- MINE TAILING STORAGE TECHNOLOGY
- STANDARD, REGULATIONS AND TAILINGS MANAGEMENT
- PREPAREDNESS IN EVENT OF TAILING FUTURE FAILURE
- COST IMPACT & PUBLIC DISCLOSURE TO IMPACT PUBLIC ACCOUNTABILITY

BUSINESS TO BUSINESS / NETWORKING

MINING TOUR

- VISIT TO MINE TAILINGS DAM
- CASES OF SUCCESS; RECLAMATION SITE
- WATER TREATMENT TECHNOLOGIES

MINING AND RESPONSIBLE INVESTMENT PANEL

- MINING EXPLORATION COST
- MINERALS ROYALTIES ON GHANA'S ECONOMY
- MINING OPERATIONS AND GOVERNMENT INCENTIVES TO ATTRACT INVESTORS

ACTIVITIES FOR THE GHANA MINING WEEK

The Expo will involve a formal reception, a grand opening ceremony, plenary sessions, presentations by Keynote speakers, issuance of Commemorative Gold Coin, networking, display of sponsors paraphernalia and the most exciting gold luxury 24k gold dinner experience.

Forum Organizing Committee

The Forum is convened by Viewtag- Ghana Gold Expo with support from the Western Regional Coordinating Council, Ministry of Lands and Natural Resources and Forbes Monaco and our partners/ sponsors.



WELCOME ADDRESS

*Hon. Kwabena Okyere-Darko Mensah
(Western Regional Minister, Ghana)*

Your Excellency, Nana Addo Dankwa Akufo-Addo, President of the *Republic of Ghana and Commander-In-Chief of the Ghana Armed Forces; Tetrete Okuamoah II, Omanhene of the Wassa Amenfi Traditional Area and Chairman of the 2022 Ghana Mining Week Event; Hon. Samuel Abdulai Jinapor, Minister for Lands and Natural Resources; Colleague Hon. Members of Parliament and Ministers of State Present; Eminent Nananom Present; Hon. Metropolitan, Municipal, and District Chief Executives Present; Hon. Barbara Oteng-Gyasi, Chief Executive of the Minerals Commission; Mr. Edward Nana Yaw Koranteng, Chief Executive of the Minerals Income and Investment Fund (MIIF); Mr. Selim Fendi, CEO of Aurum Monaco; Dr. Blessing Steven Ackah, Executive Director, View Tag Ghana and Ghana Gold Expo; Mr. Frederick Agyemang, Chief Director, Western Regional Coordinating Council; General Managers of Mining Companies Present; Small Scale Miners Present and the Leadership of the Small-Scale Miners Association; Distinguished Invited Guests; Members of the Media; Ladies and Gentlemen; Good morning!*

First of all, and in all humility, I indulge you all to be upstanding for us to observe a minute's silence in memory of the fourteen persons who lost their lives as a result of January 20, 2022, Appiatse Explosion. May their souls and the souls of all the faithful departed rest in peace. Nana Chairman, it is an honor and privilege for me to once again welcome you on behalf of the Chiefs and people of the Western Region and my behalf, on the occasion of the 2022 Ghana Mining Week, which also marks the Third and Second Editions of the Ghana Gold Expo and Mining Week respectively.

I sincerely welcome each one of you, especially, our devoted patrons for giving us cause to hold firmly onto our vision, even amid challenges posed by the Covid-19 Pandemic. Your feedback on the experiential value you gained from these Gold Expo events informs us that, we are doing the right thing and that, the Ghana Gold Expo/Mining Week is serving its purpose i.e. impacting positively on both

corporate and personal objectives.

To our first-time guests, we wish to assure you that, our platform offers win-win opportunities for the Western Region and Ghana on one hand, and participants in the Gold/Mining and related industries across the world, on the other hand. You should, therefore, rest assured that, you will have an immense value for your participation, and therefore would not hesitate to return for the event in subsequent years.

Your Excellency, Nana Chairman, Distinguished Participants, Ladies and Gentlemen, Ghana's mining credentials predate the colonial era, and over the years, there have been progressive developments in the sector regarding legislation by the Government, investments, technology application, and the discovery of other minerals than Gold. It will interest you all to know how Ghana is abundantly endowed with rich economic minerals such as mica, salt, clay, kaolin, columbite-tantalite, feldspar, chrome, and silica sand, quartz, lime, lithium, iron ore, etc.

However, it is common knowledge that, as a nation, our attention is much more centered on gold and traditional minerals like diamonds, manganese, and bauxite to the neglect of these other non-gold minerals. It is on this background, and in recognition of the economic potential of these unsung minerals that, the focus of the 2022 Ghana Mining Week has been broadened to include all the sixteen (16) mineral resources of the nation; a majority of which, Mr. President and Nana Chair, are found in the Western Region in addition to our agricultural, tourism, oil and gas endowments.

Your Excellency, Nana Chairman, the concept of the Ghana Mining Week recognizes the interplay between mining and the other sectors of the national economy. Thankfully, for three consecutive years, the Ghana Gold Expo has been able to bring together companies and business operators from diverse industries on one common platform to explore the possibilities of complementing each other's efforts to achieve synergy, and I must admit, the impact has been overwhelming (the Vice-Chancellor of UMAT has a testimony to share). The 2022 Ghana Mining Week (like the two previous editions) is a call to investors in the areas of exploration, mining, processing, refinery, jewelry, mining tourism, financing, infrastructure development, environmental management, etc.

Consequently, in line with the theme for this year- "The Potential of Mining For Sustainable Development", the 2022 Ghana Mining Week seeks "togetherness in mining" and so, in the next two days, accredited representatives of our stakeholders (local, national and international) will be offered a formal dialogue on tackling the most critical



environmental issues, adopting the evolving Government policies on mineral resources extraction, boosting investor interest and promoting responsible and safe mining among others. Views will be collated and Action Plans produced to drive a regional-based commitment toward an accelerated mine tailing development and sustainability of the mineral resources via risk mitigation and turning challenges into opportunities. As part of the program outline, we will undertake a diplomatic mining tour to Adamus Resources Limited to acquaint ourselves with their operations i.e., Tailings Dump, and to share in their successes regarding reclamation and water treatment technologies.

Your Excellency, Nana Chairman, if there is any other impact that the Ghana Gold Expo has been able to make apart from its basic objective of ensuring a safer mining environment through responsible mining, the Project can bring in those in Academia to proffer practical solutions to long-aged challenges bedeviling the mining sector through capacity building (especially human capital development) and technology.

Last year, I made a strong case for large-scale mining companies to handhold the small ones in the areas of capacity building, equipment financing, and even, ceding unused mining

concessions to the latter.

I am happy to report that, as an outcome of the Ghana Gold Expo/ Mining Week project, Gold Fields Ghana Limited is currently advancing discussions with the University of Mines and Technology (UMaT) for both entities to train community mining companies in the Western Region. Permit me, therefore, Nana Chair, to commend the Vice-Chancellor of UMaT and his team for taking up the challenge to portray the real essence of the Academia in national development beyond the lecture halls.

Your Excellency, Nana Chairman, the people have aspired to see this Region's natural resource endowments translate into economic fortunes. Hence, we have made a conscious effort to push for our people to legitimately own the productive assets, necessary to exploit these resources and retain the gains thereof. It is on this note that I see the coming on board of the Minerals Income Investment Fund (MIIF) as a complementary step to what we have been advocating for over the period.

The MIIF, through its Small-Scale Mining Incubation Programme, is building capacities of small-scale and community mining ventures and offering financial models (for equipment financing) which traditionally are difficult for the small-scale miners to access. With all these investments and commitment on the part of the Government, I can confidently say that, in the nearest future, size will be the only criterion to differentiate between large- and small-scale mines, and that, all other things such as Mining Practices, Safety, Recovery, Sale, and Sourcing of Minerals will be the same for both.

In this regard, I wish to state that, the Western Region is better placed to serve as the headquarters for responsible mining and mining-related activities. We, therefore, hope to see this realized through increased private sector involvement in the form of direct investment, exploration financing, research, and technology transfer.

Nana Chairman, I am glad to say that, both the 2020 Ghana Gold Expo and the 2021 Mining Week, succeeded in depicting the mining industry as a formidable sector for long-term economic growth especially, with a firmer regulatory framework and increasing formalization. "We, therefore, look to the day the District Mining Committees would be re-activated so that the licensing protocols are shortened to enable more control of the illegality in the Sector."

This, was one of my prayers last year. Gratefully, with a clear demonstration of commitment by the Government through the Ministry of Lands and Natural Resources to formalize the Small-Scale Mining Sector, six (6) out of the twelve (12) District Mining Committees – Tarkwa-Nsuaem, Prestea-Huni Valley, Wassa East, Wassa Amenfi East, West and

Central-have been reactivated.

Last year, we talked about the Ghana Gold Brand and Certification. We are pleased to inform you that, Gold Coast Refinery is currently undergoing the certification program with Responsible Jewelry Council, an affiliate of the London Bullion Market Association (LBMA) and that, tomorrow, a full training session will be conducted on responsible sourcing and certification for bankers, financiers, miners, traders and value chain actors in the mining industry.

Furthermore, when we launched the program in 2021, we spoke of the need to safeguard the integrity of the gold value chain and proposed the use of blockchain technologies to that effect. While we recognize the enthusiasm of the world in that direction, Africa, which produces the gold cannot be left out. We, therefore, call on the Ghanaian/African Technology Community to rise to the occasion to ensure that, those who do not produce gold, do not as well, control the entire value chain by designing a technology (the creation of which) we are not part of. We all know what that will mean to us in Africa.

Your Excellency, Nana Chairman, one important motive of the Gold Expo (Mining Week) from its inception, has always been to advocate for a safer mining environment. Without a doubt, we can assuredly say we have made great strides as far as this core value is concerned. It was however unfortunate that, while we were consolidating our gains, and forging ahead, we were hit with the unfortunate "Appiatse Explosion" incident on that fateful Thursday, 20th January 2022. I want to use this opportunity to commiserate with the families of the departed souls and to wish the injured a speedy recovery.

I wish to also express my profound apprecia-

tion to Government and its agencies, as well as public-spirited individuals and institutions who generously donated in cash and are kind to the victims. Nevertheless, I solicit more of such gestures to ensure that the affected persons live a dignifying life temporarily, while a more permanent solution is pursued them.

Your Excellency, Nana Chairman, Nananom, Distinguished Invited Guests, permit me at this stage to acknowledge our sponsors, partners, and supporters who have believed in our vision and have stood by us all these years. They are:

The Ministry of Lands and Natural Resources (as Co-host), Ministry of Science, Technology and Innovations, Ministry of Finance, Ministry of Trade and Industry, Ministry of Foreign Affairs and Regional Integration, Ministry of Transport, Bank of Ghana, Chamber of Mines Adamus Resources Limited, Asante Gold Corporation, Keda, Aurum Global Partners, Forestry Commission, Veolia, Forbes Monaco, UN Environments Branch, A Positive Impact SARL, Goldfields Ghana Limited, and View-Tag /Gold Expo, UMaT, Zenith Bank and all other stakeholders in the mining industry across within and outside Ghana.

I wish to also pay special homage to Hon. Samuel Abdulai Jinapor, Minister for Lands and Natural Resources for his hard work and responsiveness which can unequivocally be likened to an earth-moving machine, and has thus earned him the accolade "Caterpillar", clearing every obstacle and overcoming challenges in his Sector. Congratulations, Hon. Abu Jinapor!

On this note, you are all most welcome to the Western Region and the 2022 Ghana Mining Week. Enjoy your stay in the Region where the Best is. Thank you



The Western Region Of Ghana

Ghana's wealth of resources, democratic political system and dynamic economy make it undoubtedly one of Africa's leading business and tourist destinations. It has gained the world's confidence with its peaceful political system founded on a grounded and firm commitment to democracy. The Western Region which is one of Ghana's 16 regions is a focal contributor to the country's economy.

The region is located in the south of the country and spreads from the Republic of Ivory Coast in the west, to the Central Region in the east. The Western region has Sekondi-Takoradi, on the coast as its twin capital city. Some of its popular locations are the Coastal Axim, and the hilly inland area which includes Elubo, Ghana's southernmost location, Cape Three Points , where crude oil was discovered in commercial quantities in June 2007. The region has an estimated population of 3,093,201 as of 2019 and covers an area of 23,921 sq. Km.

The region is regarded to be the heart of Ghana's economy. It has the highest rainfall in

the country, lush green hills and fertile soils. There are numerous mineral deposits and natural resources including gold. The availability of the minerals has led to the establishment of both large and small-gold mining companies along with offshore oil platforms.

The region also has nice tourist sites that make visiting the place worth the time. The largest rivers are the Ankobra River, the Bia River and the Pra River in the east, with the Tano River partly forming the western national border. It has the popular Nzuleso village built entirely on stilts and platforms over water and the Ankasa Protected Area.

Building on significant natural resources in precious metals and oil & gas, the government of Ghana has been committed to improving its physical infrastructure. Moreover, Ghana has recently created ambitious but achievable reform policies to improve the investment environment for both local and international investors.



CHAIRMAN REMARKS

*Nana Terete Okuamoah Sekyim II
(Chairman Of Forestry Commission)*



Hon. Samuel Abdulai Jinapor, Minister of Lands and Natural Resources; Hon. George Mireku Duker; Hon. Barbara Oteng Gyasi, Chairperson of the Mineral's Commission, Metropolitan, Municipal, and District Chief Executives Present; and various Board Members available, our partners, local and foreign; Ladies and Gentlemen;

It has been a good day today, and Ghana Gold Expo has done it again for the third time. The theme for this year's mining week as we all know is the "Potential of Mining for Sustaining Development". And I am saying to myself, "what are we sustaining or developed, and what have we developed that we are trying to sustain?"

As we are all aware, in September 2015, the United Nation member states agreed on a set of 17 sustainable development goals; which represents the global agenda for equitable, socially inclusive, and environmentally sustainable economic development until 2030. These goals include ending poverty, educating the children in our community, avoiding water waste, empowering women & girls and ensuring their equal rights, creating jobs opportunities for our youths, further projects that provide basic infrastructure, decreasing carbon emissions, and stopping global warming and planting trees to help protect the environment. It is therefore appropriate, that 7 years on and 8 years before we hit our target of

2030, the organizers of the Mining Week in our country decide to select a theme like this that relates well with the UNSDGs.

As the theme recognizes, the mining industry globally and most especially in our country has a major role to play in contributing to the achievements of the UNSDGs. Everyone gathered here for this conference, both on this premise or following virtually, has the opportunity and responsibility to show that the UNSDGs are being incorporated into the operations of our businesses. Mining companies can be leading partners in achieving the UNSDGs, as I have seen many around here do. With mining accounting for 4 to 7% of greenhouse gas emissions globally, the sector can use its research and development divisions to develop alternatives to minimize the need for primary extraction of some minerals, through phytomining, biomining, or reuse and recycling technologies, thereby decreasing its carbon footprints.

As the Chairman of the Board of the Forestry Commission, the biodiversity of this country is very important to me and I hope that all of us gathered here will work together to develop and support projects that promotes biodiversity. Because biodiversity preserves our ecosystem and serves as a natural habitat for many species. I also ask that we all encourage and participate in landscape planning and reforestation of degraded lands to restore these natural habitats.

To this end, the Forestry Commission has partnered with the ViewTag Ghana Gold Expo to embark on massive reclamation and reforestation program. Of course, our efforts alone will not be enough, that is why we have also partnered with all necessary government institutions, civil society groups, and development partners. Not forgetting the involvement of the grassroots, of which many of them are our youth with creative minds.

I am thrilled the theme this year is focusing on sustainable development and hope that this yearly meeting of the Ghana Gold Expo will propel those in the mining industry to do more to help us in achieving the UNSDGs by 2030. Because Sustainability is now! Sustainability is not just the Future! And achieving the UNSDDs is not just for the environment but good for business. Thank you all...



OPENING REMARKS

*Hon. Barbara Oteng Gyasi
(Chairperson Of Minerals Commission)*

The Western Regional Minister, Kwabena Okyere Darko Mensah, Tetrete Okuamoah II, Omanhene of the Wassa Amenfi Traditional Area and Chairman of the 2022 Ghana Mining Week Event; Hon. Samuel Abdulai Jinapor, Minister of Lands and Natural Resources; Fellow Hon. Members of Parliament and Ministers of State Present; Eminent Nananom Present; Hon. Metropolitan, Municipal, and District Chief Executives Present; Mr. Selim Fendi, CEO of Aurum Monaco;

It is my honor to be here this morning and to deliver opening remarks for this year's Ghana Mining Week. The theme for this forum, "the potential of mining for sustainable development" is very appropriate. As it succinctly sets out the essence of our gathering, which is to evaluate the successes and challenges of Ghana's mining industry and more importantly to critically assess the role that mining can play in our country's quest to promote sustainable development and the highest standard of living for the people of Ghana.

Ladies and gentlemen, Ghana has a well-established mining sector, which has grown considerably to represent an important pillar of the Ghanaian economy. The mining sector is a major foreign exchange earner and the major employer in the country. It is a fact that the long-term sustainable development of the country cannot be achieved unless there is a clear-cut vision and a robust framework including the policy,

institutional, legal and regulatory framework to drive the critical sectors of the economy.

In recognition of this fact, the Minerals and Mining Policy of Ghana, 2014, stipulates the need for the country to secure the continuous development of a thriving mining industry that will contribute to sustainable economic development.

As the regulator of the mining industry, the Minerals Commission has spearheaded various initiatives which are contributing significantly toward sustainable development, not only in the mining industry but the country as a whole. Some of these initiatives include;

The Public-Private collaboration between the Minerals Commission, Geological Survey Authority, and industry to undertake geological investigations, which will generate adequate geoscientific data to promote investment and diversify the country's mineral production base.

The introduction of mercury-free gold processors called "the Gold Catcher". The Gold Catcher has been deployed for use by small-scale miners to ensure that they optimize their gold recovery through environmentally responsible methods.

The passage of the minerals and mining local content and local participation regulations 2020, LI 2431. It must be emphasized that LI 2431 has been designed to significantly promote backward, forward, and side-stream linkages between the mining industry and the broader Ghanaian economy in diverse ways. For example, in addition to promoting the procurement of goods produced locally, several professional services like legal, insurance, financial, and accounting are reserved for Ghanaians. Also, LI 2431, requires that mining companies that meet specified capital requirement thresholds must list at least 20% of the company's equity on the Ghana Stock Exchange (GSE).

Investing significantly in the training and recruitment of skilled human resources for the regulator to enable it to effectively perform its mandates efficiently.

The creation of the Gender and International Affairs Unit at the Minerals Commission focuses on developing policies for promoting gender mainstreaming in the mining industry. The unit is currently collaborating with other government agencies including the Environmental Protection Agency (EPA) and Forestry Commission to implement the World Bank's sponsored Ghana Landscape Restoration and Small Scale Mining Project.

The Introduction of the Community Mining Scheme in designated mining communities has made it possible for members of the scheme to sign on to an enforceable code of practices and have been trained to employ modern and sustainable mining practices in their operations.

The reclamation and rehabilitation of lands degraded by illegal mining activities.

The expansion of the Alternative Livelihood Program to cover many more mining communities. Decentralization of mineral rights and small-scale mining licensing regime to ensure transparency, efficiency, and enhance mobilization from mineral operations.

All these interventions will ensure that the country derives the uttermost benefits from mining.

Ladies and Gentlemen, I believe that the conveners and organizers of the Ghana Mining Week deserve our commendation for bringing together all the major stakeholders in Ghana's mining industry, that is, government, regulators, industry, community, and civil society to deliberate and engage on diverse aspects of the mining industry and the minerals and mining value chain in Ghana.

In the wake of unrivaled global financial and economic challenges, I am confident that this year's conference will stimulate insightful discussions and deliver research-based solutions to help address the challenges and harness new opportunities in our mining industry.

The Minerals Commission will continue to support the government and industry to secure the continued development of a thriving mining industry that will contribute to sustainable economic development. We will continue to enforce the coun-



try's mining laws and regulations effectively and develop new policies and initiatives to meet the changing demands of the modern mining industry. Importantly, we will ensure that the development and utilization of the country's mineral resources are conducted through modern, safe, environmentally sustainable, and socially responsible methods which will create a win-win situation for the government, investors, and the community.

Ladies and Gentlemen, I wish all of us fruitful deliberations.

God Bless our country.

GHANA MINING WEEK

1ST - 2ND APRIL, 2022

FOCUS: THE POTENTIAL OF MINING FOR SUSTAINABLE DEVELOPMENT

TARGET MINERALS IN GHANA

#Invest in Ghana

Ghana is endowed with immense economic mineral resources, the Ghana Mining Week will showcase these minerals at the exhibition stands.



