

P1332: Amira Africa Centre of Excellence for Full Value Chain Processing

amira



P1332: Amira Africa Centre of Excellence for Full Value Chain Processing (AACoE-FVCP)

Assessed by the global community, located in West Africa (Ghana)

AMIRA AFRICA

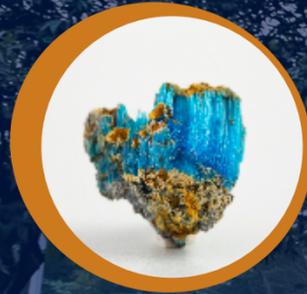


Physical Infrastructure of processing and testing units

Proposed Centres of Excellence

Geology, Exploration, Resource/ Reserve Estimation, Modelling Center

Physical Infrastructure at KNUST&UG
Virtual programmes at KNUST/UMAT/UG/Reminex/ Copperbelt University



Processing Options, Flowsheet design and Testing Center

Main site at Obuasi Industrial Park.
Virtual programmes: UMAT/KNUST/UG/UZ/UCT
Equipment partners: FLSmidth/Maggoteaux/Metso Outotec, etc.

Mining Stimulation Center

Physical mini mine at UMAT
Virtual programmes at UMAT/KNUST/UG



Jan 2024–
June 2025

Obuasi
Mineral
Processing
Plant

Kumasi
Geology
Lab

June 2025–
Mar 2026

Apr 2026–
Dec 2026

Tarkwa
Mining
Lab

Legon Lab

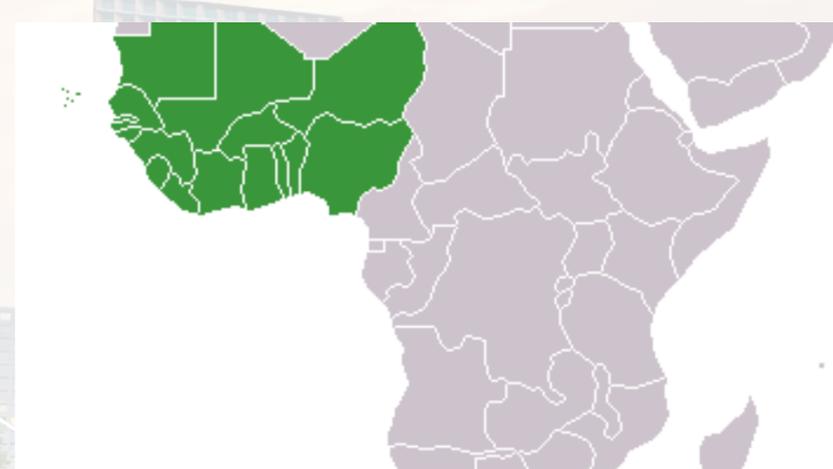
Jan 2027–
Oct 2027

Goal

Four Site
Operations of
AACoE

Scheduled Milestone

AACoE- FVCP Scope



Physical processing and testing units(different options for every unit process.

Inclusion of non-traditional Mining researchers like Physicists, Mathematicians and Computer/Data Scientists to augment the traditional researchers and practitioners including Geologists, Mining, Metallurgical/Chemical, Infrastructure, Electrical and maintenance Engineers and Technicians.

Well instrumented and networked to facilitate process control as well as virtual and remote control for operations and skills transfer; and finally, the most up-to-date AI, digital twins, machine learning.

Scale and continuous operation with re-circulating, to test real life scenarios for equipment, reagents, flowsheet options, and OPEX combinations, etc.

Optimization and exploration services for new and operating mines, as well as options for equipment and other suppliers for testing and evaluation.

New Ore from exploration can be fully characterized through Ore modelling, resource and reserve estimation, Mine designs, Blast optimization, Processing route optionality, CAPEX/OPEX, and actual drawing of plans.