- ✓ Gold
- ✓ Bauxite
- ✓ Mica
- ✓ Feldspar
- ✓ Quartz
- ✓ Iron ore
- ✓ Lithium
- ✓ Diamonds
- ✓ Clays
- ✓ Columbite- tantalite
- ✓ Chrome
- ✓ Salt
- ✓ Copper
- ✓ Manganese
- ✓ Kaolin
- ✓ Silica sand



Western Region
Takoradi



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#GhanaGoldExpo
www.ghanagoldexpo.org



NATURAL RESOURCE ESTIMATE (NRE) INFRASTRUCTURE DEVELOPMENT & INVESTMENTS FOR GHANA'S MINERAL DEPOSITS

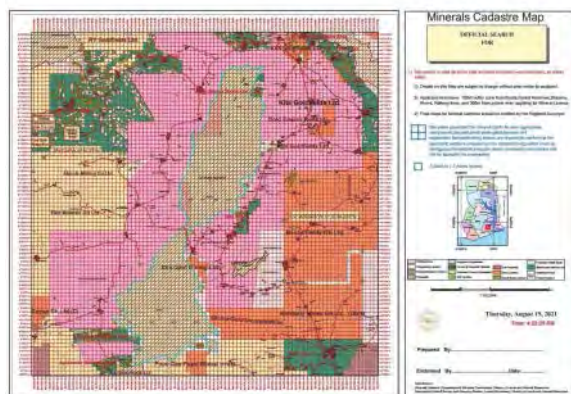
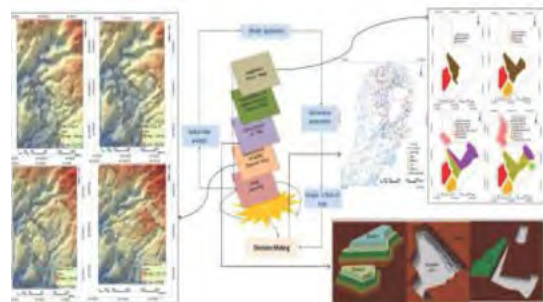
MR. JOHAN ZIETSMAN
DIRECTOR, VOLTA GHANA LTD



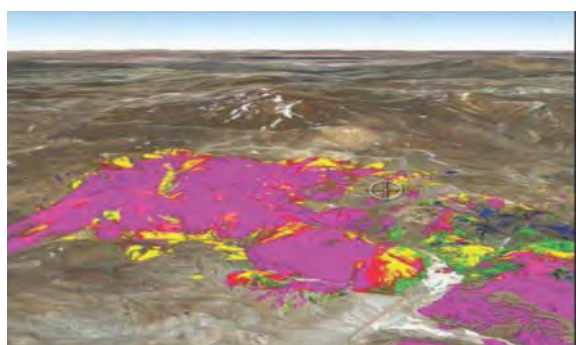
Mr. Johan Zietsman, the Director of Volta Ghana Limited gave a pictorial presentation under the framework of Geospatal Map Overlay and the importance for government and stakeholders;

- A) To undertake Natural Resource Estimations (NRE) on Ghana's nationwide mineral deposits.
- B) Governmental institutions to compile geological reports with Financial Feasibility Reports for identified potentially economically viable mineral deposits in Ghana.
- C) For Government to compile Strategic Masterplans as Investor Roadmaps to help secure major investors for the development and mining of Ghana's mineral deposits, in joint ventures with local companies, including but not limited to infrastructure development masterplans for mining industry such as railway lines, smelters and refineries, power generation, electrical grid and logistics.

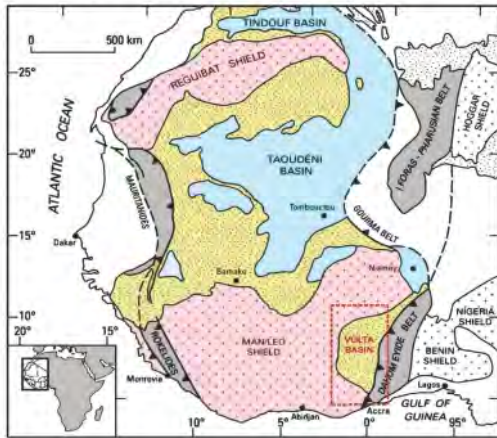
GEOSPACIAL MAP OVERLAY



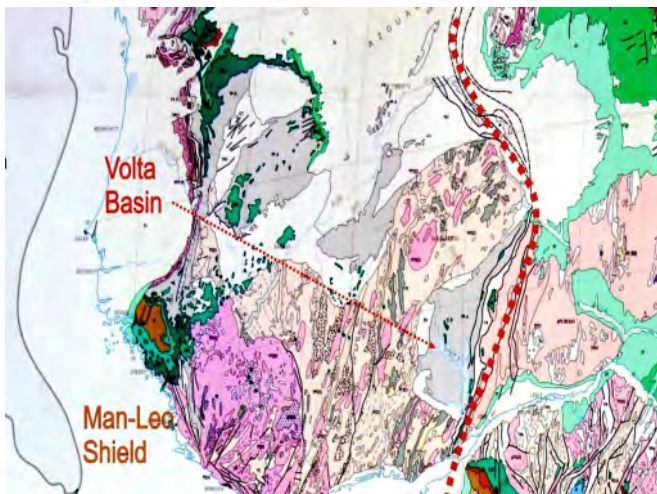
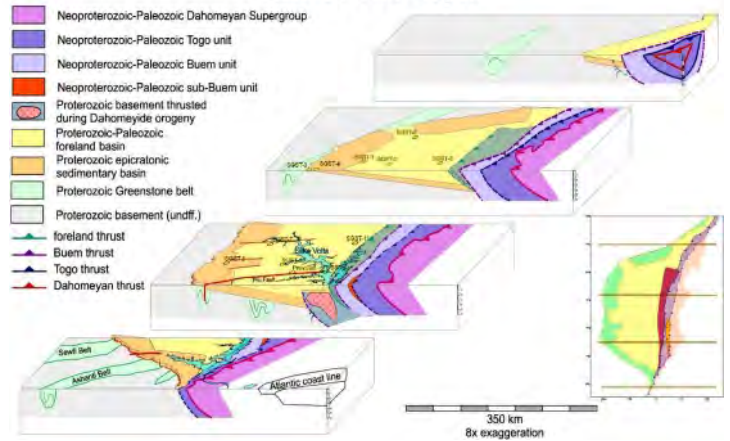
IRON ORE REMOTE SATELLIGHT SENSING



Geological setting of the Volta Basin in the geological context of the West African Craton showing the principal sedimentary basin



Block model of Deep Structure of the Volta Basin down to 6 km depth

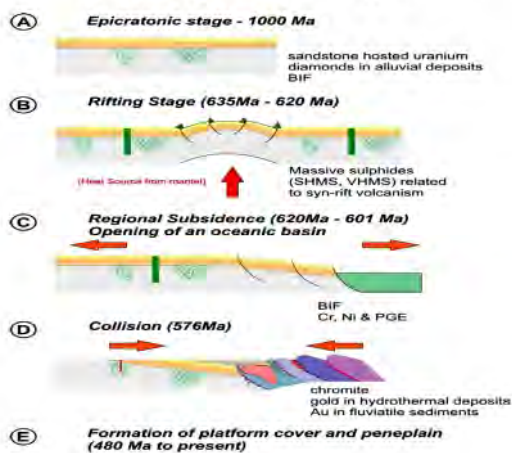


To provide ultra-modern and sophisticated geotechnical equipment, including electromagnetic imaging services such as Deep Ground Penetrating Radar, to carry out in sequence:

- Geochemical sampling
- Pitting and trenching
- Drilling
- Laboratory assaying

In order to evaluate the tonnage and grade of the selected mineral deposits.

Key Stages of the Volta Basin's Metallogenic Development



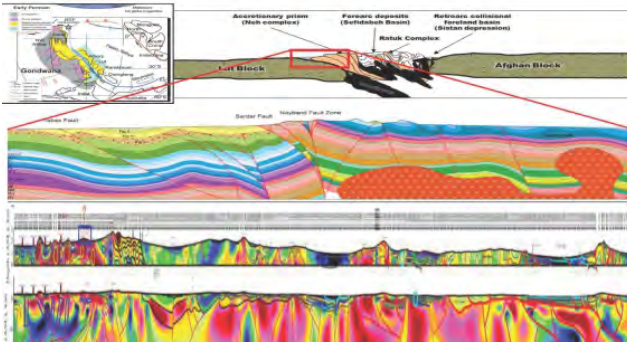
Geotechnical disciplines integrated by super computers to pinpoint Petroleum and Mineral Reserves and Aquifer Reservoirs with extreme accuracy for 3D Modelling confirming depth and hydrocarbon or mineral yield.

- Geophysics
- Seismic
- Offshore
- Onshore
- Electric
- Resistivity
- Induced Polarization
- Self-Potential
- Electromagnetic
- Ground Penetrating Radar (GPR)
- Magneto Telluric (MT)
- Time Domain Electro Magnetic (TDEM)
- Audio Magneto Telluric (AMT)
- Magnetic
- Gravimetric
- The same technology and survey method are being used to simultaneously detect Petroleum, Mineral and Aquifer reserves.

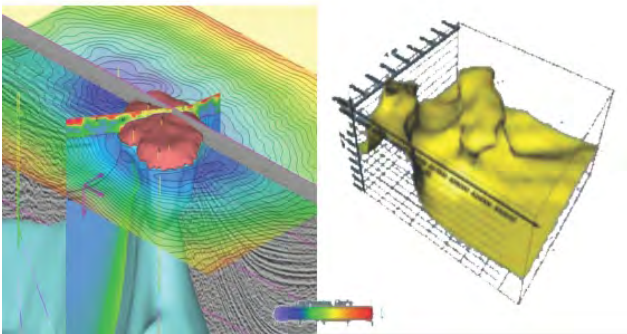
Volta POG Geological Fieldwork



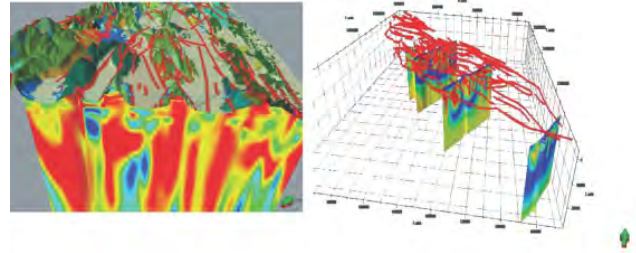
Deep Ground Penetrating Radar 2.5 Km High Resolution and 25 Km Regional Section



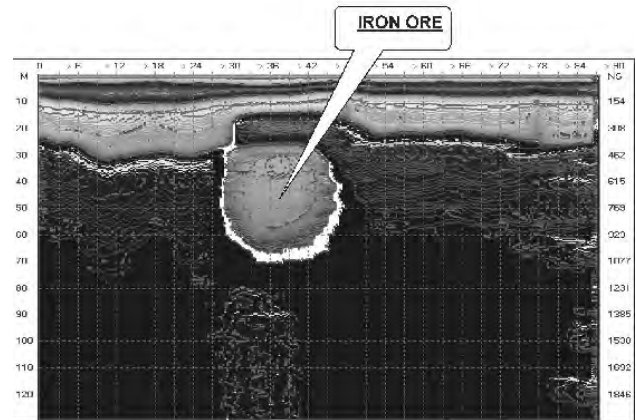
3D MAPPING & MODELING



Regional Profiles to resolve Geology and any Potentials for Oil, Gas and Minerals

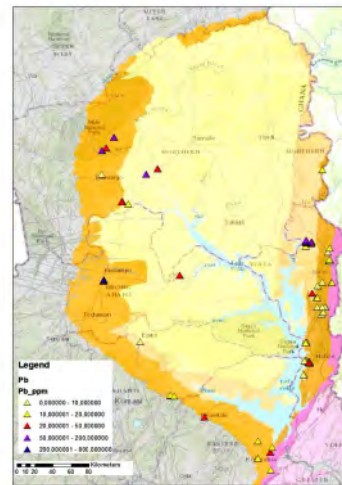


- * Decrease and delineate area for precise 3D seismic investigation
- * Resolve regional tectonic and deep structures extremely fast and accurate
- * Reduces a 70km² area to 1.5 Km² to pinpoint Oil, Gas or Minerals

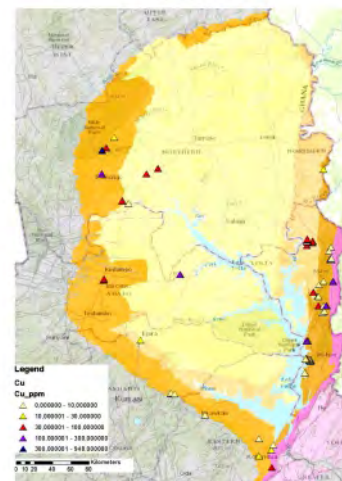




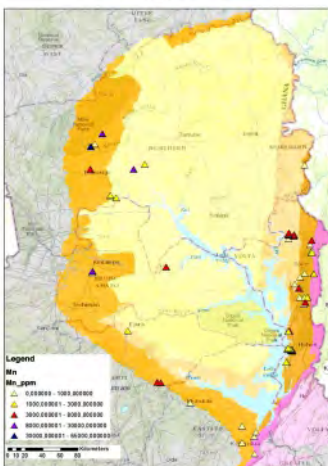
Lead



Copper



Manganese



Aquifers

With our technology, billions of tons of fresh water discovered 3 km deep in deserts

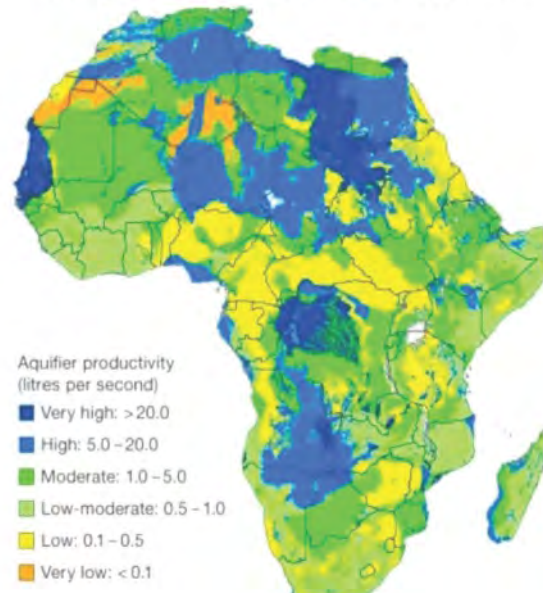


Aquifers

Pre historic potable water millions of years old
5% salinity processed with RO desalination plants



Aquifers across Africa



DRILLING FOR IRON ORE SAMPLING



THE POTENTIAL OF MINING FOR SUSTAINABLE DEVELOPMENT

SECTION PREVIEW

Minerals and metals make a major contribution to the global economy and modern societies. The global mining industry is important to all countries with mineral resources, in particular developing countries, like Ghana. It offers the potential to facilitate broad-based economic development, reduce poverty and assist countries in achieving sustainable development when managed effectively and properly.

Ghana, just as any other mineral endowed nation has the sovereign right to develop its mineral resources according to the national development priorities and responsibility regarding the exploitation of resources. The President Nana Addo government together with his appointees designated for the country's mining industry have on various platforms acknowledged that the country's mining activities should maximize social and economic benefits, as well as effectively address negative environmental and social impacts. In this regard, the government seeks to build strong capacities to develop, manage and regulate the mining industry, in the interest of sustainable development.

This section presents the speech of the President of Ghana and his designated officials during the event on the theme for the event. It also details the sustainability story of Gold Fields Ghana Limited, as presented by the acting Executive Vice President, Joshua Mortoti.

A close-up portrait of Dr. Kwaku Afriyie, a Black man with glasses, wearing a dark blue suit, white shirt, and blue tie. He is smiling slightly and looking towards the right. The background is dark.

KEYNOTE
ADDRESS

**DR. KWAKU
AFRIYIE**

MINISTRY OF ENVIRONMENTAL, SCIENCE, TECHNOLOGY &
INNOVATION

ON BEHALF OF

**HIS EXCELLENCY
NANA ADDO
DANKWA
AKUFO ADDO**

PRESIDENT OF THE REPUBLIC OF GHANA

POTENTIAL OF MINING FOR SUSTAINABLE DEVELOPMENT

“ We have collaboratively repositioned the industry and created a sustainable environment that ensures growth for existing companies and paves way for new entries. ”

The Western Regional Minister, Kwabena Okyere Darko Mensah, Tetrete Okuamoah II, Omanhene of the Wassa Amenfi Traditional Area and Chairman of the 2022 Ghana Mining Week Event; Hon. Samuel Abdulai Jinapor, Minister of Lands and Natural Resources; Fellow Hon. Members of Parliament and Ministers of State Present; Eminent Nananom Present; Hon. Metropolitan, Municipal, and District Chief Executives Present; Mr. Selim Fendi, CEO of Aurum Monaco;

Dr. Steven Blessing Ackah, Executive Director, ViewTag Ghana; Chief Director, Western Regional Coordinating Council; Bank of Ghana and Heads of Government Agencies and Your Team Present; General Managers of Mining Companies Present; Small Scale Community Miners Present; Distinguished Invited Guests; Members of the Media; Ladies and Gentlemen;

I am excited to be here today to speak at this important gathering- Ghana Gold Expo Mining Week. Three years ago, I gave my full support to the Hon. Western Regional Minister, Kwabena Okyere Darko Mensah, Steven Blessing Ackah, and the Western Regional Coordinating Council established this initiative in the Western Region of Ghana. As we all know, the Western Region and Ghana are endowed with immense economic mineral resources, and with Ghana being Africa’s leading gold producer, such an initiative is necessary to promote our mineral resources to the world.

Nana Chairman, the Potential of Mining for Sustainable Development is an important subject to every citizen, as it has a direct relationship with the country’s Foreign Direct Investment (FDI).

Distinguish Ladies and Gentlemen, from my participation in the conversations of the last two Ghana

Gold Expos, a similar theme has emerged. There is a need for much more lasting mining practices that promote sustainable economic development, most especially, within the communities in which the extractives are located. As a government, we expect the industry to keep being a reliable partner for sustainable development for the economy and the people. We are also aware that all the private stakeholders in the industry are also looking for stability, security, and certainty in the economy. That is why I believe the establishment of the Ghana Gold Expo Mining Week Initiative is a necessity to create synergies that add up to a stronger economy, based on sustainable growth over the long term. The Synergies from this event must lead to opportunities for people to get good education and jobs; improving infrastructure for citizens to have equal access to the benefits that flow from mining revenues.

Currently, geological mappings and reports show that Ghana has Gold, Diamond, Manganese, Bauxite, Clay, Kaolin, Mica, Columbite-tantalite, Feldspar, Chrome, Silica sand, Quartz, Salt, Iron ore, Copper, and the newly discovered Lithium.

Nana Chairman, over the past years, cooperation and integration of technical and economic activities in the mining sector under the Ministry of Lands and Natural Resources, Ministry of Finance, and other key stakeholders have ensured economic growth, ecological protection of natural resources, and environment, and social development including safety at workplaces and community development. This clearly shows how my government has played a major role in the sustainable mineral resources in Ghana.

We have collaboratively repositioned the industry and created a sustainable environment that ensures growth for existing companies and paves way for new entries. The industry in our tenure has seen the establishment of B5 plus, the largest iron steel manufacturing center in West Africa; which is under the 1D1F. The vision is to make Ghana a net exporter of iron and steel products. Also, The Ghana Integrated Iron and Steel Development Act 2019 (ACT 988), establishes the contractual relationship between the state, GIISSDEC, and prospective investors in the development and promotion of the economy and the efficiency of the integrated iron and steel industry along the entire iron and steel value chain. From the mining of iron ore and its related minerals to the production of iron and steel for industrialization and economic growth. My government has also revived the Ghana Integrated

Aluminum Development Corporation (GIADEC), a state corporation responsible for the development and promotion of the bauxite and Aluminum industry. These and many others are the key technical setup my government has put in place to drive sustainable development in the sector apart from gold mining.

Ladies and Gentlemen, unlocking the potential of mining for development in Ghana also mean building a sector that thrives on transparency and community development. My government is keen on ensuring the transparent utilization of mineral royalties. We have promoted an effective partnership between the Minerals Income Investment Fund (MIIF) and the Central Bank of Ghana (BoG), especially, as the Bank launched its domestic gold purchase program as part of the effort to build gold reserves. Enumerating some of the initiatives introduced by MIIF which included the small-scale mining incubation strategy; mineral marketing strategy.

In our quest to promote sustainable mining that grows our economy, we have tackled illegal mining (galamsey) through the expansion of the Community Mining Scheme (CMS) in which host mining communities are embedded into the mining value chain. This initiative aims to create thousands of new jobs in host communities lawfully, under the purview of the Minerals Commission, and exclusively for Ghanaians. We have created over 5000 direct and indirect employment through this initiative.

Nana Chairman, recently, Ghana became the first West African lithium-producing country, following a conditional binding agreement that IronRidge Resources entered into with Piedmont Lithium to fully fund and accelerate the Ewoyaa Lithium Project to production. I am of the view that this is a unique opportunity to fast-track the development of the lithium mining sector while providing the opportunity for Ghana to become the first lithium producer in Western Africa. The importance of lithium cannot be understated. It's used in the production of rechargeable batteries for mobile phones, laptops, digital cameras, and electric vehicles. It is also used in some non-rechargeable batteries for things like heart pacemakers, toys, and clocks. Lithium and its compounds also have several industrial applications, including heat-resistant glass and ceramics, lithium grease lubricants, and flux additives for iron, steel, and aluminum production. This is a great gain to our economy and our efforts to create a sustainable economy.

While my government is ensuring improved governance of extractives at the macro-level of our economy, I am aware of some of the efforts by the private sector in the industry, which have improved the livelihood and working conditions of

the communities they operate in. I must commend some key mining companies for helping to develop and bring infrastructure to various communities. An example is the Gold Fields Tarkwa-Damang 33km asphalt road costing US\$27 million. I also commend them for selecting a local contractor to build it.

There are many other members of the Ghana Chamber of Mines who are equally impacting the communities they work in, including the collective effort the industry players put in reviving Apeatse after the unfortunate explosion that killed 13 people and injured 200. A sad and unforgettable incident. On this note, I once again extend my condolences to the people of Apeatse and the entire people of the Western Region.

Distinguish Ladies and Gentlemen, I will end by reiterating my government's readiness to work with all stakeholders in achieving this goal. I believe together in partnership, we can help to transform and create sustainable development for our mining sector and the economy in general.

Thank you.





GOLD GIFT DAY

CONSERVATION MINE AND RECLAMATION AWARD

For the first time in Africa, the Ghana Gold Expo on Committee for Conservation and land reclamation will award legends and organizations that are supporting in Galamsey reclamation & mercury recovery across Africa.

This is a unique award that seeks to recognize excellence in mining activities in Africa.

- Loyalty
- Respect
- Honour

The 2021 Ghana Mining Week presented a Commemorative Gold Medal of 99.9Au to the Vice President of Ghana, Dr. Mahamudu Bawumia for promoting zero mercury in gold production and ensure a safe environment, this award will be presented annually to mining stakeholders forcefully expressing support to them and government agencies for enforcing the mining laws.





LIFETIME GOLD LEGENDS 2022

GHANA MINING WEEK





MINERALS DEVELOPMENT & FUTURE PROSPECTS

HON. MIREKU DUKER ON BEHALF OF

HON. SAMUEL ABDULAI JINAPOR
Minister Of Lands And Natural Resources

Another year is here with us, and an opportunity to celebrate another Ghana Gold Expo Mining Week. Today, in this historic mining region, we have brought together investors, mining companies, Government Officials, civil society organizations, and other stakeholders around the world to learn and network, all towards the single goal of advancing responsible, viable, and sustainable mining for development in Ghana. Undoubtedly, this event is fast establishing itself as one of the most important mining forums in the West Africa sub-region. Let me take this opportunity to congratulate the organizers for maintaining the momentum of this event over the past years.

The theme is chosen for this year's Expo "The potential of mining for sustainable development," is not only apt but also seeks to provide the platform for discussing appropriate and innovative ways for addressing global and national challenges confronting the extractive industry, particularly on our continent. Despite the huge potential the mining industry presents, most resource-rich countries remain very poor. For example, using the World Bank's GDP per capita for the year 2020, thirty-seven (37) out of the first fifty (50) poorest countries by GDP per capita, are from Africa. These include countries like Sierra Leone, rich in iron ore, diamonds, bauxite, and the largest rutile reserves in the world; Democratic Republic of Congo, which, in the 1980s, was the largest producer of cobalt, second largest producer of industrial diamonds, and fifth largest producer of copper; and Guinea which hosts the world's largest reserves of bauxite. And this is true, even for non-monetary indicators, with resource-rich countries in Africa faring poorly in literacy rates, life expectancy, and malnutrition. The time is now to change the

narrative. We must ensure that our God-giving minerals, benefit the people who bear the negative consequences of their exploitation.

Despite contributing some seventeen percent (17%) of Government revenue and forty-eight (48%) of total merchandise exports in 2020, we have not been able to reap the full value of mineral resources. For instance, the extent to which the potential of the sector has been tapped to create broader economic linkages, both within the extractive sector and in other economic sectors, has remained limited. Again, many of our mineral resources remain largely under-exploited and underdeveloped.

The government's policy for the mining sector, therefore, is to build a sustainable, viable, indigenous, and environmentally sound mining industry, with strong local content participation that contributes to the sustainable development of our country. In the short to medium term, we seek to make Ghana the mining hub of Africa, where all mining and mining-related activities, from exploration to downstream production, and from research to innovation will be centered. Platforms like these, therefore, present us with the opportunity to explore the underdeveloped aspects of our mining industry. One of the Government's key policies for achieving its goal for the mining industry is through diversification of our mineral resources. Our country is blessed with several minerals, including, Copper, Nickel, Zinc, Chromium, and lithium. Unfortunately, over-concentration on traditional minerals like gold, diamond, bauxite, and manganese has led to the near-neglect of these minerals.

Lithium, for example, which was first discovered in the 1960s, has remained unexploited to date. But with the evolution of electric vehicles,



intended to replace those dependent on fossil fuels and their undesirable environmental impacts, lithium and other battery minerals (and metals) have become even more important than ever. We cannot continue to rely on traditional minerals if we are to reap the full benefits of our mineral resources. The government is committed to working with the private sector to exploit these minerals. But we are not just going to mine and export these minerals. The true value of our natural resources lies in value addition. Indeed, it was for this reason that Government established the Ghana Integrated Aluminium Development Corporation (GIADEC) and the Ghana Integrated Iron and Steel Development Corporation (GIISDEC), to develop the full value chain of our bauxite and iron ore resources.

We have, also, through the Precious Minerals Marketing Company (PMMC), supported the establishment of Ghana's first state-owned gold refinery, under a Public-Private Partnership (PPP), with a daily refinery capacity of four hundred kilograms (400kg) of gold. And we have commenced the process of securing a London Bullion Marketing Association (LBMA) Certification, to enable us easily export and trade our refined gold on the international market.

While doing all these, we are not losing sight of the indigenization of the mining industry. The Minerals Commission has commenced the implementation of the Minerals and Mining (Local Content and Local Participation) Regulations, 2020 (L.I. 2431), to ensure that the people of Ghana, the true owners of our mineral resources, participate in their exploitation and development.

Mr. Chairman, Hon. Ministers, Captains of industry, Distinguished Guests, Ladies, and Gentlemen, let me reiterate if I have not done so enough, that Government and the mining companies are partners in the exploitation and development of our natural resources. We must, therefore, continue to work together to build a viable, sustainable and environmentally-sound mining industry. It is my firm hope that the outcome of this Mining Expo will strengthen our partnership to work towards this goal. I thank you for your attention, and I wish you fruitful deliberations.

SMALL-SCALE/ COMMUNITY MINING OPERATIONS IN GHANA

Hon. George Mireku Duker (MP)

Deputy Minister For Lands & Natural Resources

The Deputy Minister of Lands and Natural Resources presented an update on the activities of small-scale mining. According to Hon. Duker, the Ministry of Lands and Natural Resources was established under section 11 of the Civil Service Law 1993 (PNDCL 327) and is mandated to ensure the sustainable management and utilization of the nation's lands, forests, and wildlife resources as well as the efficient management of the mineral resources for socio-economic growth and development.

He added that the policy objectives of the Ministry regarding the exploitation of Minerals are:

- To promote and ensure sustainable extraction of mineral resources;
- To expand opportunities for job creation;
- To promote and support sustainable mineral exploitation; and
- To sustain the Alternative Livelihood Project (ALP) in Mining Communities.

Together with other agencies/institutions, the Minerals Commission as established under the Minerals Commission Act, 1993 (Act 450) is responsible for:

For the regulation and management of the utilization of the mineral resources of Ghana; and the coordination and implementation of policies related to them.

In his address, he stated that the contribution of small-scale mining (SSM) to the Ghanaian economy cannot be overemphasized, as the sub-sector contributed 43% (2.1 million oz) of total gold production in 2018, 36% in 2019, 31% in 2020 and 100% Diamond production. It is also estimated that over one million (1,000,000) people are employed in the SSM sub-sector, with approximately 50% operating illegally. Hon. Duker added that the Community Mining Scheme CMS was mooted in 2017 as a major initiative in the management of small scale mining to:



- Provide livelihood for members of mining communities;
- Promote sustainable and responsible mining,
- Prevent illegal mining.

The legal framework for CMS is as provided for small-scale mining, under sections 81-99 of Act 703 and the Tributer System, under Regulations 493 – 506 of the Minerals and Mining (Health, Safety, and Technical) Regulations, 2012 (L.I. 2182). It was presented that between 2021 to 2022:

- Ten (10) legal CMS over a land area of 899.82 acres, 38 concessions have been established;
- Out of that 34,000 direct and 17,300 indirect jobs respectively totaling 51,300 jobs have been created;
- With an improved strategy and blocking out of areas underway, we expect to launch 50 CMS by end of 2022.

On the Programmes/interventions towards the development & sustainability of small-scale/ community mining operations in the country, the Deputy Minister listed the following;

- Some rivers (Tano, Ankobra in recent times) are regaining their original color with turbidity figures from the Water Resources Commission encouraging.

- Recognize that sustainable efforts are needed to win this battle.
- UMaT & Ghana Geological Survey Authority have started exploring some areas to be designated for SSM/Community Mining.
- One (1) 4x4 Pick-Up Vehicle has been donated to UMaT to support the operations.
- Mincom initiative to get mining/exploration companies to cede part of their concessions suitable for SSM hence as such.

In addition to employing additional inspectors, the Minister said that logistics have been procured to support the Inspectorate Division of the Minerals Commission, and such includes;

- 20 New Pick-up Vehicles
- 10 Blast Monitors
- 187 Laptop Computers
- 11 Photocopier Machine
- 19 Printers
- 3 Projectors
- 1 Back Storage Device
- 102 UPS
- 5 Scanners
- 2 Plotters
- 3 Survey Equipment

Also, he submitted on the digitization of the Mineral Right Acquisition Processes through the deployment of the Mineral Cadastral Administration System (MCAS). Also, the national assay platform has been digitalized to enhance the transparency of information and provide real-time access for some key officials. Other digitalization efforts as mentioned during the presentation include:

- Small-scale mining licenses and related certifications will be fused into a QR Code and posted at entries to the Mine.
- Programmed QR-Code Scanners will be used to verify the authenticity of Mining Operations.
- The government through the World Bank, under the Ghana Land Restoration and Small Scale Mining Project (GLRSSMP), has already commenced work on a traceability system.
- The objective is to trace the chain of custody of the precious mineral right from the mine to its final destination.
- The traceability project is being carried out by the Precious Minerals Marketing Company (PMMC) and Minerals Commission.
- Equipment Tracking for mining in line with L.I. 2404 is under procurement at Minerals Commission.

In furtherance of effectively implementing the government's policies and strategies in ensuring responsible and sustainable mining in the districts, the Ministry is actively rejuvenating the Small-Scale Mining Committees as enshrined by Section 92 of the Minerals & Mining Act 2006, (Act 703). Government is in talks with financial institutions to support the financing of Small-Scale Mining Operations in Ghana. Cal Bank is almost done with steps to support the program with an initial US\$25 million.

The Ministry according to the deputy Minister has in March 2022 inspected the assembling of speed boats, which are expected to be delivered soon for commissioning. And that efforts are being put in place to recruit more mine wardens who will use the boats in the fight against illegal mining on and along with river bodies.

He also added that a total of 100 Mercury-Free Gold Processing Units have been made available for community mining operations.

In furtherance of the President's vision to establish an integrated corporation to manage the country's salt resources, the Minister stated that a 3-member committee has been appointed to ensure its implementation.

According to the Honorable Deputy Minister, through the efforts of the Ministry, Minerals Commission, and Precious Minerals Marketing Corporation (PMMC), the government has reduced the withholding tax on unprocessed precious minerals exports by SSM from 3% to 1.5%.

He concluded by stating that in the last Ten (10) Months, the Ministry received government delegations from South Africa, Zambia, Sudan, and Liberia to among others, understudy Ghana's Mining Sector especially, Artisanal Small-scale Mining. To him, that shows the traction the ministry is receiving internationally on its efforts in promoting community mining, which in the long run is geared towards positioning the mining sector for sustainable development.





THE SUSTAINABILITY STORY OF GOLD FIELDS GHANA LIMITED

Joshua Mortoti

Acting EVP & Head of West Africa, Gold Field

The EVP and the Head of West Africa for Gold Fields Ghana Limited joined the event to share with the participants what Gold Fields has been doing in line with sustainable development, the theme of this event. According to him, even though the theme was chosen talking about the potential, he believes that sustainability should focus on the present, not the future.

Mr. Mortoti submitted that in the last 20 years, there has been a paradigm shift in the objectives and purposes of mining companies across the globe.

“If we are to look back, we would have noticed that the focus of the industry was on creating value for shareholders. However, the current industry trend is shifted to creating enduring value beyond mining. It’s about sustainable development. The focus that has been chosen for this meeting is very appropriate and I sincerely believe in that.”

– Mr. Mortoti

Gold Fields is one of the largest private sector companies in Ghana, controlling 90% of both the Tarkwa and Damang gold mines. The Government of Ghana owns the remaining 10% through a free-carry interest. Gold Fields took over the Tarkwa mine from the State Gold Mining Company in 1993 and acquired

the Damang mine in 2002. In 2018, the company also bought 45% of the Asanko mine, which is managed by Galiano Gold and controls the other 45% of the mine. Gold Fields contributes significantly to the development of the country through job creation, taxes, and royalties, community and infrastructure investments, as well as local procurement and enterprise development.

“We have turned the Tarkwa mine into one of the single largest gold producers in the world, by production. Producing over 500,000 ounces a year and we do that for the next 15 years and beyond.”

– Mr. Mortoti

Last year, Gold Fields took the bold step and set 6 main targets to be achieved by 2030;

Decarbonization: The company is hoping that by 2050, it will have net zero emissions. To elaborate, Gold Fields is one of the first companies to make this jump. We currently do not rely on the national grid. Generating its power for the Tarkwa and Damang Mine. As it stands, the company is getting to the position where it can support the national grid. And it is doing this using natural gas, not diesel.

Tailing Management; Gold Fields wants to be compliant with the global standards on tailings management. Now, the Ghana standard is well established and aligned with the international



standards and the company adheres to them all. In our quest to sustain the environment, we have planted over a million trees.

- **Water Stewardship:** The goal is to reuse/recycle 80% of its water. This mean, it uses only about 20% of freshwater.
- **Health & Safety:** if it is not safe, we will not mine. That is the mantra of the company
- **Gender diversity:** Gold Fields Ghana is making a bold statement that 40% of its workforce will be women by 2030. The company has 11% of its workforce being women now, so there is a lot more work to do be done.
- **Stakeholder value creation:** The goal is that 30% of the total value created should benefit our host communities. 70% of the employees are from the host communities. It is already known how much the company pays in royalties and taxes to the government. And it is building a 10,000 capacity stadium in Tarkwa and promoting youth in Agriculture

“ We are going to be prioritizing some of the projects that we are going to work on in our host communities through our foundation. With the focus on creating jobs and alternative livelihoods outside mining, health, education, and agriculture. ”

-Mr. Mortoti

To close it, Mr. Mortoti reiterated that the company is not in Ghana just for gold. But to create lasting value for its stakeholders. And that they want the value created to be sustainable and enduring, to last beyond mining. In essence, its business is about far more than mining gold.



MINERALS INCOME INVESTMENT FUND (MIIF) - COMPANY PROFILE

The Minerals Income Investment Fund was established pursuant to the Minerals Income Investment Fund Act, 2018 (Act 978) as amended to receive royalties' payments from mineral production activities in Ghana, for inward investment to guarantee the future wealth of Ghanaians.

The mandate of the Fund is three-fold:

- " maximize the value of the income due to the Republic from the mineral wealth of the country for the benefit of its citizens;
- " monetize the minerals income accruing to the Republic in a beneficial, responsible, transparent, accountable, and sustainable manner; and
- " develop and implement measures to reduce the budgetary exposure of the Republic to minerals income fluctuations.

Vision

To build a world class minerals investment fund.

Mission

To transform the Ghanaian economy through investment of minerals income in a transparent and responsible for the benefit of stakeholders.

What Does the Fund Do?

The overarching intent of MIIF's existence is to serve as a strategic lever for the economic transformation of the country. Among MIIF's cardinal responsibilities is to manage the equity interest of the State in the mining operations in Ghana. The Fund also intends to invest \$700 million over the next eight to ten years on the Small Scale Mining Incubation program where at least 400 small scale mining companies will be assisted through collaborative investments to mine sustainably and also sanitise the small scale subsector of gold production.

Further to the above, MIIF is also a strategic investor with equity interest in Asante Gold Corporation, a mining company listed on the Canadian stock exchange with its operations in Ghana.

Investment Outlook of MIIF

·By 2025, the Assets under Management of the Fund will be at least \$500 million making it the biggest Minerals Fund in Africa.

·The Minerals Income Investment Fund intends to list its 100% owned subsidiary Agyapa Royalties limited later in 2022 on both the London and Ghana Stock Exchanges.

Corporate Sustainability

Our Corporate Social Responsibility (CSR) strategy is focused on helping communities and individuals across Ghana build financial security and participate in Ghana's economic transformation. The MIIF CSR strategy has two distinct pillars – responsible investments; and direct social impact.

COOPERATE BRANDVOICE



PROFILE OF ADAMUS RESOURCES LIMITED.

Adamus Resources Ltd (Adamus) is a subsidiary of NGUVU Holdings (NGUVU). NGUVU acquired Adamus' Nzema Gold Project from Endeavour Mining Corporation in December 2017. It holds mining licenses and prospecting licenses covering a total area of 464km² that constitutes the Nzema Property. NGUVU has a 90% interest in the mining licenses and the Government of Ghana holds a 10% free carried interest under Section 8 of the Ghanaian Mining Act.

Geographical Location, Geological Setting, and Mineral Deposits

The Nzema gold mine's total measured and indicated Gold Project is in the Western region of Ghana, approximately 280km west of the capital city of Ghana, Accra, and less than 20km from the coast of Esiam.

Capacity

The Nzema gold mine's total measured and indicated mineral resources are 48.3 million tons (mt) at a grade of 1.3g/t, containing 2.064 million ounce (mob) of gold. The property comprises of nine prospecting licenses and four mining leases. Adamus is currently mining from three pits on the project. A vast exploration potential exists on the Mining Leases and the surrounding prospecting Licenses, which is currently being systemically explored for economic gold discoveries and eventually increase the LOM.

Community Relations

Adamus since inception has strived to maintain excellent relationships with local communities. Adamus remains committed to ensuring that its operations provide long term positive benefits to the various local communities where the Company conducts its exploration and mining operations.

Adamus has embarked on to contribute to social development within the impacted communities in various areas, including

- * Training & Education, e.g., training for the youth, construction of educational infrastructure.
- * Health, e.g., malaria control projects.
- * Provision of potable water and repair of boreholes for schools & communities.
- * Stakeholder Engagement e.g., meetings with the Community, Government agencies, farmers, media, supporting local community events.
- * Communication. Adamus partnered with telecommunication companies to provide ICT infrastructure within the communities, including Aluku, Salman and Bokrobo.

Timeline



SECTION 2.0

ENVIRONMENTAL MANAGEMENT & SUSTAINABILITY

PANEL I - SECTION PREVIEW



Whereas the mining industry provides vital raw materials and energy for a large number of other industries, its operations are viewed globally as a threat to the natural surroundings, with environmental effects on the air, water, and soils. In recent times, there has been a renewed debate about mining and its sustainability owing to public concern about the current degradation of the environment. Some of the highlighted potentially serious environmental impacts of mining include chronic soil erosion, heavy metals overloading, and acid mine drainage. Therefore, the main hurdle for industry players is to prove that they contribute to the well-being of the current generation without compromising the quality of life of the next generation. Companies in the mining industry are expected to respond positively to these challenges by assuming responsibilities in community and national development. And must be able to deal with the compatibility between their production operations and the environment.

At the 2022 Ghana Gold Expo Mining Week, industry players discussed the environmental, implications of their activities, whilst attempting to find sustainable solutions to the resulting environmental concerns. These discussions are presented in this section.

MODERATOR:
PROF. RICHARD KWASI AMANKWAH
VICE CHANCELLOR OF UMAT

MINE TAILING STORAGE TECHNOLOGY

Dr. Henry Kokofu

Mine tailing storage technologies and the requirements of the Environmental Protection Agency on tailings management were presented by Dr. Henry Kokofu, the Chief Executive Officer of the Environmental Protection Agency of Ghana. He pointed out that globally the storage and handling of mine tailings is a major environmental challenge. A majority of mine tailings are toxic and must be kept perpetually isolated from the biophysical environment. This he believes everyone agrees with, especially when it's about heavy metals like mercury, sodium cyanide, and others.

The volume of tailings production is immense since metal extraction is usually only ounces or pounds, for every ton of ore. – He added.

He explained mine tailings as very fine mud or powder that is left over after ore is crushed and valuable minerals are extracted from it. And may also contain chemicals used in mineral extraction. According to DR. Kokofu, mine tailings are distinct from “waste rock”, which is non-ore rock moved and discarded by miners as they dig down to access the underlying ore. They are also distinct from soil and organic matter (collectively known as “overburden”), which is removed from the surface above the ore deposit.

He added that disposal of mine tailings is usually the single biggest environmental concern faced by most mining companies, and creates a long-term environmental liability that future generations must manage.

“Many mine tailings do not become appreciably safer over time, if not used properly, and therefore must be stored for an indefinite period using current technologies.”

-Dr. Kokofu

He presented that the historically-used alternative to storage was to dispose of the tailings in the most



convenient way possible (such as in river dumping- Ankobara River), which led to widespread environmental contamination in mining areas. This he said was nominally viable in earlier eras, but human production of mine tailing has increased by several; orders of magnitude in the modern age, making such methods unacceptable to many communities including Ghana.

It was presented that tailings storage facilities (TSFs) are engineered structures that comprise the confining embankments (commonly referred to as tailings dams) and associated works and are designed to contain tailings (residue following extraction of valuable material from metal ore processing) and to manage associated water. TSF contains waste materials from all processing in liquid or slurry form and must be responsibly managed to prevent impact on human life and safety, and the entire biodiversity. There are diverse types of conventional tailings disposition types, including in-pit tailing, co-disposal tailings, and on-land tailings disposition also known as valley-impoundment and all others.

The factors are taken into consideration in the design of tailings storage facilities as presented by the CEO:

- ◀ Basin Preparation;
 - Compacted Clay Liner: A compacted clay liner is a seepage-free barrier constructed of a cohesive soil that is compacted to increase its bulk dry density and homogeneity. The purpose is to reduce porosity and decrease soil permeability.