AACoE will support investigations and establish physical presence for many other Amira projects (PADI, Refractory, P9R, etc.), members and non-member projects



AACoE-FVCP Seeks To

Establish

Establish the world's best Mining Technology hub that has commercial value, but also assists in keeping the skills locally in Africa – Africa Hub for Centre(s) of Excellence

Galvanize

Galvanize the different centres of excellence at the tertiary teaching and research institutions in all technical and non-technical areas of Mining

Lead

Lead the critical mineral exploitation work in Africa by linking into other initiatives

Short-circuit

Short-circuit the existing practical skills shortfall. This is real, as exemplified in the list of exemptions in expat restrictions

Utilize

Utilize the current best, to become the future best

Generate

Generate a substantial income while doing so

AACoE-FVCP : Visions



**Advancing Research
and Innovation**

**Fostering
Collaboration and
Knowledge Exchange**

**Driving Industry
Transformation and
Growth**

**Promoting
Responsible and
Sustainable Mining
Practices**

**Influencing Policy and
Regulation**

AACoE- FVCP : Benefits



Access to improved, calibrated and validated multicomponent models and simulations from other Amira's programmes.



Access to expertise's' specialized knowledge and insights in their respective fields, research findings, and networking opportunities.



Technology and skills transfer to sponsor personnel and practitioners in the processing industry.



Industry standard operations and conformances.



Involvement of local suppliers of goods and services.



Active participation by leading researchers to ensure applicability of Industry-specific models at CoE sites to optimise throughput, recovery and cost.

WHY AMIRA

GOVERNANCE

Amira has delivered a trusted platform for collaborative R&D for over 60 years including financial stewardship and transparency for funders.

GLOBAL ALLIANCES

Amira has delivered a trusted platform for collaborative R&D for over 60 years including financial stewardship and transparency for funders.

KNOWLEDGE PLATFORM

Amira is developing a knowledge platform to provide industry decision makers with efficient access to trusted, validated, verified, and aggregated outcomes from global industry R&D outcomes.

DEFRAGMENTED R&D+I2

Amira delivers a coordinated R&D+I2 response to industry challenges, which accelerates dissemination and deployment into industry.

HIGH ROI ON R&D INVESTMENT

Amira's model provides a 15x to 20x multiplier on a company's investment in R&D+I2.

01

02

03

04

05

amira



Why Africa?

Mineral Resources

Africa is rich with resources - around 30% of the world's resources are found in Africa across commodities, including new energy resources that underpin current and future Needs.

Population

Africa is home to over 1 billion people with 70% of sub-Saharan Africa under 30 years old with a rising leadership voice across Africa.

Mining Tradition

Africa has a long history in mining, with a once-in-a-lifetime opportunity to introduce step change in methods, equipment and improved co-creation with communities.

30%

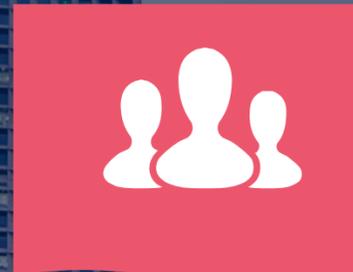
70%

Centuries



Why Choose ACoE?

Unique opportunity to collaborate with bright minds, cutting-edge technologies, and industry leaders. This convergence will drive groundbreaking research and shape our field's future.



Establishing an advisory board with industry and government leaders highlights the project's commitment to collaboration and knowledge exchange.



Inspiring focus on interdisciplinary collaboration, uniting researchers, practitioners, and non-traditional mining professionals. Diverse perspectives can tackle complex challenges, unlocking breakthroughs and revolutionizing the industry.



The CoE's commitment to advanced technologies like AI, digital twins, and machine learning enhances operational efficiency, optimizes processes, and promotes sustainable mining practices with deeper insights.



AACoE-FVCP Key Collaborators

- **Project managers**

(Current and retired African Technical practitioners from Geology, Mining, Processing, Engineering, Tailings and Environmental, Allied Financial, commercial and legal professionals)

- **Expertise**

(Experienced, tested Project and Construction Professionals/companies will be contracted. Amira as clients.)

- **Funders**

(Interested Amira operating members
Equipment and technology suppliers
Non-traditional funders like MIIF)

- **Advisory Board**

(Complementary and Supplementary value add)

- **Partners**

(Chambers of Mines, Mineral commission(s), State Tertiary Teaching and Research Organisations- UMAT, KNUST, UG, etc.)



Business Models

Stream 1: Research enablement

~10%

- Collaborate with Amira Global programmes – WAXI, Mining, P9,P-ADI.
- Collaborate with Existing University Research Centres.
- Develop new priority programmes (Tailings as new source of product, Refractory treatment, alternative platforms for models and Control, etc).
- De-Carbonization programmes for copper belt and other regions.