- High-Density Polyethylene Geomembrane Liner (HDPEGL): This is the preferred product for lining projects. It is resistant to many different solvents and is the most widely used geomembrane liner in the world. It provides higher specific strength and can withstand higher temperatures, its exceptional chemical and ultraviolet resistance properties make it an extremely cost-effective product.

“The Environmental Protection Agency has over the years realized that the use of the Compacted Clay Liner does not provide the required permeability and as such has instituted the use of the HDPE Geomembrane Liner in addition.”

– Dr. Kokofu

He added the following points in his presentation;

◀ Embankment Construction

The embankments must be designed to store solids such as slurry and free water. There are three main types of construction: upstream construction, downstream construction, and centerline construction. The acceptance in Ghana is downstream.

- There are many methods for TSF construction, but I will skip and speak on instrumentation;
- Groundwater monitoring boreholes: They are designed to determine any potential groundwater contamination. This is very key because if you do not take care, we will end up contaminating the groundwater which is a huge reservoir.
- Piezometers: it’s mostly the standpipes and vibrating wires. These are designed to measure underground water pressure, such as pole water pressure, joint water pressure, well pressure, and pump-line pressure.
- Prisms; These are also known as settlement systems. They are designed to follow the vertical movements of points of interest. Depending on the project-specific requirements, various technologies from manually surveyed settlement places to high precision settlement monitoring systems are available.
- Inclometers: they are manually operated instrument that uses repeated measurements along the axis of the inclinometer casing to calculate deformation normal to the axis.

One important aspect of the Tailings Storage Facility is the Management of the Excess Supernatant Water.

“As already discussed, the TSF is designed as zero discharge. However, in the event of excess supernatant water accumulation, there is the need to treat the same to comply with the provisions of the Ghana Standards for Environment and Health Protection for Effluent Discharge (GS 12122 2019) before discharge into the external environment.”

–Dr. Kokofu.

Two main water treatment technologies were discussed, which are;

◀ Reverse Osmosis Treatment Technology: It is a water treatment technology that removes contaminants from water by using pressure to force water molecules through a semipermeable membrane. During this process, the contaminants are filtered and flushed out resulting in clean water and the generation of brine.

◀ Adsorption Treatment Technology: It is often used as a tertiary purification for the removal of organic micro-pollutants and COD, and all metals in organic complexes (brine) to a lesser extent from wastewater. The adsorption factor is determined by various groups and compounds in the to-be-removed substances.

The CEO of the EPA of Ghana stated that various environmental considerations are adopted for the sustainable construction and operation of tailings storage facilities in the industry. Stating that his agency mostly has the following considerations;

- Downstream embankment design construction, due to its robustness.
- HDPE Geomembrane Lining.
- Monitoring instrumentations must always be there for early detection.
- Rehabilitation of decommissioned TSFs.

In wrapping up his discussions, detailed that for long term stability and sustainability of tailing storage facilities in the mining industry, there is the need to;

- To adopt appropriate designs
- Select in-time technologies
- Adopt relevant monitoring mechanisms
- Implement suitable closure methods.

Above all, Dr. Kokofu admonished the industry players to comply with the regulations of the Environmental Protection Agency (EPA). Adding that the agency will soon be called the Environmental Protection Authority with much legal muscle to deal with environmental matters in the country.

STANDARDS, REGULATIONS & TAILING MANAGEMENT

Mr. Isaac Mwinbelle

Director Minerals Commission W/R

The Minerals Commission of Ghana is the Government agency with the primary responsibility of developing and coordinating mineral sector policies and monitoring their implementation. The Commission was established under the Minerals Commission Law (PNDC.L.154). With the promulgation of the 1992 Constitution, the Parliament of Ghana enacted the Minerals Commission Act, 1993 (Act 450) to give continued legal backing to the existence of the Commission, as required by Article 269(1) of the Constitution. The Commission is responsible for the regulation and management of the utilization of the mineral resources of Ghana and the coordination of the policies concerning them.

Various acts constitute the legal framework of the commission, like the Minerals and Mining Act 703 and other subsequent regulations.

At the event, the CEO of the Commission, Mr. Martin Ayisi, presented on the Standards, Regulations, and Tailings Management. He stated that for the subject, the Minerals and Mining (Health, Safty and Technical Regulations, 2012, L.I 2182) will be his focal reference act. Adding that, the L.I. 2182 is what governs the management of storage facilities.

Mr. Ayisi presented that the regulations in Ghana classify all tailings facilities into three (3) hazard classes based on the number of persons who can be affected in the case the Tailings Storage Facility (TSF) fails. This was presented in the table below;

Hazard Classes	Affected Persons	Environmental Material Damage
C	0	Moderate
B	1-20	Serious
A	21-50	Very Serious

He explained that a TSF is classified as Hazard Class C if no human will be affected in the case of failure. This means that downstream of the facility, there are no dwellings or settlements. But for environmental damage, is mostly mentioned as moderate. A TSF is classified under class B when between 1 to 20 persons will be impacted in the case of a failure and classified to be serious in terms of damage. It is classed to be Very Serious in terms of damage and class A when between 21-50 people will be affected in terms of project failure.

// *A TSF that will affect more than 50 people will not be allowed to be constructed in Ghana, per the legal provisions of the Minerals Commission.*

//
– Mr. Ayisi



In addition, he stated that most organizations who initially had the impacted persons to be more than 50 mostly resettle the dwellers downstream before being classified within the three classes.

On the design of a Tailings Management Facility, he presented that one key factor the commission looks at is the qualifications and experience of the proposed project engineers. And the engineers must be approved by the Chief Inspector of Mines. Also, the designs must be submitted and approved by the commission. The documents to be submitted include an engineering design report, the operating plan, the monitoring plan, and some other things.

After the design is submitted and approved by the commission, Mr. Ayisi mentioned that the next stage is the construction of the TSF and the construction of the impoundment, which is the basement of the facility, and with the impoundment, it is such that, it should be clear of all vegetations and tops soil, as well as any unsuitable material that could be found in the basin. Also, there should be an under drainage to make sure that all water is properly connected and channeled into a sump which can then be pumped back into the facility. According to Mr. Ayisi, the law states that the impoundment should have a clay liner of about 30cm thick, which should be compacted to the permeability of about 10-6cm per second. After the impoundment is constructed, he presented the embankment walls, which restrain the tailings from flowing out of the facility. After the construction stage, it was said that the facility needs to be managed in a way that minimizes its impact of the facility on the environment and the surrounding communities are minimized. Like, the integrity of the TSF pipelines is often monitored and managed, as well as how the tailings are deposited into the facility and a spillway that ensures that all spills do not affect the embankment walls.

After a successful operation (when the TSF is full) of a tailings management facility, it is required for it to be closed. According to the Chief Executive Officer of the Minerals Commission, it is a requirement for the mining company to submit a mine closure plan, which should be approved by the commission. The key objective of the Closure Plan is to take steps in preventing the metallic water from infiltrating through the tailings material. And should meet the EPA discharge guideline.



PREPAREDNESS IN THE EVENT OF TAILING FAILURE

Dr. Celestina Allotey

VP & Head of Sustainable
Development Gold Fields - W/A

Speaking at the mining week celebration, Dr. Allotey, the VP & Head of Sustainable Development of Gold Fields stated that the company fully supports the fact that tailings must be responsibly managed.

“

Our vision and values underpin our desire to prevent impacts to human health and safety, the environment, and infrastructure. The development and implementation of a tailings management system are essential to effective governance of tailings management, one of the foundations of safe tailings management, the implementation of best engineering practice, and integrated mine planning. ”

According to Dr. Allotey, a tailings emergency is any uncontrolled release of tailings impacted water or tailings materials into the external environment. That is, the failure of an embankment causes a release of tailings material and water. There are varying degrees that constitute a tailings emergency. You could have a catastrophic failure, where you have the embankment failing allowing a lot of water or tailings materials into the external environment. For instance, in January 2019, the tailings dam at the Córrego do Feijão iron ore mine, 9 kilometers (5.6 mi) east of Brumadinho, Minas Gerais, Brazil, suffered a catastrophic

failure, which became a global issue, with more than 200 people dying. Adding that another emergency could be tailing pipeline ruptures, which allows a minimal amount of tailings water to go into the external environment. In essence, there are so many types of potential TSF emergencies.

“

The important thing is that the mining company be prepared to respond effectively to such events. So, every mine as part of global best practices prepares an Emergence Preparedness & Response Plan (EPRP) What this plan does is to identify the various potential emergencies that TSF could encounter. ”

- Dr. Allotey.

The EPRP is a site-specific plan developed to identify hazards, assess capacity, and prepare for an emergency based on tailings facility credible flow failure scenarios and to respond if it occurs. In simple terms, the document describes what to do when and if an emergency occurs. It also identifies the resources that will be needed to deal effectively with the emergency, depending on the type of emergency that occurs. The document also outlines the external stakeholders that will need coordination. Such stake-

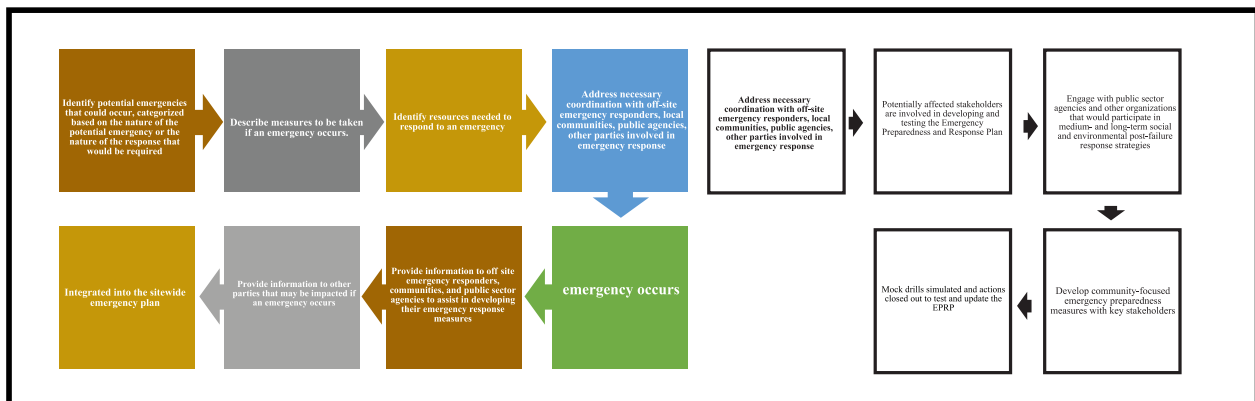
holders include nearby communities, the Ghana Fire Service, Ghana Health Services, and the regulators of the industry.

Dr. Allotey added that the EPRP outlines the mechanism that should be put in place to be able to respond to such emergencies and states the evacuation routes and methods. In all, the EPRP is incorporated into the main site emergency plans of the mine, as TSF failure is not the only emergency associated with mining.

Below is a simple diagram portraying the EPRP.

In her presentation, she emphasized that the objective of any EPRP is to protect stakeholders, that is, the community, employees, contractors, etc. At Gold Fields, stakeholder consultation, information sharing, and dialogue are paramount in the preparation and development of the emergency preparedness and response plan.

Emergency Preparedness & Response Plan



She wrapped up her presentation by stating that the EPRP is evaluated using simulated mock drills, which are to ensure that the plans would be effective mechanism that should be put in place to be able to respond to such emergencies and states the evacuation routes and methods. In all, the EPRP is incorporated into the main site emergency plans of the mine, as TSF failure is not the only emergency associated with mining. Below is a simple diagram portraying the EPRP.

In her presentation, she emphasized that the objective of any EPRP is to protect stakeholders, that is, the community, employees, contractors, etc. At Gold Fields, stakeholder consultation, information sharing, and dialogue are paramount in the preparation and development of the emergency preparedness and response plan. Below is how stakeholders are involved in the EPRP.

Stakeholder Involvement

She wrapped up her presentation by stating that the EPRP is evaluated using simulated mock drills, which are to ensure that the plans would be effective.



MINE TAILING STORAGE MANAGEMENT

Laurent Piat

Managing Director, Veolia Ghana

Mr. Laurent Piat, the Managing Director of Veolia Ghana was a speaker on the Ghana Gold Mining Week 2022 panel to showcase the innovative water treatment solutions for mine water, including groundwater, process water, acid mine drainage, pit water, and tailings for reuse or discharge.

According to Mr. Piat, in a world of growing needs and dwindling reserves, access to basic resources has become increasingly complex and a source of tension. Therefore, in response to these challenges, Veolia is developing durable solutions to supply the greatest possible number of people with the resources needed to ensure the wellbeing of communities, make regions attractive, and underpin the performance of companies. These solutions include access to safe drinking water and energy services for cities and their inhabitants, services to industry to guarantee continuous supplies for production processes, and recovery systems for materials within a circular economy.

Mr. Piat stated that his company is present on five continents with more than 171,000 employees. Veolia designs and deploys water, waste, and energy management solutions that contribute to the sustainable development of cities and industries. These three complementary activities allow Veolia to help develop access to resources as well as preserve and renew available resources.

During his presentation, he mentioned that 150 engineers are working together in the Veolia team in Ghana to make sure that the emergency response plan of Tailing Storage Facilities is never implemented.

“Veolia in Ghana is focused mainly on the downstream of tailing storage facilities. That is the operation & maintenance (O&M) of the tailing wastewater treatment plant to compliant discharge, where the water does not overflow

and the integrity of the TSF is kept. The operations are to prevent the failure of TSFs.” – Mr. Piat

On the difference between Tailing Water treatment and Tailing water management, he presented that the water treatment is the technology applied to treat the water that is stored in the tailing dams and that the Key performance indicators (KPIs) often are:

- Instantaneous discharge flow in m3 per hour
- Plant Efficiency % => TSF flow vs discharge flow
- Plant availability %
- Discharge quality compliance
- Minimal cost of operation

Adding that all KPIs are fixed in time and performance is limited to a specific Tailings Storage Facility water quality envelope (min, max, average).

However, Water Management takes into consideration the overall lifecycle of the water in the mines and it is not limited to TSF (which is the central point of the water in the mines and all the pollution that the mine produces) as shown in the diagram below

Water management takes into account all the activities of the mine, from excavation, processing, refining, and even shipment. Considering holistically the entire mining system. Also, there is the main factor, when managing water in the mines.



In Ghana two seasons affect water management in the mines and TSF in general, the dry and wet seasons affect the quantity of water in the TSF and its flow. In the end, water management in the mines is about the salt build-up, which is not mostly good for the environment and must be removed.

According to the Managing Director, even though various technologies are meant for water management in mines (especially reverse osmosis), most of them just separate the water from the pollutants, which will still be concentrated in the mines. However, Veolia’s engineers are equipped with tools that model, calibrate, stimulate and interpret the data from the water analyzing plant. The technology gives projections on how the salt pollution is building up, in line with the lifespan of the mine. The technology

also provides ways of managing the salt build-up so that water never gets to the maximum level. Therefore, the key performance indicators for water management are not fixed but long-term, as listed; Minimum guaranteed pool in TSF in ML

- Compliant discharge quality
- Savings on operational costs (cooling towers, base camp utilities, site remediation)
- Additional revenues from By-products
- Mine closure cost following Closure Execution Plan

In all, the efforts of Veolia as presented by the Country Manager are to make sure that in the long run, the TSF does not fail.

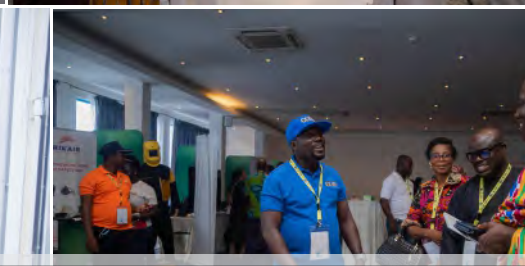
HIGHLIGHTS OF EVENT

GHANA MINING WEEK 2022











SECTION 3.0

MINING AND INVESTMENT

PANEL II - SECTION PREVIEW



The mineral sector has attracted billions of US dollars in investment in the form of FDI representing over 56%, of total FDI to Ghana for mine expansion and rehabilitation, mineral exploration, and mines development, with over 80% of the investment going to the gold mining sector. The investments have resulted in a significant increase in mineral extraction and export particularly gold, out of the country and have led to tremendous growth in the sector's contribution to the foreign exchange earnings of the economy. The Ghana Gold Expo Mining week presented an opportunity for industry players to discuss investment in the mining sector. The Chief Executive Officer of the Minerals Income Investment Fund of the government of Ghana together with the Chief Executive Officer of the Ghana Chamber of Mines and some other industry players discussed how the mineral income of the country is being put to use, as well as promoting feasible fiscal policies in the sector to promote local participation and investment into the exploratory sector of the mining sector.

MODERATOR:
DR. FRANK BOATENG
CEO - CHARTERED GLOBAL
MANAGEMENT ACCOUNTANT



MINERALS INCOME INVESTMENT FUND

Mr. Edward Nana Yaw Koranteng

EO of Minerals Income Investment Fund

The Minerals Income Investment Fund was established by the Minerals Income Investment Act 978, which was amended in 2020 as Act 1024. The Fund is mandated to manage Ghana's equity interest in mining companies and aggregate mineral royalties for investment purposes.

The vision is to build a world-class minerals investment fund with Assets under Management of \$500 million by 2025. With the Mission to transform the Ghanaian mining sector through the investment of the country's minerals income in a sustainable, transparent, and responsible manner for the benefit of stakeholders. To achieve the vision, the Fund has three core objectives that underpin and drive its activities;

The objectives are to:

Maximize the value of the income due to the Republic from the mineral wealth of the country for the benefit of its citizens;

Monetize the minerals income accruing to the Republic in a beneficial, responsible, transparent, accountable, and sustainable manner; and

Develop and implement measures to reduce the budgetary exposure of the Republic to minerals income fluctuations.

The CEO of the Fund, Nana Yaw Koranteng at the program mentioned that the purpose of MIIF as a state-owned investment fund is to invest responsibly and transparently to generate prosperity for all Ghanaians – current citizens and future generations; with greater emphasis on “future generations”.

He mentioned that the main source of income for the fund is through minerals royalties that are due the Republic of Ghana from mining operations – from gold and non-gold minerals such as manganese, salt, limestone, and quarrying activities. Other sources of income include the interest



earned through investment portfolios and grants.

On the how MIIF invest and manage the money that they receive, Mr. Koranteng stated that all the income gained from the royalties is invested on behalf of the Republic in two main ways:

The first is assets under management which simply means the totality of the investments in mining and other companies, and with this, the organization intends to achieve \$500 million AUM by 2025. At the moment it has a war chest of about US\$ 200Million.

The second means of investment is through special purpose vehicles (SPVs), which simply means creating subsidiary companies to manage investments to reduce risks; an example is the Agyapa.

Alternative Investment modules such as de-risking mechanisms with banks and gold trade models where we can play brokerage roles or even buy gold for investments.

The CEO of MIIF continued that the organization is looking into implementing strategic projects and initiatives. According to him, there are three key programs and initiatives that MIIF is very excited about this year. And that the projects that will help in the next ten years alone to DOUBLE Ghana's income from mining. Stating that apart from the listing of Agyapa Royalties Company Ltd, the key programs are: inter-agency collaboration; small-scale mining incubation projects, and local partnerships.

To achieve the full potential of the mining sector for the benefit of Ghanaians, MIIF has initiated an Inter-Agency collaboration framework and Task Force. The purpose is to access and tap fully into the royalties' base; enhance communications across the sector, and provide additional oversight and formality.

According to the CEO, the agencies for the collaboration are; the Ghana Revenue Authority (GRA), which is responsible for the collection of royalties on behalf of MIIF; the Ghana Standards Authority (GSA), which assesses standards and accurate production measurements of minerals; and the Minerals Commission (MINCOM), the regulator of the mining sector.

He added that the mining sector undoubtedly has potential; unfortunately, operators in quarrying, limestone, salt, and sand winning activities either do not honor payments or underpay their royalties.

"One sector we are seeking to support and possibly invest in is the salt sector. Ghana has the largest endowment of industrial salt in west Africa which supports the oil and gas sector."

– Mr. Koranteng

Additionally, he mentioned that quarrying activities, such as stone, limestone, and granite, have also underpaid royalties for years. To him, quarrying activities should be giving Ghana at least GHS 56 million a year, but only brought in circa GHS 3.5 million in 2020. Adding that the inter-agency framework and task force are meant to provide a solution to the lapses in the current system.

For responsible investments and partnerships, MIIF is actively seeking to partner with and invest in local, world-class companies. These assets should align with current environmental and social governance principles. According to Mr. Koranteng, the company seeks to partner with other funds and banks seeking to support the mining delivery system. De-risking Quarry example of structure.

During his presentation, he acknowledged that whereas the mining sector's contribution to Ghana's macro-economic progress is noteworthy, there is a broad perception that the impact of mining at the community level could be significantly improved. It is, therefore, the commitment of MIIF to work collaboratively with all stakeholders at the community, regional and national levels in the industry, to safeguard the mining industry; preserve the environment; ensure that every single Ghanaian benefits from the significant mineral resources that Ghana has been bestowed with.

He concluded by emphasizing the organization's commitment to open and transparent communications regarding its activities and projects. Adding that MIIF looks forward to building long-term partnerships that ultimately benefit all Ghanaians.





LOCAL PARTICIPATION OF COMPANY SHARES

Frederick Attakumah

Executive Vice President &
Country Director, Asante Gold Corporation

Asante Gold Corporation is a gold exploration and development company with a high-quality portfolio of projects in Ghana, Africa's largest and safest gold producer. Asante as it's referred to is focused on developing high-margin gold projects including the Bibiani and Kubi Gold development projects located on the prolific Bibiani and Ashanti Gold Belts. Asante has also made a strategic investment in Roscan Gold Corporation. The company is determined to create a better world and benefit the local population. Where possible, we will use new 'industry disruptive' green technology and methods to lower our mining impact and improve total economic returns.