Stream 2: Troubleshooting and Optimization

~20%

- Mine and plant efficiency improvement.
- Mine and plant throughput improvement.
- Mine and plant Cost Optimization.
- Testing alternative reagents, steel balls and other components.
- Furnace, fabrication, refining and other support facilities for local entrants in the Mining supply chain.

Stream 3. Developing new and safe flowsheets – Au, Base metals, Bauxite, Lithium

~10%

- Project services from Exploration to Tailings.
- Critical Minerals development.

Stream 4. Training and skills transfer

~30%

- Centre for state-of-the-art knowledge and competencies – link with MinCom.
- Competency based materials, systems development, and examination for various levels of practitioners – CoM, Mincom, producing companies.
- Virtual and physical training programmes – For Mining and exploration companies.

Stream 5. Toll Treatment services

~30%

- Existing Tailings resource like PTP Obuasi.
- Small and medium scale deposits around (West) Africa.
- Exploratory prospects.

The Ask

The P1322 (CoE) Confirmation of Sponsorship document is now established through our legal repository system – Concord.

If your company is interested in Committing to Sponsorship of the P1322 project, please email Ann Woolley, our Global Support officer, on

Ann.woolley@amira.global

who will create a link for you to commit to sponsorship.

Or click on this link [Amira Global Project - Expression of Interest](#)

Or scan the QR code



Financial Projections and Key Metrics

Threshold	Project Funding AUD \$ 1000	Program Scope
Year 1 Investment	8x BOS, 10x SOS, 10x BSS, 10x SSS, 10x NTF \$ 5 M	Scope & deliverables to be agreed at program kick off meeting

Sponsor Category	Year 1 Investment AUD \$ 1000
Big Operator Sponsor (BOS)	250
Small Operator Sponsor (SOS)	50
Big Supplier Sponsor (BSS)	80
Small Supplier Sponsor (SSS)	10
Non-Traditional Funders (NTF)	1000

Investors and Amira Global



“Investors in the short term may focus on investment opportunities in the mining industry but it would be in their interest to understand the long-term opportunities to gain a better and sustained ROI that would inure to the development of the industry”. – P. Amponsah Mensah.



Short Term Investment

- Constant stream of trainees from the Mines etc both physical and virtual
- Consulting services being provided for the new and existing Mining companies
- Project services for prospecting and new companies
- Research dollars from local and international funders in critical and battery elements, among other emerging priorities
- Toll processing of small endowments and tailings
- Testing of reagents, equipment



Long term opportunities

- belong to the entities with the technical capabilities to lead the finding and exploitation of economic minerals; with emphasis on critical minerals and full value chain exploitation.

Current Status



An advisory board comprising industry and government leaders has been established.



A scoping study and design development phase has been initiated, with preliminary funding provided by EPCM.



A working group, consisting of a research consortium, has been formed, including sourcing expertise from AGA Obuasi Senior/Managers in Environmental, Engineering, Geology, Mining, Processing Departments as Industrial Advisors.



MPPE and Amira are prefinancing for engineering designs and program management. There is funding interest from MIFF.



Four Industrial lands have been granted for various purpose, namely:
Main Centre at Obuasi industrial park.
Mining engineering site at UMAT, Tarkwa.
Geology and allied testing site at KNUST, Kumasi.
UG integrated in all programmes including mathematics, computer and data science, and geology.

Advisory Board for the Amira CoE



Mr. Kofi P. Amponsah-Mensah
Director of Pamikor Limited,
Ghana



Mr. Frederick Attakumah,
Executive Vice President and
Country Director, Asante Gold
Corporation



**Professor Richard Akwasi
Amankwah**
Vice Chancellor of University
of Mines and Technology,
Ghana (UMaT)



Mr. David Renner
Chief Executive Officer, Green Africa
Minerals FZCO



Mr. Eric Asubonteng
Managing Director of AngloGold
Ashanti (Obuasi Mine)



Professor Kwasi Torpey
Dean of the University of Ghana
School of Public Health (UG)



Professor Ellis Owusu-Dabo, KNUST
Pro Vice-Chancellor of the Kwame
Nkrumah University of Science and
Technology (KNUST)

West African Research Consortium



Professor Francis Momade, Materials Engineering (KNUST)



Professor Grace Ofori-Sarpong, Minerals Engineering (UMaT)



Professor Lawrence Darkwah, Chemical Engineering, (KNUST)



Dr. Mrs. Etonam Bani Fiadonu, Geological Engineering (UMaT)



Dr. Clement K. Owusu, Minerals Engineering (UMaT)



Dr. Yao Yevenyo Ziggah, Geomatic Engineering (UMaT)



Ing. Dr. Latifatu Mohammed, energy engineering CSIR – IIR



Dr. Asare Asante-Annor, Geological Engineering (UMaT)



Dr. Emmanuel Effah, Computer Science and Engineering (UMaT)



Dr. Shadrack Fosu, Environmental and Safety Engineering (UMaT)



Dr. Eric Tutu Tchao, Computer Engineering (KNUST)



Dr. Prince Ofori Amponsah, Earth Science (UG)



Dr. Kwadwo Mensah Darkwah, KNUST Materials Engineering (KNUST)



Dr. Blestmond Brako, KNUST Geological Engineering (KNUST)



Ing. Prof. Abdul-Rahman Ahmed, Telecommunication Engineering (KNUST)

EPCM Budgetary Cost



CLIENT: Amira Global
PROJECT LOCATION: Ghana
PROJECT NAME: Obuasi Mineral Processing Plant
PROJECT PHASE: Feasibility Study
PROJECT NUMBER: 03801
DOCUMENT NUMBER: 03801-CAPEX-001
REVISION: A
DATE: 15 May 2023



EPCM BUDGETARY COST

					BUDGET	SOURCE / COMMENTS
Item No.	Description	Qty	Units	Unit Rate USD	Actual (Buy Price)	
ENGINEERING						
100-						
110	Process Design	1	Lot	48,966.04	48,966.04	
120	Civil and Earthworks Design	1	Lot	76,691.72	76,691.72	
130	Detailed Engineering (SMPP)	1	Lot	227,187.78	227,187.78	
140	Electrical & Instrumentation Design	1	Lot	160,652.36	160,652.36	
150	P&Gs	1	Lot	44,716.15	44,716.15	
	Sub Total				558,214.07	
PROCUREMENT & CONSTRUCTION						
200-	Civil Works					
210	BILL No. 1 - Earthworks	1	Lot	1,151,617.50	1,151,617.50	Construction Incl. Ecavation, Disposal, Backfilling, etc. (Plant, TSFs & Ponds)
220	BILL No. 2 - Concrete	1	Lot	703,766.25	703,766.25	Construction Incl. Rebars, Concrete, Acid Proofing, etc. (Plant, TSFs & Ponds)
	Sub Total				1,855,383.75	
300-	SMPP (Supply, Fabrication and Installation)					
310	BILL No. 1 - Structural	1	Lot	1,079,084.79	1,079,084.79	Structural Steelworks, Handrails, Corrosion Protection, etc. - Based on Estimated Tonnes
320	BILL No. 2 - Mechanical	1	Lot	377,679.68	377,679.68	Platform Gratings, Security Fencing, Accessories, etc. - Based on Estimated Tonnes
330	BILL No. 3 - Plateworks	1	Lot	884,867.52	884,867.52	Steel Plateworks, Corrosion Protection, etc. - Based on Estimated Tonnes
340	BILL No. 4 - Piping & Fittings	1	Lot	517,960.70	517,960.70	HDPE & MS Rubber Lined (Incl. 15-50mm, 63-160mm, 200-500mm)
	Sub Total				2,859,592.69	
400-	Equipment					
410	BILL No. 1 - Equipment Supply	1	Lot	6,565,125.96	6,565,125.96	Historic Costs of Equipment for Crusher, Mill, Flotation, Re grind, CIL, Tailings, Elution, Regen, Goldroom, etc. Areas
420	BILL No. 6 - Equipment Installations	1	Lot	984,768.89	984,768.89	Installations for All above Equipment
	Sub Total				7,549,894.85	
500-	Electrical and Instrumentation (E & I)					