Speaking at the mining week celebration, the Executive Vice President and Country Director of the company, Mr. Frederick Attakumah mentioned that one of the main issues of concern in the mining value chain across Africa and even globally is local content and local participation. According to him, the industry in Ghana has gone a long way when it comes to local content, but local participation from an ownership perspective has been a bit of a challenge.

In his submission, he added that Asante Gold Corporation was traditionally an exploration and project development company, but last year a lot changed, with the key highlight being the acquisition of the Bibiani Mine, which was acquired for \$90M and paid in 3 tranches. Adding that the government of Ghana supported the entire purchase process, with all relevant approvals.

"At the moment, the focus is on plant refurbishment, and all milestones that shareholders were assured of have practically been delivered. In July this year, the first ounces of gold will be put on the table. Also, exploratory activities have begun on the Kubi project." - Mr. Attakumah

Mr. Attakumah revealed that the model that the company

is putting on the table is different from what multinationals do in the industry. Indicating that the organization is worth just under CAD 600M at the moment. However, a year ago, the market capitalization of the organization was not close to what is known today. The share price was just 8 Canadian cents and the market capitalization was about CAD 8M. But under the leadership of the Executive Chairman, who is keen to drive the local participation bit, a fund-raiser was organized in Ghana which resulted in the company raising about CAD 7M from Ghanaian investors. To make it simple, for the Ghanaians who invested about 15 cents in the company, today the value of their share price of CAD 1.89, which is about 1200%. According to the Country Director, no multinational in Ghana can boast of such an achievement. Adding that 49.6% of the entire current market cap of the company is owned by Ghanaians.

The Country Director further added that the Minerals Income Investment Fund (MIIF) of the government of Ghana during the latest raise of the company put in about \$20M to acquire about 4.5% of the company.

"This is there again blazing a trail that has not happened in our industry before. This shows how we all want to get our mining industry beyond royalties to the point where everyone in the country will appreciate how beneficial the industry is to the entire economy." - Mr. Attakumah

It also mentioned that the company is listed on the Canadian Securities Exchange, as well as the Frankfurt Stock Exchange. According to Mr. Attakumah, the company announced plans to co-list its shares on the Ghana Stock Exchange – to allow a whole new group of Ghanaian investors the opportunity to invest in the growth of their local gold mining industry. To him, the key insight from the model of Asante Gold is that Ghanaians are capable of owning shares in mining companies.

LOCAL PARTICIPATION: THE ADAMUS STORY

Angela List

CEO Adamus Resources Limited & Northern Ashanti Mining



Adamus Resources Limited is a gold-producing company based in Ghana, West Africa. As a fully functioning mine, Adamus Resources poured its first gold in January 2011, under its first parent company Adamus Resources PTY Limited, Australia. It is a gold mine in the Nzema area of the Western region of Ghana.

Adamus Resources Limited's consignment consists of a block of tenements and options covering approximately 393.3 square kilometers located in south-western Ghana, placing the company on a solid step toward future growth. The company conducts its operations in a responsible manner guided by environmental management systems and ethical considerations.

Using the Carbon-in-leach technology, with a processing plant designed to treat oxide, transition, and primary ore, mining operations commenced in November 2010 and commercial production in April

2011. By December 2011, Adamus Resources Ltd had been acquired by Endeavour Mining Corporation and was listed on Australia and Canadian Stock exchanges. Subsequently, by July 2017 the company was acquired by BCM International Limited.

The company is committed to the creation and maintenance of a safe and healthy environment for all who are affected by its activities, thus, ensuring environmentally, and socially responsible mining. Adamus is the champion of the 2021 Inter-Mine First Aid and Safety competition. With competent and well-motivated employees, the company continually improves its processes, while growing the assets through accelerated programs.

As it stands, the company has spent \$4.2M on community development and social impact activities and has grown over the last 12 years and continues to grow.

Presenting at the event, Angela List, the CEO, stated that the company has in the last year been expanding its operation by acquiring other mines like the Konongo Mines, which is now the Northern Asante Mine. In her submission, she added that after many years of dormancy, the Konongo mines are set to begin operations again.

According to the CEO, exploration is very expensive, therefore all stakeholders in the industry should build a front to advocate for a feasible tax system for the sector. Citing those other countries with mineral resources have favorable policies where the full or part of the exploration costs are refunded back to the companies in case the exploration is not successful. To her, such policies encourage investment in the sector.

Miss List assured participants that Adamus is ready and committed to promoting the sustainable development of the industry and the economy as a whole. And is willing to keep working with stakeholders to position the industry globally.

TAX INCENTIVES ON EXPLORATIONS

Mr. Sulemanu Koney
CEO, of Ghana Chamber of Mine

At the Ghana Gold Expo Mining Week 2022, the CEO of the Ghana Chamber of Mine spoke on the effects of taxes on exploration in Ghana. He began his submissions by stressing the importance of Foreign Direct Investment in the Ghana mining industry.

“Several things have been said here, but I will always want to go back. We have had FDI in the mining industry. At the moment, we are in a transition, where we are moving from an industry that is entirely owned by foreigners to locals owning part of the industry. An example is the Asante Gold story. Considering the progress of MIIF, I am confident that harnessing the FDI in the industry will facilitate a broader involvement of local participation in the industry.” – Mr. Sulemanu

According to the CEO, all the industry stakeholders should understand and appreciate how the mining industry is powered by Foreign Direct Investment (FDI) over the years has been transitioning to allow locals, based on its vision and strategy take advantage of the minerals available.

He expressed his displeasure at the fact that the whole country has left such an important matter for only the Ghana Chamber of Mines to champion. Adding that exploration is the bedrock of the entire industry. And that mineral resources are finite as such all citizens should show interest in how these resources are developed. The focus should not just be on the joy of collecting royalties, but on how these minerals are explored and developed.

Mr. Sulemanu revealed that Ghana is losing potential mining investors to emerging mining destinations in the West African sub-region, particularly Burkina Faso.

“Even though we are the leading producer of gold in Africa, Burkina Faso had the largest growth in the mining industry in Africa last year. They continue to attract investment toward exploration aspect of mining.” – Mr. Sulemanu

According to him, this is a result of the government's position of charging mining companies Value Added Tax (VAT) on their exploration inputs, resulting in companies previously exploring in Ghana relocating to Burkina Faso which has a more competitive fiscal regime for mining exploration activities. Unlike Ghana that we treat exploration as if exploration companies are making money already

The investment that goes into exploration – a risky venture since there is no guarantee that exploration will ultimately lead to an actual mineral found in commercially viable quantities – might not be recouped and government might not necessarily refund the VAT on exploration when no deposits are found. Adding that there is zero tax on mining exploration in other mining countries. This is making that country a preferable destination for mining exploration investors, despite Ghana's better mineral endowment.

According to Mr. Sulemanu, his organization has constantly



had deliberations with the government to consider exemption from VAT on exploration inputs in the mining sector, but there has not been any positive response from such deliberations.

Undoubtedly, stakeholders in the industry appreciate the potential gains Ghana stands to benefit from the removal of taxes on exploration in the sector and found that Ghana is losing rather than gaining from the continued imposition of those taxes. Such benefits as presented by the head of the Ghana Chamber of Mines is that it would encourage more potential mining investors – both foreign and domestic – to begin exploration in the industry. This would enable the State to have more mineral deposits from which to derive direly needed foreign exchange revenues and some of those deposits would become available purposely for community mining, even if discovered by foreign multinationals since such companies only develop mines, where the deposits identified, are more than the minimum threshold that each company sets as being commercially worth the investment required.

Also, more Ghanaian investors would venture into exploration thereby boosting local participation if taxes on exploration were removed thereby making that activity cheaper and less financially risky.

“As a country, we need to sit back and ask ourselves what we can do to attract investment into the sector. If we do not recalibrate our fiscal regime for exploration as a country, then we will lose in the coming years. The fiscal regimes for the exploration sector of our mining industry are not favorable and we may be deceiving ourselves by thinking that we are in a good spot, but in 5 to 10 years, we will not even have a spot in the industry across Africa. Because exploration is so risky, 10 to 15% success rate globally. We have companies invest \$10M to \$15M in exploration in the country, and before they start making any revenues, the government begins to start taxing them. So, I think that the fiscal regime is a disincentive for exploration in Ghana, and we need to deliberately make efforts to make it favorable.” – Mr. Sulemanu

He concluded his presentation by appealing to all industry players to advocate for a feasible fiscal regime for the exploration aspect of the industry.

GOLD TRADING & EXPORT FORMALIZATION

PANEL III - SECTION PREVIEW



In the last decade, Artisanal Small-scale Gold Mining (ASGM) has become a growing source of employment in Ghana) but formalization is still a big challenge and constitutes the root of a substantial number of problems and negative impacts associated with ASGM. Like other mining activities, ASGM is cyclical, and because of some unique structural and financial characteristics, it is acutely sensitive to economic variations. It can appear to be transitory due to its characteristically short-term nature; the available evidence strongly suggests that ASGM is not going to diminish as an economic activity in the short term. However, the high levels of informality and illegality pose a difficult, but necessary question that was addressed by the Bank of Ghana and other stakeholders during the Ghana Gold Expo Mining Week, 2022. The section reports on the progress so far with the Bank of Ghana Gold Purchasing Program, the efforts of the Ghana Revenue Authority in promoting the export of gold, and the impact of blockchain technology on the formalization of the supply chain.

MODERATOR
MR. SELIM FENDI
CEO - AURUM MONACO

ASGM TRAINING SESSION AT THE GHANA GOLD EXPO

CREATING SUPPLY CHAINS OF RESPONSIBLE ASGM GOLD FROM GHANA (SUMMARY)- CONDITIONS, CHALLENGES & OPPORTUNITIES

Dr. Nawal Ait-Hocine

AIT-HOCINE, FOUNDER & CEO, A POSITIVE IMPACT SARL



Expectations & Conditions: Several expectations drive the way each category of player interacts with and influenced by the others. For the UPSTREAM section, those expectations evolve around Formalization and a baseline social and environmental performance. For the MIDSTREAM, Due Diligence (DD) is increasingly applied as a result of a larger array of regulations requiring DD, obligations resulting from certification standard's requirements, or from a tendency to adopt conservative risk management.

There are many elements which are critical to responsible sourcing by Upstream companies: Supply chain policies that are incorporated into all contracts with suppliers; requirements that suppliers assess all human rights risks throughout the supply chain; requirements for third-party audits of the suppliers' sourcing practices and human rights due diligence; requirement for traceability or chain of custody over minerals and metals, including efforts to trace these minerals to their mines of origin by requiring full supply chain documentation from suppliers.

Due Diligence: Regulators, Customers, investors, Non-Governmental Organizations (NGOs), and end-consumers are increasingly asking companies, including Small and Medium Enterprises (SMEs), to demonstrate that minerals and metals entering their supply chains are sourced responsibly and have not contributed to environmental and health problems. This is by the Organization for Economic Co-operation and Development (OECD) Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas. The Guidance has been incorporated into many standards and certification schemes.

Challenges: UPSTREAM challenges are

difficulties related to administration complexity and access for formalizing, obtaining licenses and permits, clarifying land rights, lack of access to financial support and knowledge, Capacity building and Training on technical (use of equipment to improve yield and environmentally friendly mining practices) staff, and other subjects such as basic accounting or entrepreneurship. Also, better engagement with Large Scale Miners (LSM) and the need for effective Public-Private Partnerships involving communities, Social Entrepreneurs, Civil Societies, Traditional Authorities, and Local/Regional/Central Governments. Because of increased due diligence requirements, legal requirements, civil society pressure, market, and investors demand, Refiners and Upstream companies tend to adopt a De-Risking approach which is either disengagement from certain countries or sourcing from ASGM or imposing demanding conditions.

Opportunities: Creating supply chains for

responsible ASGM gold from Ghana are multiplying. This provides ASGM with access to the International Market, payment of a decent price, improved practices, and the development of local entrepreneurship in mining. Enabling human and Socio-economic empowerment will contribute to sustainable livelihoods making mining communities a better place to live and work. This will ultimately contribute to building value chains that work for people and nature. It also offers Refiners upstream companies sustainable sourcing options, meeting regulators, increasing requirements for due diligence and risk management, and consumers' and investors' growing demand for products that deliver a positive impact on our planet and its people.

Conclusion: ASGM can be a driver for sustainable development. Ghana is uniquely positioned to create an enabling environment for durable change in the sector.

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BANK OF GHANA'S GOLD PURCHASE PROGRAM & GOLD RESERVE MANAGEMENT

Mr. Stephen Opata
Head of Financial Market, BOG



The Central Bank of Ghana 2021 launched a domestic gold purchasing program (DGPP). According to the BOG, as presented by Mr. Opata, the program is to expand the foreign reserves to double gold holdings in its foreign exchange reserves portfolio. Through this program, the BOG seeks to double its gold holdings in the next five years.

“If you recall, I introduced the BOG's Gold Purchase program to you last year, where I made you understand that the central bank is doing this to build on our wealth as a country, holding more gold reserves. We made it clear to you when we launched the program last year that we want to double our gold reserves in the next five years. This means that in about 4.5 years, we want to have about 17.5 tons of gold.” – Mr. Opata

According to the leader of the Financial Markets Unit of the central bank, the country currently has about 8.74 tons of gold. And that since the start of the program, they have bought about 650KG of gold from aggregators. Almost close to getting to 1 ton. This year, the central bank is projecting to

buy 2 tons of gold as part of its strategy.

He added that the reason why the central bank is holding gold, apart from building on the country's reserves is the fact that gold is a great diversifier of a country's wealth. In that regard, the country will not just hold only financial-based instruments like bonds. The central bank wants to diversify the holdings of the country to use the reserves when necessary.

The central bank wants to get to the point where the currency (Cedi) would be recognized to be tied with gold globally. That is what makes this program interesting because, in the domestic gold-buying program, the central bank is buying gold in cedis and converting it into a foreign asset.

“If we can sustain this program, and so far, we believe we can do it, then we will help to build the wealth of this country. It is important to note that for almost 62 years, we never added gold to the wealth of this country. So, this a significant and transformational and with the support of the entire industry players, we can get there.” – Mr. Opata

The central bank is buying the dory gold, which is the raw unrefined gold from identifiable, responsible, and sustainable gold mines, through aggregators and directly from some mines. The dory gold then is processed into refined gold through London Bullion Market Certified Refinery (LBMA). The reason why the central bank has to do that is that the dory gold is like a currency, it has to be certified such that if there is the need to sell it, they can easily do that. Although the industry has raised concerns about that, the central bank is yet to broaden its reach to other uncertified refineries.

When asked about how the gold reserve is managed by the central bank, Mr. Opatá detailed that the gold bought by the central bank is made part of the reserve of the country and the strategy is for the central bank to refine it into monetary gold. It is then kept with some counterparties of the central bank all over the world, where the foreign assets of the bank are kept. Considering how the geopolitics of reserve management is, the head of the financial markets of

the central bank added that some of the gold reserves are kept in the country by the central bank.

Mr. Opatá added that they are putting measures in place to make Accra a gold center in the world, in addition to Ghana being the leading gold producer in Africa. Adding that all stakeholders should come together to leverage the country's financial resources to be able to trade gold on even the stock exchange, in line with the value addition the central bank is seeking for.

According to Mr. Opatá, the efforts by the government and the central bank to get an LBMA refinery in Ghana have been intense. A lot of due diligence is going on with the central bank to make sure that those selling the gold are embarking on sustainable practices.

He revealed that there is still room for Artisanal Small-Scale Miners who are practicing sustainable mining to join the program. And that a template is being developed to make sure that this happens.





CENTRAL BANK PURCHASING PROGRAMMES AND THE CHALLENGES OF RAISING ESG STANDARDS IN THE ASGM SECTOR

ASGM provides livelihoods for over 20 million people across developing countries. That number has more than trebled since the start of the century, driven by poverty, unemployment, relatively high gold prices, population movements and, in some cases, the activities of organised crime. In some countries artisanal mining is the second most significant rural livelihood after agriculture. Thus it is important both politically and economically. ASGM varies greatly from one area to another – in some cases it is legal and sustains large numbers of livelihoods, whereas in others it is part of an informal economy and may be a seasonal or traditional activity. In other contexts it is explicitly illegal and, at the extreme, associated with the activities of organised crime or armed groups. Part of its value to criminal groups lies in its role as a parallel currency in a wider illicit economy.

In addition, ASGM is often associated with water and soil pollution, environmental degradation, child and forced labour, gender-based violence, hazardous health and safety practices, smuggling and money laundering. The situation of individual artisanal gold miners is often worsened by their exclusion from legal frameworks, leaving them with few property rights and open to extortion. Moreover, they often have no access to banking services, are vulnerable to robbery and unable to realise a fair price for the gold material that they produce. In many situations miners in relatively remote areas have little choice but to buy their mining inputs and sell their gold to middle-men who pocket a disproportionate share of the value. Moreover, gold sourced in this way is unlikely to be able to satisfy the due diligence expectations of international gold refineries and, further down the supply chain, mainstream gold users in sectors like investment, jewellery or technology.

Internationally, a number of initiatives are underway (see Appendix 1) to address some of these challenges, but there is a tension between the due diligence needs of international gold market actors and the fact that progress towards formalisation is, at best, uneven. In these circumstances it is difficult for leading gold refineries to create a viable business model that encourages due diligence from widely distributed small or micro producers. There are a number of donor-funded or NGO operated ‘closed pipe’ schemes that move small quantities of ‘responsibly produced’ ASGM material through LBMA refineries, but these tend to be of limited duration or lack sufficient scale to be viable once subsidies are removed.

The fact that ASGM exists outside of legal frameworks is not necessarily the result of intentional law-breaking. Indeed, the Gold Supplement to the OECD’s Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas notes that the due diligence framework aims to ‘minimise the risk of marginalisation of the artisanal and small-scale mining (ASM) sector’. It further recognises that some ASGM actors may be regarded as ‘responsible’ where they ‘comply with national legal frameworks’ but also states that ‘when the applicable legal framework is not enforced, or in the absence of such a framework, the good faith efforts of artisanal and small-scale miners to operate within the applicable legal framework (where it exists) as well as their engagement in opportunities for formalisation as they become available (bearing in mind that in most cases, artisanal and small-scale miners have very limited or no capacity, technical ability or sufficient resources to do so) should be taken into account’.

Nevertheless, during the Covid-19 pandemic concerns have been raised that even ‘responsible’ ASGM actors have been marginalised, with their gold unable to meet the due diligence standards required by leading gold refiners. This has reportedly led to many ASGM co-operatives and other entities receiving lower prices and diverting their production into illicit channels. Research conducted by the UN Environment Programme’s ‘Planet Gold’ initiative found that

during 2020 gold prices paid to ASGM operations held up better in countries like the Philippines and Ecuador, where central bank purchase programmes operate, and in Guyana, where a government supported Gold Board undertakes such ‘buying in’. Thus, this report considers the extent to which central bank ASGM domestic purchase programmes can be part of a range of initiatives to support formalisation and to raise social and environmental standards.

One of the striking, albeit unsurprising, messages emerging from the case studies, is the sheer scale of ASGM activities both in relation to the estimated value of production and number of people involved. This is true even in a country like Mongolia, where there is no established ASGM tradition. In Ethiopia, for example, 1.3 million people are estimated to be directly involved in ASGM, with 7.5 million livelihoods depending on it. In the case of the Philippines, the country is estimated to be a top 25 gold producer with the predominant share of its production coming from ASGM. (See case studies 1, 2 and 3).

The economic and financial rationale for domestic purchase programmes is explored elsewhere in this report. From the point of view of ASGM policies, central bank domestic purchase programmes have the potential to improve the position of ‘responsible’ ASGM through:

- Guaranteeing that responsible ASGM actors receive a fair purchase price for their gold
- Leveraging the positive role played by central banks (often in cooperation with other agencies) through their purchase programmes –insisting upon, incentivising, formalising or moving away from damaging environmental or social practices
- Reducing the vulnerability of artisanal and small-scale gold miners to predatory actors or extortion by providing a route to formalisation and the ability to sell their gold into formal gold markets
- Reducing the dominance of illegal actors in domestic and international gold supply chains by providing benefits for those who comply with standards of governance.

The central bank purchase programmes studied in this report have the potential to contribute to all of these objectives; in fact, our case studies show evidence of central bank programmes supporting formalisation objectives. In the case of Mongolia, the central bank is reported to promote adoption of its Fairmined Standard and to be aligned with the OECD Responsible Sourcing Standard. In Ecuador, the bank will only buy gold-bearing material from licensed miners who hold bank accounts with legitimate financial institutions and can issue invoices.

Nonetheless, it would seem that the scope of ‘conditionality’ (i.e. where a central bank insists on only buying gold that can be shown to meet specific ESG standards), is generally limited relative to the intended ambition of, for example, the LBMA’s Responsible Gold Guidance (RGG). Nonetheless, the national action plans for mercury reduction in Mongolia and Ecuador assign clear roles to their central

banks, both in relation to their domestic purchase programmes and as regulators of national financial systems, including those applicable to commercial banks.

Central banks are attempting to support the demands of international gold supply chain actors for due diligence. In the case of the Philippines, the central bank’s ownership of an LBMA accredited refiner shows that its gold purchases are aligned with the LBMA’s RGG and are audited to this standard.

In the case of Mongolia, Ethiopia and Ecuador the central banks sell at least a proportion of their purchases to LBMA-accredited refineries, demonstrating that they have been able to satisfy international due diligence expectations. In the case of Ethiopia – before the Tigray conflict intervened – we understand that the central bank was careful to on-sell its gold in segregated parcels. Presumably, this means that since the ‘fingerprint’ of gold from identifiable areas can be traced, if those areas remain free from the taint of conflict, this provenance information has the capacity to support ongoing due diligence if the right governance arrangements can be secured.

With regard to paying a fair price for gold, in many situations a key financial objective for the central bank is to buy some of its national gold endowment from artisanal miners in their domestic currency and to sell in US dollars in the international market. But this is not to the detriment of small domestic producers since they are generally oriented towards the domestic economy. In the case of the National Bank of Ethiopia (NBE) scheme, the intention was to incentivise the sale of gold to the bank by offering a 5% premium relative to the international benchmark. On 2 April 2020 the premium was raised to a minimum of 10% and a maximum of 29% following the signing of a memorandum of understanding between NBE and the Ministry of Mines and Petroleum (MoMP). Conversely, in Ecuador’s dollarised economy, purchases have been made at around a 2% discount to the international price in order to compensate for the costs incurred in the number of small ASGM transactions.

Central bank programmes should, in principle, make ASGM groups less dependent on potentially malign ‘middle men’. This objective is most likely to be met where buying counters are easily accessible to miners but, even in relatively successful schemes, this is not always the case. For example, although Ethiopia has nine such counters, this must be seen in context of a large landmass; mountainous Ecuador has only two buying centres in Quito and Machala, both distant from mining areas in Southern Ecuador. Mongolia’s central bank makes purchases in the capital, Ulaanbaatar, but is otherwise dependent for much of its ASGM feedstock on aggregators and traders. Indeed, Mongolia’s national action plan for mercury reduction notes that ‘gold supply chain and trading in Mongolia is highly centralised, the Bank of Mongolia purchases gold directly from individuals and entities and there are only two metal assaying divisions and one-stop gold trade centres of the BoM in Darkhun-Uul and Bayankhongor. Gold traders often buy gold at lower prices from ASG miners and re-sell at higher prices to the Bank of Mongolia.’

So what other observations can be made from the studies? First, even where there are state-sponsored purchasing programmes it is often difficult to verify the total volume of gold being produced from ASGM sources. Even where a central bank has a theoretical sole right to purchase ASGM gold they do not always find it easy to uphold this dominance.

Second, the ongoing success of domestic purchase schemes is sensitive to taxation changes. Hence a catastrophic decline in volumes was experienced by the Bangko Sentral ng Pilipinas programme (BSP, the central bank of the Philippines) following changes introduced as a result of a court judgement in 2012. These changes meant that gold sold to the BSP attracted a 2% excise duty and a 5% creditable withholding tax. Tax changes introduced in the Philippines in March 2020 were intended to reverse the catastrophic decline in volumes handled through the central bank's well-established scheme. It is entirely understandable that national governments should seek to extract benefit for their national treasuries from the depletion of gold resources, but mixing this objective with domestic purchase or formalisation programmes may undermine the realisation of other policy objectives.

Thirdly, the creation of an accessible route for the purchase of ASGM material does not guarantee that gold will be easily diverted into formal, mainstream channels. Suspicion of state actors, fear of taxation and regulation, limited infrastructure and, in some cases, a premium attached to gold from illicit sources, appears to limit the volumes of gold that can be captured by formal domestic purchase schemes. Moreover, testimony from some countries, such as Colombia, indicates that the costs associated with operating in the formal sector – such as adhering to environmental compliance or the supply of PPE – can reduce the commercial viability of some operations. In some cases this can be balanced through introducing technologies that allow miners to improve their gold recovery rates as well as their environmental performance.

Fourthly, ASM entities often face significant barriers in accessing finance and banking systems. With a lack of mining titles and security of tenure – in the absence of formalisation – they cannot borrow against their access to mineral resources. This makes it difficult for them to invest in improved technologies or better safety or environmental practices. The lack of formalisation, understandably, largely excludes ASGM actors from the banking sector, which may also increase their vulnerability to robbery. However, central banks can use their influence with commercial banks to extend loans to 'responsible' ASGM as a means of incentivising formalisation. We understand that in Ecuador a commercial bank, of which the Central Bank of Ecuador (Banco Central del Ecuador) is a majority shareholder, is currently in the process of formalising credit products to improve access to finance for artisanal miners.

Conclusion

Central bank domestic purchase programmes have great potential to address policy problems relating to ASGM. Although they frequently face logistical and financial capacity constraints, a number of the programmes we studied have procured significant volumes of gold. This is material that has

been removed from the illicit economy and can, subject to satisfactory due diligence checks, be sold on international markets. In the case of direct purchase arrangements, potentially predatory 'middle men' can be displaced and artisanal mining groups can receive fairer treatment. In addition, as in the case of Ecuador, the central bank purchase programme is a useful lever to facilitate formalisation. On the other hand, there is limited international evidence of purchasing programmes being used decisively to raise safety, social and environmental standards.

A key challenge for the international gold market in relation to ASGM production (which accounts for up to 20% of newly mined annual supply) is how to facilitate the channelling of material produced by 'responsible' ASGM into formal channels. Many LBMA Good Delivery List refineries consider the risks associated with gold from ASGM to be unacceptable since the cost of due diligence in tracking the activities of hundreds of small producers is potentially exorbitant. But where the scope of central bank due diligence and domestic purchase programmes can be demonstrated, there is great potential from widening their use. Such schemes offer a way for national authorities – as part of formalisation strategies – to assist the 'clean-up' of informal or illegal mining activities and weaken the role of illicit actors.

Policy Options

The circumstances surrounding ASM typically vary widely both within countries and across borders. Thus we have not sought to make standard recommendations for strengthening central bank domestic purchase programmes. Nevertheless, the following points may prove helpful:

- Central bank purchase programmes can be used to improve the regulation and condition of 'responsible' ASGM but they are most likely to be successful if their actions are coordinated with other governmental agencies
- Central bank purchase programmes have the best chance of success if purchase counters are easily accessible to ASGM entities; if it proves necessary to work through traders or aggregators then it is important for them to be subject to licensing and close supervision
- With regard to incentivising ASGM actors to seek formalisation, state entities need to recognise that operating in the formal sector can involve significant additional cost; where ASGM actors act in good faith it may be worth providing access to more productive and environmentally benign technologies
- Central bank programmes are more likely to be effective if they offer the domestic equivalent of the international gold price or a small premium
- Central banks can play a vital role in working with Civil Society Organizations (CSO) and international donors to implement international due diligence standards
- Buying programmes at site level need to have tough controls to prevent corruption
- Ideally fiscal regimes for gold should be regionally coordinated to remove incentives for smuggling To create peer pressure on ASGM entities to sell to central bank programmes it may be worth considering incentivising communities by allowing them to retain a small

proportion of the purchase price

- Y In some situations central banks may be able to work with large-scale miners who seek cohabitation with 'responsible' ASGM in order to raise safety, social and environmental practices, and can facilitate routes into formal gold markets
- Y Central banks should consider using their regulatory leverage over commercial banks to support formalisation; encouraging loans to improve ASGM production practices and, where it makes commercial sense, supporting initiatives like shared mercury-free processing plants.

CASE STUDY 1: THE PHILIPPINES

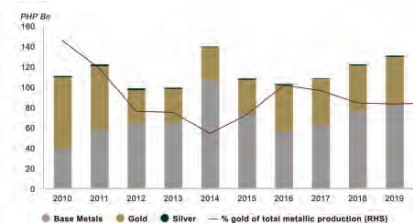
Introduction

The Philippines is endowed with abundant mineral riches. Deposits of gold, silver, copper, chromite, iron ore, nickel and other natural resources can be found throughout the nation's seven thousand islands.

Recognising that such mineral wealth could materially bolster economic growth, policymakers have developed a number of initiatives over the years to encourage mining development by large-scale, formal gold miners as well as by artisanal producers. These initiatives have met with some success and today the Philippines is the 25th largest gold producer and one of the most significant ASGM producers in the world.⁷ Spanning more than 30 of the country's 40 provinces with recorded gold deposits⁸, the ASGM sector employs between 300,000 and 500,000 miners and provides for the livelihood of a further two million people.

Nonetheless, the full potential of gold mining in the Philippines has been constrained in recent times as policymakers have sought to balance environmental concerns and financial fairness with industry growth. Looking ahead, prospects seem brighter, potentially allowing the country's gold mining industry – both large-scale mining (LSM) and ASGM – to make a more substantial contribution to GDP over the coming years.

Chart 1: Philippines' official metallic mineral production



sources: Department of Environment and Natural Resources, Mines and Geosciences Bureau, Republic of the Philippines, 2019 year-end review; Disclaimer *Q1-Q3 2020. Does not include gold production from unrecorded small scale gold mining.

Early promise

By 1977, the BSP had received accreditation from the London Bullion Market Association (LBMA) as a Good Delivery refiner, allowing its gold bars to be purchased on the international market. Subject to independent audit, this status allows BSP to deliver gold in compliance with international due diligence standards. Even today, the BSP is the only central bank on the LBMA's Good Delivery List of refiners.

A number of other policies have been formulated to foster the country's mining industry. In 1995 the landmark Philippine Mining Act was adopted into law, providing various tax incentives for local producers. Although it did not come into full effect until 2004, the Act underscored government recognition of the role that gold production can play in economic development.

The People's Small-Scale Mining Act, introduced in 2001, dovetailed with the Philippine Mining Act. Designed to improve employment opportunities and encourage the equitable sharing of natural wealth, the Small-Scale Mining Act mandated that all small-scale miners must sell their gold to BSP via designated purchase windows (see Appendix 2 for details).

The resultant gold buying programme benefited both gold miners and the central bank. For miners, BSP's role as a primary purchaser guarantees a buyer for gold, regardless of market conditions. For BSP, the programme has allowed it to accumulate gold reserves using domestic currency rather than foreign currency reserves. BSP is also allowed to sell gold from the programme to local jewellers or industrial users

The gold buying programme saw several years of success. Between 1997 and 2011, the value of small-scale gold sold to BSP surged from 4.5bn pesos to 34.6bn pesos, an almost eight-fold increase in less than 15 years.

Fiscal and environmental challenges

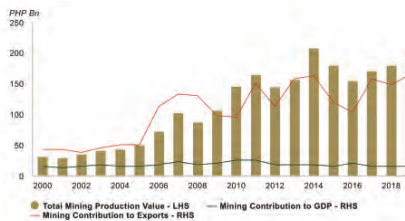
The programme's success halted abruptly in 2012, when gold sold to the central bank became subject to a 2% excise tax and a 5% creditable withholding tax. This policy triggered a dramatic drop in ASGM sales to BSP as small-scale miners sought alternative markets for their gold.

Mining activity has been constrained by environmental concerns too. Even as tax policies were changed, a new act came into force to promote more responsible mining practices, with stronger provisions for environmental protection, revenue sharing and a moratorium on the granting of new mining agreements. In 2016, the authorities suspended the approval of all pending exploration permits and, the following year, they imposed a blanket ban on open-pit mining. In 2018 miners were once again allowed to seek approval for exploration permits but the ban on open-pit mining remains in force to this day.

These policies have had a marked effect on mining's contribution to the Philippine economy. Metal exports,

mining royalties and taxes, mining jobs and share of GDP all peaked in 2013-2014 and declined in subsequent years (see Charts 2, 3 and 4).

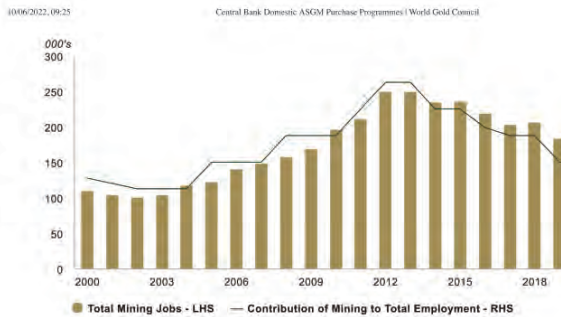
Chart 2: The mining sector's contribution to the Philippine economy



Sources: Department of Environment and Natural Resources, Mines and Geosciences Bureau, Republic of the Philippines; Disclaimer

*Q1-Q3 2020. Does not include metallic mining.

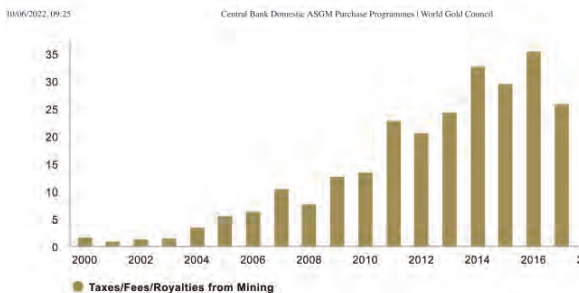
Chart 3: The mining sector's contribution to employment



Sources: Department of Environment and Natural Resources, Mines and Geosciences Bureau, Republic of the Philippines; Disclaimer

*Q1-Q3 2020. Does not include metallic mining.

Chart 4: Government revenue in taxes, fees, and royalties from the mining sector

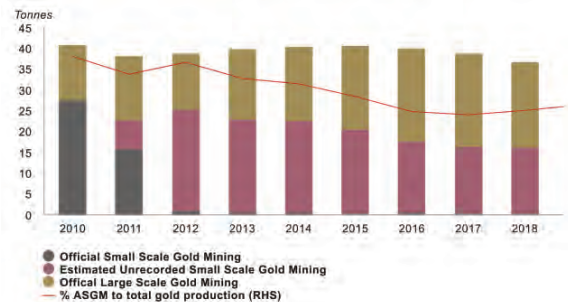


Sources: Department of Environment and Natural Resources, Mines and Geosciences Bureau, Republic of the Philippines; Disclaimer Q1-Q3 2020. Taxes, fees and royalties from mining only include revenue collected by DENR-MGB.

Recognising these trends, the government passed Act No.11256 in March 2019. Designed to strengthen central bank reserves and reduce gold smuggling, the Act allows registered small-scale miners and accredited traders to be tax exempt when they sell gold to the BSP.¹³ The new law took effect in March 2020 but its effect has thus far been muted.

Between the first and third quarters of 2020 the BSP registered just 0.5bn pesos of transactions from small-scale miners, although the COVID-19 pandemic was almost certainly a distorting factor. The government also took steps last year to reduce the use of mercury in the gold extraction process. Historically, the gold industry has been the largest source of mercury emissions in the Philippines but in July 2020 the government ratified the Minamata Convention on Mercury, committing to ban the opening of new mercury mines in the country, among other initiatives.¹⁴

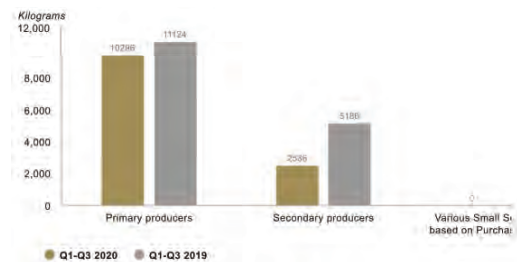
Chart 5: Gold production from estimated unrecorded small-scale gold mining has risen in recent years



Sources: Metals Focus, Mines and Geosciences Bureau, World Gold Council; Disclaimer

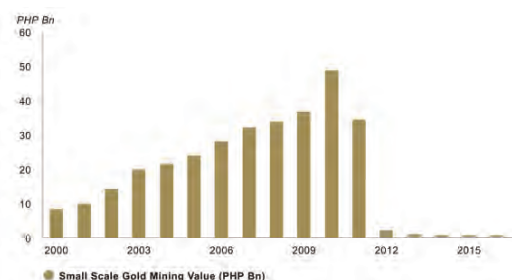
*Estimated unrecorded small scale gold mining values are obtained by subtracting official gold production values from the total gold production values compiled by Metal Focus, which include estimated small scale gold mining output. Data for estimated unrecorded small scale gold mining values only available from 2010.

Chart 6: Gold production by type of producers



Sources: Department of Environment and Natural Resources, Mines and Geosciences Bureau, Republic of the Philippines; Disclaimer

Chart 7: Official small scale gold mining production fell significantly after taxes were imposed in 2012



Sources: Department of Environment and Natural Resources, Mines and Geosciences

Conclusion

Historically, the mining sector in the Philippines was associated with poor environmental practices and other controversies. But the BSP's gold buying programme has made a tangible difference. By 2010 ASGM accounted for almost 70% of total gold production and considerable progress had been made in formalising the sector.

Such advances have been hampered in recent years as changes in tax policies disincentivised small-scale miners from selling through official channels. By 2019 production from official ASGM activities had fallen to 1.26% of total recorded production, with a value of just 0.6bn pesos (US\$12mn), while the number of registered small-scale mines also fell sharply from 17 in the first three quarters of 2019 to zero in 2020 (See Chart 6).

At the same time the unofficial ASGM sector was thriving. In 2011 unofficial ASGM production was estimated at 7 tonnes (t). By 2019, this had risen to 17.6t or 46% of total estimated gold production (see Chart 5).

Looking ahead, prospects appear better. With an estimated US\$840bn of untapped mineral wealth, natural resources in the Philippines still offer extraordinary economic potential.

Policymakers clearly appreciate this and have taken steps to promote the development of the country's mining sector, balancing industry needs with environmental and ethical concerns. Over the coming years the government will be able to build on its track record for policy innovation and develop a gold mining industry that contributes to economic growth, fosters wealth at all levels of society and protects the environment.

CASE STUDY 2: MONGOLIA

Introduction

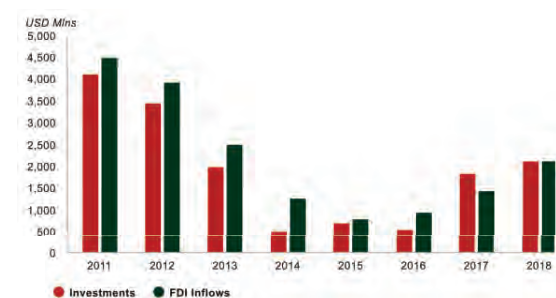
Mongolia is a sparsely-populated nation with an estimated US\$1-3tn of copper, coal, gold and other mineral reserves.¹⁷ In recent years Mongolia has become one of the fastest growing economies in the world, with annual GDP growth reaching 17.3% in 2011. After this, the economy experienced two further years of double-digit expansion and strong foreign direct investment (FDI) inflows to the mining and quarrying sector, but, as commodity prices tumbled and China's economy slowed, the country suffered. By 2016 annual GDP growth had slumped to 1.17% and FDI inflows had plummeted.

More recently, the mining sector has been recovering steadily. FDI inflows have returned, albeit not at levels seen in 2011–2012, and new mining projects are also breaking ground. Exports of mineral products – in particular to China, which takes in almost 90% of exports from Mongolia – have also been rising, aided in part by sanctions imposed by China on North Korea, the development of China's infrastructure-

heavy Belt and Road Initiative, and souring trade relations between China and Australia. In 2020, however, the Covid-19 pandemic reversed many recent gains, as demand for commodities fell and trade with China was interrupted. Nonetheless, gold production proved resilient and the Bank of Mongolia (BoM) purchased more than 19t of gold in the first ten months of 2020 alone.¹⁸

Looking ahead, there are high hopes that Mongolia's economy will recover and that, increasingly, local people will reap the benefits of this resource-rich nation.

Chart 1: FDI inflows and investments in the mining and quarrying sector of Mongolia



Sources: National Statistics Office of Mongolia; Disclaimer

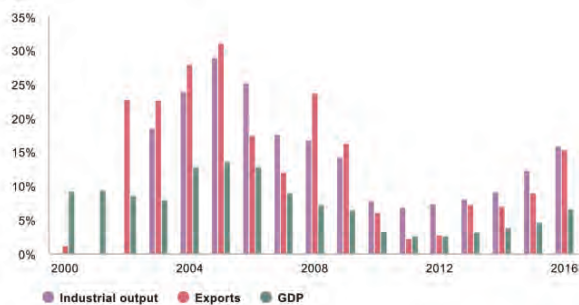
AN OVERVIEW OF RECENT GOLD PRODUCTION

Gold is one of the principal resources mined in Mongolia; in 2019 it accounted for 11.1% of total industrial output, 5.5% of exports and 5.2% of GDP (Chart 2). Gold also played a vital role in helping Mongolia transition from a centrally planned to a free market economy. The 'Gold-1' national programme, launched in 1992, boosted gold production and supported Mongolia through a period of hyperinflation, rising unemployment and poverty. The 'Gold-2000' programme further incentivised production, which soared to 24 tonnes in 2005, the highest annual production on record¹⁹ (see Chart 3).

In 2007, however, the government levied a 68% windfall tax on the industry, followed two years later by the 'Law of the Long Name',²⁰ designed to help protect the country's ecosystems. The windfall tax was repealed in 2009 and phased out over the following two years. But subsequently the industry suffered from labour strikes, the temporary closure of a major LSM gold mine and an increasing shift towards hard-rock mining. By 2011 gold production had fallen to just 5.46 tonnes.

The industry has since recovered, as policymakers have taken steps to liberalise it and reduce bureaucracy. In 2017 the 'Gold-2' national programme was launched, with an objective to increase annual gold production to 25t by 2020 through improved financing for producers, accelerated approval for permits and a streamlining of regulations. Official gold production amounted to slightly under 20t in 2020, so the goal was not met, but the Covid-19 pandemic had hampered progress and the 25t ambition remains.

Chart 2: Gold production as a % of total industrial production, exports and GDP



Sources: National Statistics Office of Mongolia; Disclaimer

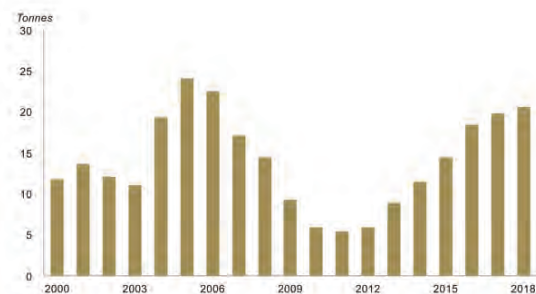
Gold domestic purchases and the Bank of Mongolia

The BoM has been involved in gold operations since the country’s transition into a free-market economy. The bank first conducted domestic gold purchases under the framework of the ‘Gold-1’ national programme and under the ‘Gold 2000’ programme it became the sole legitimate buyer of domestically produced gold, while also providing financial support to mining companies. Two years later commercial banks were also allowed to purchase gold, as policymakers strove to promote competition in the market and reduce the BoM’s involvement in quasi-commercial activities.

However, the sales process remains complex and multi-layered. Artisanal miners must first deposit gold-bearing ore at local processing plants where the gold is extracted and refined. The material is then sent to the State Assaying Agency in Ulaanbaatar, where purity is tested and officially recorded. Further refining takes place before the gold can be returned to the original miners for sale to the BoM. Gold that the BoM chooses to sell is then exported overseas and cast into Good Delivery bars.

Transportation and logistics create a number of issues. Depending on the proximity of processing facilities to the miners, it is estimated that 60-100% of ASGM miners sell gold directly to processing plants instead of to the BoM, especially if the plants are within a day’s journey by car.²¹

Chart 3: Gold production in Mongolia



Sources: National Statistics Office of Mongolia; Disclaimer

The ASM sector

Mongolia is unusual among gold producing countries in that it does not have a long tradition of artisanal mining. The majority of activity started in the post-communist era and in the years since it has become a significant livelihood in some

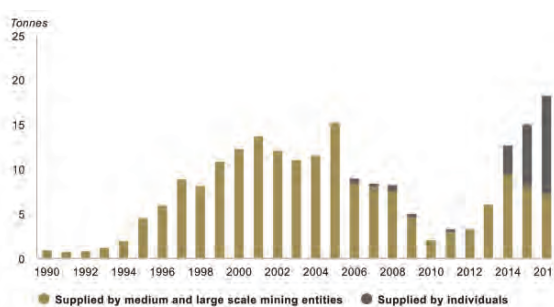
parts of the country. Based on a 2016 survey conducted by the National Statistics Office of Mongolia, 5,998 people out of a total of 9,600 survey participants stated that they were directly involved in ASM, while several thousand more were indirectly involved as auxiliary service providers and utility workers. Of these 5,998, 5,108 were involved in ASGM with 27.7% considered as informal miners. The sector produced 212kg of gold in 2016, generating revenues of US\$6.73mn at an average selling price of 68,100 Mongolian tugriks (US\$31.75) per gram.²² While the survey provides some insight into a largely informal sector, the true size and scope of the industry is almost certainly larger. One study suggests that between 30,000 and 100,000 people could be directly or indirectly engaged in ASM during at least part of the year – climatic conditions make it difficult to undertake mining in the depths of winter. Artisanal miners also benefit from favourable tax rates, so medium-scale miners often claim to be small-scale when they sell gold to the BoM. In 2016, for example, ASGM gold sales to the BoM were estimated at 11.03t, representing 60% of the total gold purchased by the BoM and a significantly higher figure than that suggested by the 2016 survey above.

Formalisation of the sector

The Mongolian government has taken steps to formalise the ASGM sector. Back in December 2010 the government passed Regulation No.308 entitled ‘Extraction Operations of Minerals from Small Scale Mines’, allowing small-scale miners to form partnerships that are controlled and advised by district governors. In the intervening years, policymakers have also allowed small-scale miners to trade gold, agreed to let ASGM production enter the national treasury stockpiles, and ratified the Minamata Convention on Mercury. And officials have been working with the Sustainable Artisanal Mining project, run by the Swiss Agency for Development and Cooperation, to encourage a more formal approach to ASGM.²⁴ These efforts have had some success. Contributions to the national treasury through official gold sales and royalty payments increased in tandem with ASGM sales to the BoM, which rose from 0.01t in 2012 to 12.66t in 2017 (See Chart 4).²⁵ In the 2016 survey conducted by the National Statistics Office of Mongolia, only 12% of miners reported difficulties in selling their minerals. Of those, roughly a quarter said they could not find a formal buyer in the local market, while some 20% said they could not find a local assay unit.²⁶ However, while there is a definite trend towards formalisation, challenges remain. It can be difficult for miners to access formal supply chains and processing facilities are limited in number. Such issues are compounded because the sale of gold is centralised in the Mongolian capital, Ulaanbaatar, and the BoM is forced to rely on the services of gold traders who buy gold locally and transport it to the bank. This serves to complicate the BoM’s due diligence efforts as the gold supply chain is rendered even more opaque. Opacity in the supply chain inadvertently allows medium and large-scale mining companies to pose as ‘individuals and artisanal miners’ in order to avoid taxes. It is possible that gold extracted using mercury is circulating in the legal supply chain, as an estimated 235.4kgs of mercury is reportedly used each year²⁷ At the same time, a high level of

bureaucracy impedes the effective implementation of legislation and reform.²⁸ Policy changes BoM gold purchases have largely followed the trajectory of domestic production, peaking at 15.23t in 2005 before falling to a low of 2.12t in 2010 following the imposition of the 68% windfall tax (see Chart 4). Sales picked up considerably in subsequent years as taxation became less punitive. First the windfall tax was repealed, then royalties were cut to 5% (an additional rate of 0- 5%) and in 2014 the Amendment to the Minerals Law delivered a further reduction in royalty rates to 2.5% (0% additional rate). This provoked a rapid growth cycle in gold production and, by 2018, the bank was buying more than 20t of gold annually. The 2014 Amendment to the Minerals Law expired in January 2019 and a draft law to extend the Amendment by a further five years failed to pass in parliament. A 5–10% royalty on gold (0% additional rate) was imposed and, in 2019, domestic sales sank to a five-year low of 15.2t, despite BoM’s efforts to drive sales through its ‘National Gold to the Fund of Treasures’ campaign. In April 2019 the Amendment to the Mineral Law was renewed with a preferential tax rate of 5% and gold sales to the BoM recovered, with the first ten months of 2020 recording 19.2t of domestic gold purchases.

Chart 4: Domestic gold purchases by the Bank of Mongolia



Sources: National Statistics Office of Mongolia;

*Data on gold sales to the BoM by individuals only starts from 2006. No data available in 2018 and 2020. 2020 domestic purchases are as of October 2020.

Conclusion

With an estimated US\$1-3tn in mineral reserves and exploration licences covering only 4.5% of the country, Mongolia has vast resources to materially improve the lives of its people. But like many other resource-rich nations, Mongolia has had to balance economic growth and mining production with environmental protection and community welfare. To that end the government has enacted environmental laws, sparred with foreign miners to ensure the equitable distribution of benefits, established domestic purchase programmes to legitimise and regulate small-scale miners, and reversed laws on gold royalties. Looking ahead, there is enormous potential to build on work to date, generate wealth from the AGSM sector and change lives for the better. If the mining sector is managed properly, with systems and standards in place to ensure financial fairness and sustainable development, the benefits could be transformative for Mongolia, driving economic growth and

raising millions of people out of poverty.

CASE STUDY 3: ECUADOR

Introduction

Gold mining in Ecuador dates back to the Inca Empire; its roots can be traced to the Portovelo-Zaruma region in the southern part of the country. Mining was expanded under Spanish colonial rule and in the late 19th century conventional mining operations were established by both British and American companies before an Ecuadorian company, CIMA (Compañía Industrial Minera Asociada), took over operations in 1950. By 1978 bad management had forced the company to go into bankruptcy, causing substantial unemployment in the region. Amidst a backdrop of rising international prices, unemployed miners fought for the right to continue mining, and as the allure of riches attracted more people to the region, ASGM flourished.

Today the ASGM sector continues to thrive, albeit largely informally. According to a report produced by the Ministry of Environment and Water, small-scale mining constituted 78% of total gold production in 2014 while artisanal mining made up the remaining 22%.²⁹ In 2018 an estimated 11,500 miners were involved in the sector with the workforce growing to 20,000 with the inclusion of seasonal workers. 60% of the mining population earned a monthly income between US\$500 and US\$1,000 – above the basic salary of US\$394.30 Official statistics from the Ecuador Central Bank (BCE) indicated that ASGM production averaged 4.45t per year between 2000 and 2012 before rising to an annual average of 7.62t between 2013 and 2016. Gold production fell significantly in 2016, and in particular in 2017, when 6.37t of gold was produced. Gold production then rebounded to 8.21t in 2018. According to the BCE, the decline in gold production in 2016 and 2017 was due to efforts by the Mining Regulatory and Control Agency (ARCOM) to prevent smuggled gold, particularly from Peru, from being included in registries as national production. Contraband gold inflates gold exports in Ecuador and is a source of discrepancy between estimated production and export volumes. Further discrepancies also arise because artisanal miners are exempt from making tax declarations or royalty payments to the state. Many produce gold without limitations and are under no obligation to sell to the BCE. According to field work conducted by the Ministry of Environment and Water, it is estimated that Ecuador produced approximately 23.6t of gold in 2018 through ASGM activities alone,³¹ which is significantly higher than the total gold production recorded by the BCE.

Nonetheless, the Government has taken a number of important steps to promote an efficient domestic gold purchase programme and formalise the ASGM sector. And these have had tangible results.

Legal frameworkAs with the great majority of other jurisdictions in Latin America, the Ecuadorian constitution classifies all mineral and non-renewable natural resources as the property of the state, while allowing the government to grant concessions to individuals or companies to extract

Table 1: Total metallic production in Ecuador

Metals	Units	2014	2015	2016	2017	2018
Antimony	Metric tons	6	19	6	53	50
Copper	'000 metric tons	120	1	40	8	42
Gold	kilograms	7,322	7,723	6,761	6,368	8,213
Iron and steel, raw steel	Metric tonnes	667,000	720,000	576,000	561,000	583,000
Silver	kilograms	577	1,484	934	955	1,000

those resources. The Mine Promotion Law of 1974 marked the country's first step towards establishing a framework around artisanal mining. The law included several complex formalisation procedures but amendments followed in the ensuing decades, each delivering incremental changes. In 2008, a fresh constitution was adopted and the following year a new Mining Law was passed, specifically addressing the needs of artisanal miners. The law underlined Ecuador's commitment to formalising the ASGM sector, declaring that 'the State shall establish and promote technical assistance, training and financing mechanisms for the sustainable development of artisanal mining and small-scale mining'. The Mining Law facilitated the establishment of the Ministry of Mining in 2015, tasked with implementing government policies in the ASGM sector. The BCE, in turn, was made responsible for the commercialisation of all gold produced through ASGM.

Central Bank of Ecuador's gold buying programme

Given the size and scale of informal mining in Ecuador, the government has been keen to encourage greater transparency, governance and revenue collection across the ASGM sector. As part of these efforts, the BCE started a gold buying programme, purchasing gold directly from artisanal and small-scale miners. In 2014 the BCE began purchasing gold from ENAMI, Ecuador's national mining company, before establishing a general fund of US\$200mn to finance the purchase of gold from artisanal miners in 2016. The fund was depleted by 2019 with US\$140mn deployed between 2017 and 2018. Thereafter, the BCE sought an annual budget of US\$48mn to finance the purchase of gold from artisanal miners.³² Artisanal miners were initially required to sell their gold at BCE's offices in Quito, some 600km from the southern region of Ecuador where ASGM activities are concentrated. But in 2018 the BCE opened an additional gold buying office in the southern city of Machala. The new office allowed the BCE to be closer to gold production activities and reduced travelling time for miners from three days to half a day. The Machala office soon accounted for 62% of the central bank's total gold purchases.³³ However, since the Covid-19 pandemic erupted in Latin America, gold purchasing activities have centred once again on Quito, where security is reportedly greater than at Machala. The central bank is also exploring the possibility of opening a new gold buying office in the northern region of Ecuador.³⁴ While artisanal miners are not subject to taxation when they sell gold to the BCE, they are subject to a

discount on the internationally published gold price. This is defined and approved by an internal committee and is usually set at around 2%.

Table 2: Categories of Metallic Mining in Ecuador under the Mining Law

Scale	Artisanal mining	Small mining	Medium mining	Large mining
Production capacity form metallic mining	Up to 10t/day underground and 120m ³ /day alluvial	Up to 300t t/day underground and 1,000t/day open pit; and up to 1,500m ³ /day alluvial	Between 30t and 1,000t/day underground; 1,001 and 2,000t/day open pit; and up to 3,000m ³ /day alluvial	In excess of medium mining all metallic and volume
Origin of title	Domestic	Domestic and/or foreign	Domestic and/or foreign	Domestic and/or foreign
Royalties	0%	3%	4%	5% and 8%
Environment obligations	Registration	Licence	Licence	Licence
Commercialisation	Central bank	Central bank/public bank	N/A	N/A
Period of operation	10 years	25 years	25 years	25 years
Area	Up to 4 hectares (underground) and up to 6 hectares (open pit)	Up to 300 hectares	Up to 5,000 hectares	Up to 5,000 hectare

ASGM due diligence and sales process

Before selling their gold to the BCE, artisanal miners must deposit extracted gold ore at local refineries where it is refined into non-monetary gold in the form of gold doré bars. The bank purchases these bars and stockpiles them until the export costs become justifiable. The bars are then sent to LBMA-accredited refiners to be cast as Good Delivery bars. According to the BCE, gold exports totalled 169,000 ounces in 2019. The BCE also conducts extensive due diligence to ensure that the gold it purchases is responsibly sourced. Mining companies, cooperatives and individuals must be registered before they are able to sell their gold to the bank. Counterparties must also have bank accounts with registered financial institutions and be able to issue invoices. They are assessed for compliance with anti-money laundering regulations and local authority requirements before being checked for outstanding tax obligations. A second round of due diligence is conducted for counterparties that have had a relationship lasting six months or more with the central bank. Two days prior to the purchase of gold, counterparties are checked for involvement in ongoing litigation, arms trafficking, terrorism and fraudulent activities. The amount of gold to be sold must also be consistent with the counterparty's past transaction volumes as a check against illicit gold inflows. These requirements are published on the BCE's website alongside the transaction price, the international gold price and a price calculator (Appendix 3). The BCE's overarching objective is to promote the formalisation of the ASGM sector. This includes working with the judiciary and regulators, such as the Mining Regulatory and Control Agency (ARCOM), to ensure that counterparties are not involved in any illegal activities. The central bank has also been engaging with public sector banks to encourage

further onboarding of informal artisanal miners. BanEcuador, for example, of which the BCE is a majority shareholder, is in the process of formalising credit products that would improve access to financing for artisanal miners. Nonetheless, miners continue to face logistical challenges in accessing the legal supply chain. The transportation of products to gold buying offices poses security risks and roads can be difficult to access. A long and complex registration process acts as a further disincentive to many miners and there is also a considerable time lag in making payments, which is certainly a major inconvenience for subsistence miners.

Conclusion

The ASGM sector has a long and rich history in Ecuador and the government has introduced several key policies to formalise the sector. The BCE also recognises the role that gold can play in effective reserve management. To that end, the bank actively uses its gold reserves to provide liquidity and bolster its financial position when required. Reserve managers frequently employ gold swap transactions, pledging a portion of their gold in exchange for hard currency during a fixed period. Upon repayment of the currency the gold is returned to the BCE. The central bank entered into such a swap in March 2020, raising US\$300mn at a time when additional liquidity was required to address the widespread market stress and extreme financial instability caused by the pandemic. Such active use of gold reserves underscores the importance of the BCE's gold buying programme as a key tool within the central bank's armoury. Looking ahead, there are hopes that the formalisation process will continue to evolve through policies and actions that reduce contraband, facilitate gold transportation and provide effective fiscal incentives to the ASGM sector.

Case study 4: Ethiopia

Introduction

Artisanal mining has been practised in Ethiopia for centuries; a site in the west of the country dates back 6,000 years and is thought to be the oldest gold mine in the world. Over recent years attempts have been made to formalise ASGM activity and capitalise on the mining sector's capacity to drive economic growth. In 1991 the emergence of a free-market economy initiated legislative changes across the Ethiopian mining industry. Private investors were allowed into the sector, while new laws and regulations helped to establish a competitive framework designed to foster productivity and growth. These efforts have met with mixed success but more recent policies indicate a renewed determination to deliver positive change.

The ASGM sector

According to the Ministry of Mines and Petroleum (MoMP), total gold production in Ethiopia averaged 3.5t per annum between 2015 and 2018, generating an estimated US\$136mn in revenue (based on the average annual gold price and foreign exchange rates during the period). However, the true scope and size of the sector is almost certainly understated in official statistics. In-country reports

bear this out. In 2016, a study on artisanal mining by the Ethiopian Extractive Industry Transparency Initiative (EITI) estimated that the ASGM sector generated about 65% of Ethiopia's foreign exchange earnings, directly employing 1.3 million people and contributing to the livelihood of a further 7.5 million local inhabitants. The study also estimated that 18t of artisanal gold was produced in 2014 alone, with the average miner earning 8,000 to 10,000 birr (US\$190-US\$240) per annum.³⁶ Against this backdrop, policymakers are understandably keen to formalise the ASGM sector. The government's Homegrown Economic Reform Agenda, published in 2019, makes mining the third prioritised economic sector after agriculture and manufacturing. The MoMP also developed the country's first mining policy during 2019 to 2020 following a series of multi-stakeholder discussions. The policy is currently under review for approval but, in the meantime, the Mining Operations Proclamation governs all mining-related activities, adopting the philosophy that mineral resources are the property of the state and the Ethiopian people. The government has the authority to license and administer mining activities and licences are granted for four types of mining: artisanal, special small-scale, small-scale and large-scale.

The National Bank of Ethiopia and gold formalisation

The National Bank of Ethiopia (NBE), the country's central bank, plays a pivotal role in the formalisation of the artisanal gold mining sector. The central bank is charged with buying gold deposits locally and selling them in international markets, while the Ministry of Mines is responsible for verifying the purity of gold purchased by the NBE.³⁷ As such, the NBE acts as a clearing house for artisanal gold, acquiring the gold through nine purchasing centres located in gold-producing areas and selling it on the international market to generate foreign exchange income. For many years the NBE strove to encourage small-scale miners to sell their gold through official channels by offering them a 5% premium to the prevailing international price for gold. In April 2020, following a memorandum of understanding between the NBE and MoMP, this premium was increased to a minimum of 10% and a maximum of 29%. Updated pricing is published on the NBE's website. The bank classifies its gold transactions as follows:

The NBE's gold buying programme primarily channels artisanal gold for sale on the international market and is therefore not specifically designed to facilitate the accumulation of gold reserves. Ethiopia's official gold reserves are reported only sporadically to the IMF – the most recent figure was 0.25t, reported in January 2020.

Chart 1: Amount of gold purchased by the NBE (Kg)



Effectiveness of formalisation efforts

As the NBE has introduced policy incentives, the MoMP has pursued formalisation work on the ground, engaging with key actors in the supply chain to raise awareness of existing legal and regulatory frameworks. The Ethiopian Mineral and Biofuel Corporation has also launched an ASM formalisation process. Taken together, these steps have borne fruit. Gold exports from July to December 2020 were 320% higher than the whole of 2019³⁸ Nonetheless, an estimated 61% of minerals mined from artisanal sources still enter the informal market³⁹ and are absorbed by domestic demand or exported through sales to tourists and foreign visitors.⁴⁰ There are many reasons for this. First, gold has a potential use as a parallel currency in the informal domestic economy. Second, licensed artisanal miners often have their activities restricted to a specific area, whereas unlicensed miners can conduct their operations wherever they please. Third, road infrastructure is limited, making it difficult to transport mining products. And fourth, despite efforts by the MoMP, miners still have a poor awareness and understanding of mining regulations, and legal enforcement at grassroots level is sometimes weak.

Tigray Conflict

AGSM purchases can be subject to other challenges too, highlighted by recent developments in Ethiopia. The NBE refines its domestic gold purchases through an LBMA-accredited refiner. This means that due diligence needs to be exercised to guard against the risk that ASGM gold has

been tainted by the funding or support of armed groups, conflict, or severe human rights abuses. In November 2020, fighting broke out in the Ethiopian province of Tigray – one of the country’s gold-producing zones. This prompted concerns in international markets that Ethiopia’s artisanal and small-scale gold may not conform to OECD guidance around due diligence on the responsible sourcing of minerals from conflict-affected or high-risk areas. Deliveries from the NBE have therefore been suspended. In the interim, a group of international stakeholders has been seeking a means of facilitating due diligence on gold supply from the country. As at the end of Q1 2021 a way forward had yet to be found.

Conclusion

Despite concerted efforts, the Ethiopian government has not been able to reap the full economic benefits of its artisanal mining sector. The vast majority of mining operations remain informal and implementation of legal reforms is weak at grassroots level. Miners’ working conditions are often poor, productivity is low, extraction methods are outdated and inefficient, and mercury is still widely used. The outbreak of hostilities in Tigray has created further challenges. Nonetheless, over time, artisanal mining could make an immense contribution to Ethiopia’s economic and social welfare. The sector is reported to create an indirect livelihood for 7.5 million people, generating almost US\$303mn in revenue in the last five months of 2020,⁴¹ despite the Covid-19 pandemic. Further steps towards formalisation of the sector could and should deliver long-term rewards.

GOLD TRADE AND EXPORT: THE ROLE OF THE GHANA REVENUE AUTHORITY

Mr. Francis Tanlongo
Mining Division, Custom Unit-
Ghana Revenue Authority



Adding to the discussions on the export of gold in the country, the head of the mining division of the Customs Unit of the Ghana Revenue Authority, Mr. Francis Tanlongo mentioned that the customs division of the GRA plays compliance and regulatory role in the export of gold.

To him, the main issue the authority has with the export of gold in the country is the smuggling of gold out of the country by small-scale miners. According to Mr. Tanlongo, the 3% withholding tax on the export of gold was projected to be one of the reasons why the small-scale miners were smuggling the gold. However, by the intervention of the government, it has been brought down to 1.5%. The reduction has encouraged the export of gold and reduced the smuggling.

Adding that the revenue authority still has an uphill

task to deliver on. Because the frontiers of the country are not very secure, with a lot of gaps in the system. And people cross the borders easily with gold to the nearby countries.

Mr. Tanlongo mentioned that another challenge the GRA faces is that the small-scale miners are scattered all over the country, and at times, contacting them is a problem. To solve that problem, the authority has begun a program to get all ASGMs registered with GRA customs for traceability.

In conclusion, he added that the GRA has simplified the export process for artisanal small-scale miners. Once an artisanal small-scale miner is registered as an exporter, ASGMS only comes to the customs division to seal the gold after the assaying is done at PMMC. assaying is done at PMMC.





GOLD TRADE AND THE SUPPLY CHAIN TRACEABILITY

— *Mirali Shah* —
COO of Responsible Gold Supply Chain

Supply chain risk management has become a major concern in the mining industry due to globalization, increased enormous producers, outsourcing, and competition. The development of a highly efficient and completely integrated global supply chain in recent years has been a great boon to industrial stakeholders worldwide. Undoubtedly, the lifeblood of any goldmine or trader is the delivery of the gold on time. The last two decades have seen supply chain management practices evolving toward more lean process approaches to reduce waste within the overall chain.

Responsible Gold Supply Chain company is a blockchain company that creates technologies for traceability. The purpose of the Responsible Gold Ecosystem is to use the power of technology to solve pressing global challenges. Its mission is to make gold sustainable and globally accessible.

Narali Shah, the Chief Operation Officer of the company joined the panel of the Ghana Gold Expo Mining Week 2022, to discuss the gold trade in Ghana and how the company's technology seeks to improve the traceability of gold on the Ghanaian gold market. In her submission, he acknowledged that supply chain risk management forms the connection between all players in the industry. customers and the business environment. It promotes synergy and reduces dependency.

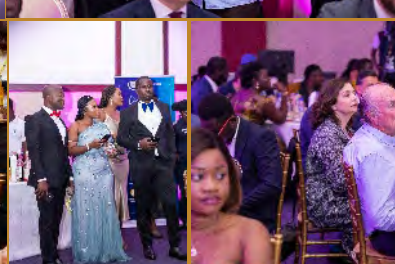
According to the Chief Operations Officer, the global interest in supply chain risks and how to handle them has been growing in the last few years especially in the mining industry due to its operations being considered hazardous. And more so, such hazards are not being completely obliterated thereby posing a considerably high risk to the health and safety of employees and even other assets used on sites. It is in that regard that as a technology provider, what they do is provide a traceability solution, which tracks gold from the mines to the market and provides visibility and transparency across the value chain. What the technology does is to allow buyers and consumers of gold down the value chain, to understand where the gold comes from, and the journey it has been on from mine to market. And if it's been responsibly mined and traded. In today's crisis-prone and rickety gold mining environment, a principal issue of concern according to her has been risk-management. Supply chain risk management is made up of the field with the identification and elimination of components of uncertainty in the supply chain spread by fluctuations in demand and supply.

She ended her presentation by emphasizing the usefulness of blockchain technology in her company. Specifying that the technology intends to level the playing field, in terms of sources of gold on the market. This also positions the industry in Ghana to be less risky, unlike how it has been tagged globally to be risky.



GOLD DINNER EXPERIENCE

GHANA MINING WEEK 2022





2022 AWARD CATEGORIES

GHANA MINING WEEK

NATIONAL BEST RECLAMATION PROJECT

LIFETIME GOLD LEGEND

BEST WATER TREATMENT COMPANY

BEST FINANCIAL INSTITUTION

BEST TAILINGS DAM & MANAGEMENT

BEST COMMUNITY OUTREACH - LARGE SCALE

BEST SMALL-SCALE/COMMUNITY MINING SITE - RECLAMATION

BEST CENTRAL BANK GOVERNOR IN AFRICA - GOLD RESERVE

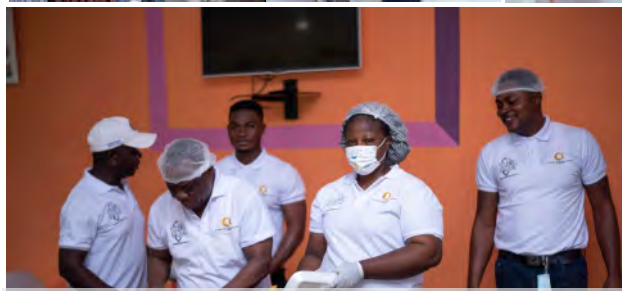
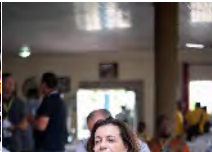
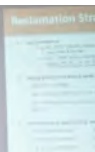




ADAMUS STORY:
DIPLOMATIC
MINING TOUR

- ◆ VISIT TO MINE TAILINGS DAM
- ◆ CASES OF SUCCESS; RECLAMATION SITE
- ◆ WATER TREATMENT TECHNOLOGIES







ARTIFICIAL INTELLIGENCE (AI) ON GLOBAL SECURITY OF MINING SITES

Seif Allouche

MINING CHALLENGES

 SECURITY Resources Safety Equipment Safety Workers Safety	 COMPLIANCE Government Compliance Investors Compliance Traceability	 SUSTAINABILITY Workers Well Being Expertise Sharing Area Safety
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INTERTECH SOLUTION

Based on the Territorial Security solutions developed by its sister company SquadBotik (specialized in Homeland Security, Custom Security and Territorial Security) through its expert in the security filed, Intertech brings a real added value to the mining sector.

GOLD EXPO RESEARCH CENTER FOR STUDENT

Desmond Kwame Antwi

ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORTING (ESG REPORTING)

The demand for transparency on sustainable and socially responsible practices has become a necessity. Companies and various organizations found within the catchment of industrialization are answerable to various stakeholders including investors, customers, employees, and nongovernmental organizations (NGOs) that want to evaluate a company's impact environmentally. ESG reporting covers the disclosure of data covering the company's operations in three areas: environmental, social and corporate governance. It provides the image of the business's impact in these three areas for stakeholders:

- i. Environmental: It considers how companies use energy and manage their environmental impact as stewards of the planet. Factors considered are energy efficiency, climate change, carbon emissions, biodiversity, air and water quality, deforestation, and waste management. Companies and industries that do not consider these environmental risks may face unforeseen financial risks and investor sanctions.
- ii. Social: It examines how a company care for its people and culture, and how that has ripple effects on the broader community.
- iii. Governance: It considers a company's internal system of controls, practices, procedures and how an organization stays ahead of violations. According to the 2019 Global Environmental

Report from Bloomberg, ESG reporting would only benefit countries which decide to make it mandatory. This is because when a country's industrialization sector is properly regulated and activities of these companies and industries are well accounted for, the environment and all its components are taken into key consideration. According to LADNER, companies who are proactive and are in for what is known economically as a 'win-win' outcome, do not downplay the importance of ESG reporting. This is because sustainability is the future of industrialization and to maximize profit and to gain international credibility, sustainability should be a top priority (Ladner, 2018). The concept of the ESG reporting will be considered in two different contexts, thus the international context and the Ghanaian context.

INTERNATIONAL CONTEXT: According to Bloomberg, countries that have gained notoriety with regards to environmental pollution like China and the United States of America have taken bold and sustainable steps to promote ESG reporting. China has outlined a new set of voluntary guidelines for companies to report environmental, social and governance metrics. This sustainable initiative was not developed by the Chinese government alone but in collaboration with giants within the Chinese industrial hub. China, which is rated as the world's largest polluter due to its enormous industrialization sector is bent on joining forces with the sustainable global community through this ESG reporting initiative to reduce emissions and meet a net-zero target by 2060, according to Bloomberg (Bloomberg, 2021). According to Bloomberg, ESG reporting transparency was a key focus for companies in 2021 and beyond in America and investors are increasingly considering ESG initiatives to help manage investment risks.

LOCAL CONTEXT: Over the years, notable mining corporations have been legally mandated to extract Ghana's precious minerals and according to Mining Global, Ghana is the leading gold producer in Africa after producing 142.4 metric tons of gold in 2019 (NS Energy, 2020). The mineral deposits are scattered from the south through the middle belt to the northern part of Ghana. Most waterbodies like the Pra, Tano and the Offin rivers found around the central and southern basin are endowed with alluvial gold deposits. Some mining companies in the country have failed to participate in the ESG reporting initiative and this does not help with the advocacy for environmental sustainability. Mining companies like Goldfields Ghana Limited have taken sustainable steps and have been highly applauded after they released their ESG report in 2020 indicating full details of their operations to their various stakeholders. The ESG report focused on four sections; ESG Integration, Social, Safety and Health and the Environment (Gold Fields Ghana Limited, 2020). The report considered Energy and Climate change and prioritized energy costs, energy security, decarbonisation of their mines, renewable energy opportunities and climate change mitigation and adaptation. Water stewardship, which has been a major national issue in recent times, was thoroughly discussed. The water stewardship aspect prioritized security of water supply, water efficiency and recycling and water conservation. Indeed, the key areas this report focused on has a potential to promote responsible mining and help to endorse sustainability in the country's mining and industrial hub. The ESG reporting as opined by Bloomberg, has been tipped by environmentalists as the future of environmental sustainability since industrialization keeps cushioning the global economy. With regards to measures to ensure sustainable industrialization, the Pigouvian Tax System was also introduced to help restore sanctity as far as environmental sustainability was concerned but upon feedbacks and criticisms that experts levelled against this measure, it was deemed to be inefficient in the sense that it operated as what is popularly known as the polluter – pays principle and wealthy industrial firms did not bother much about paying for their pollution and the mitigation cost of their unfriendly environmental practices. With time, the system even denied stakeholders the full account of their firm's activities and stewardship. According to Bloomberg, Mining Global and Fitch, ESG reporting is certainly the best way to get industries and firms to conform to the best environmentally approved practices and standards and also to report their activities in order to promote the goal of achieving the win-win target which seeks to promote sustainable industrialization across the globe (Sphera's Editorial Team, 2021).

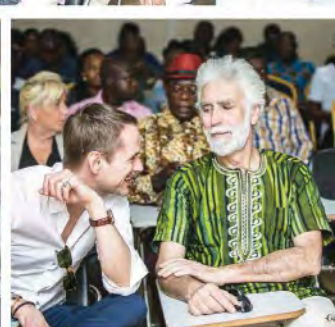


Conclusion

The mining of minerals from the earth presents opportunities, challenges and risks to sustainable development. This report provided a detailed account of policies and practices to manage mining towards sustainable development - by incorporating social and environmental sustainability considerations in policies and legal frameworks, adopting regulatory and participatory tools to protect the environment and people, enhancing fiscal benefits from mining, and increasing employment opportunities, as presented by various stakeholders during the Ghana Mining Week 2022. It synthesized the available knowledge and the experiences of industry players – primarily from the government representatives, the Ministry of Lands and Natural Resources, Ministry of Environment, Science, Technology and Innovation, the Ghana Chamber of Mines, the Central Bank, CEOs of Mining Companies and other global players, bringing them together in a way that is relevant for the sustainable development of Ghana's economy, especially for the local mining communities.



MINING TOUR GOLDEN STAR 2020









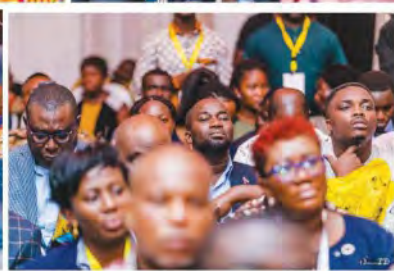
GREEN GOLD CARPET & NETWORKING

The cocktail and networking event presented a unique platform for dialogue exchange of ideas while attendees enjoyed excellent drinks and music from the string quartet. Attendees witnessed a fresh approach to responsible gold mining with insights into a more significant global responsibility for all stakeholders in the mining value chain.



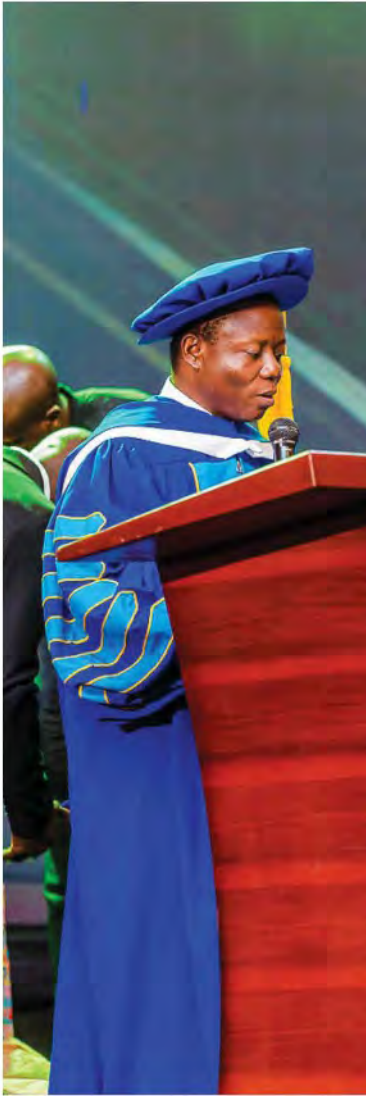


HIGHLIGHTS OF EVENTS



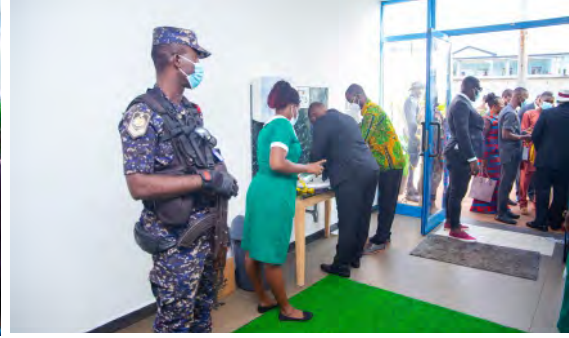






HIGHLIGHTS OF EVENT

GHANA MINING WEEK 2021












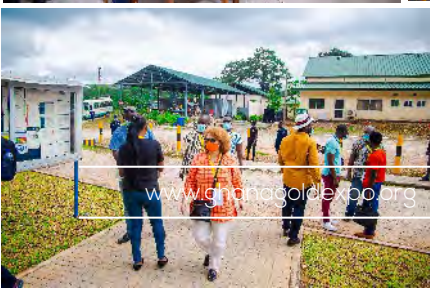
BUSINESS MEETING

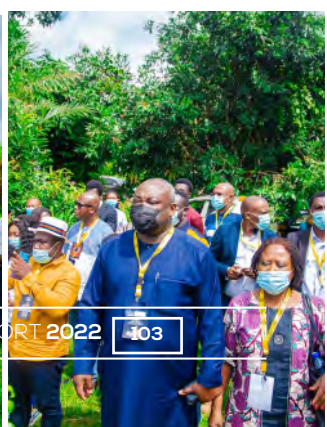




DIPLOMATIC MINING TOUR

SPECIAL APPRECIATION TO
MINISTRY OF FOREIGN AFFAIRS
& REGIONAL INTEGRATION





GHANA MINING WEEK 22
1ST - 2ND APRIL, 2022

CONSERVATION MINE & RECLAMATION AWARD

THE FUTURE TREND

Conservation ecology is the branch of ecology and evolutionary biology that deals with the preservation and management of biodiversity and natural resources. Its goal is to find ways to conserve species, habitats, landscapes, and ecosystems as quickly, as efficiently, and as economically as possible.

Western Region Takoradi | info@ghanagoldexpo.org | #GhanaGoldExpo
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AWARD CATEGORIES



Dr. Kwaku Afriyie

Minister of Environment, Science, Technology and Innovation
At Conservation Mine & Reclamation Award Night 2022

GHANA GOLD EXPO
GHANA MINING WEEK
1ST - 2ND APRIL, 2022

SUPPORTED BY
UN@
Forbes Monaco

CONSERVATION MINE & RECLAMATION AWARDS 2022

AWARDS

- 🏆 NATIONAL BEST RECLAMATION PROJECT
- 🏆 BEST WATER TREATMENT COMPANY
- 🏆 BEST TAILINGS DAM & MANAGEMENT
- 🏆 BEST SMALL-SCALE/COMMUNITY MINING SITE - RECLAMATION
- 🏆 LIFETIME GOLD LEGEND
- 🏆 BEST FINANCIAL INSTITUTION
- 🏆 BEST COMMUNITY OUTREACH- LARGE SCALE
- 🏆 BEST CENTRAL BANK GOVERNOR IN AFRICA, GOLD RESERVES MANAGEMENT



PROJECTS



ANIMALS HEAD COUNTING

info@ghanagoldexpo.org | sdadot@gmail.com
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RECLAMATION PROGRAMS

WILD LIFE CONSERVATION AND ANIMAL HEAD COUNTING

WILD LIFE CONSERVATION AND ANIMAL HEAD COUNTING

This programme is to ensure that animals such as Elephant, Lion, Tiger and other wild animals are safe and their movement are known by the use of our Cessna 172 combined with software programme. Light aircraft such as Cessna 172 (C-172) or any equivalent can be used by flying at the low attitude with Vet. Doctor and Observers from the wild life department well trained to undergo this exercise. For instance, If elephants are spotted the Vet. Doctor in the flight will shoot to drug one or two elephants in group. This drug will dizzy them and they will fall on ground, their location (coordinates) will then be sent to the rangers then they will go there and tag them. This tag has sensor so you can monitor their movement wherever you are to know whether their numbers are increased or decreased and this must be repeated every year or two years at the most.

BENEFIT

VARIETY OF SPICES: To help identify and trace the where about of these animals

ENCROACHES: They can be spotted by the pilot and coordinates of where they are sent to the rangers for their arrest.

ELEMENT OF COST: Tracking, fuel, accommodation, food, crew and ground staff, training, positioning of the aircraft change per head depending the distance.

GROWTH OF TRESS: This will help monitor and detect cutting down of trees

POCHERS: It will help identify pochers from killing the animals.

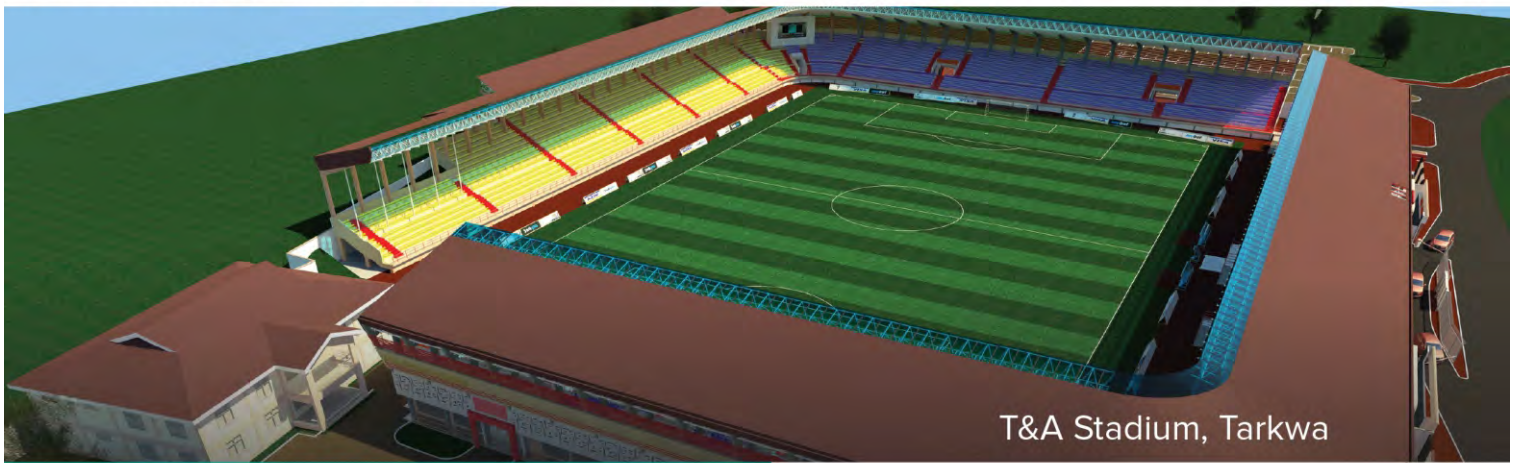
REVENUE GENERATION: A well organized conservation program increases revenue for the wild life department, as the department is able to identify the kind of spices that need to natured our zoo and game reserve.

RESEARCH PURPOSES: It an avenue for students and young professionals to use as their project works.

COST: This programme can be funded by NGO's, Government Agencies, Individuals.



GOLD FIELDS



T&A Stadium, Tarkwa

#ThisIsGoldFields



GOLD FIELDS GHANA FOUNDATION PROJECT

Cost: US\$ 16.2m

Completion date: Q4 2022

Capacity: 10,400



safety



integrity



respect



responsibility



innovation



collaborative
delivery

Our Purpose

Creating enduring value beyond mining