Center Of Excellence (for full value processing) landsite in Obuasi, Ghana



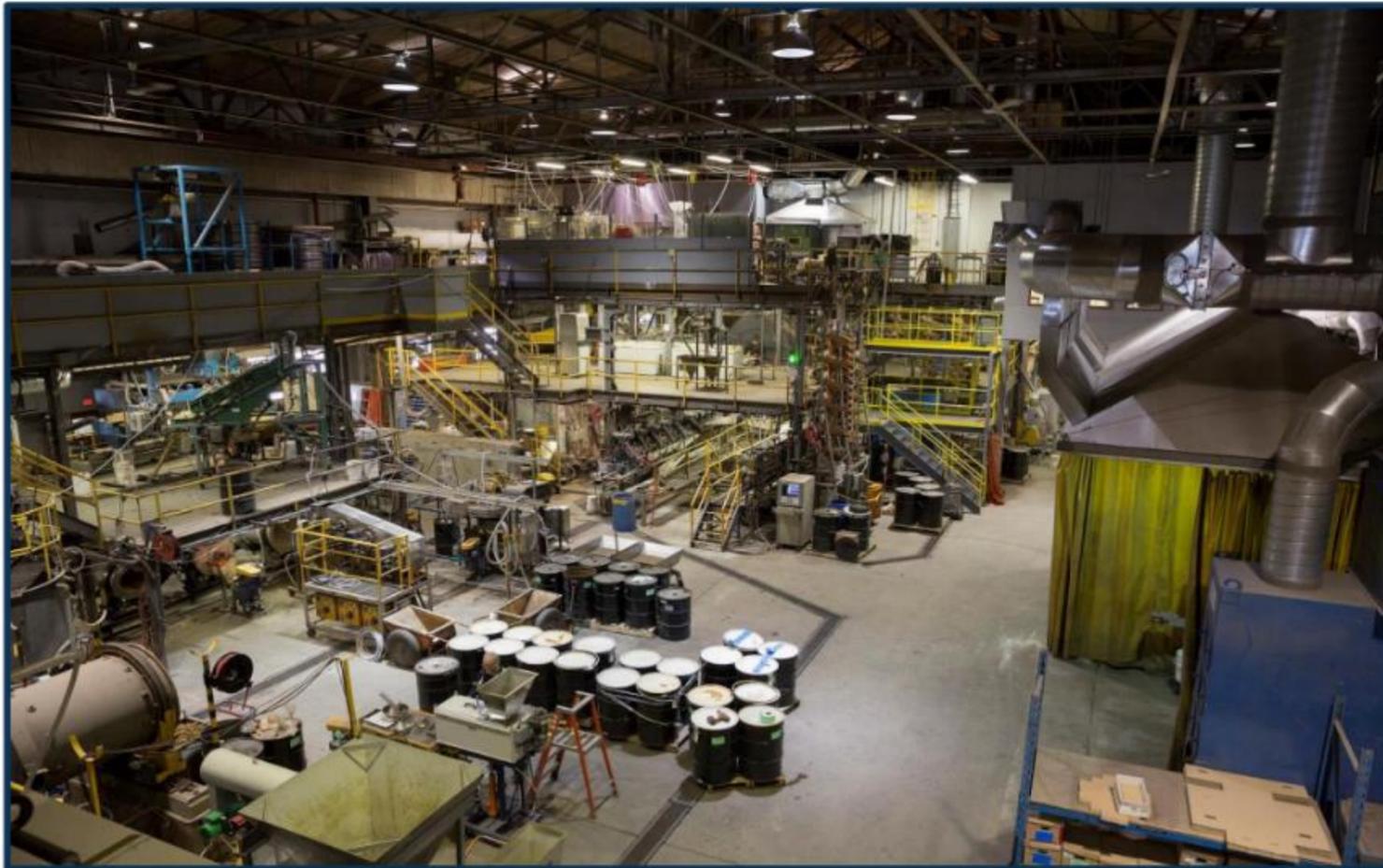
3D Site Layout of the Obuasi Facility (in circle) at the Industrial Landsite of AGA



Proposed Solar farm to supply power to the facility

Proposed Processing Lab at ACoE Facility at Obuasi (Sample for illustration only)

Over 10,000 m² of floor space for pilot plants and laboratories



Comminution, Concentration & Agglomeration



Hydrometallurgy

**Fruitful Collaboration on
Geosciences Site location at
KNUST for Amira African
Centre of Excellence (for full
value processing) with
KNUST's Vice Chancellor and
some Deans and Provost**



Amira Technology Transfer

THE MATERIALS ENGINEERING DEPARTMENT

P R E S E N T S

PRACTICAL PLANT
DESIGN STRATEGIES
FOR GOLD AND BASE
METAL PROCESSING.

 23RD MARCH, 2023

 KUMAPLEY AUDITORIUM

 10:30 AM PROMPT



SPEAKER:
Anthony Kobina Anyimadu
VP Mineral processing Amira
global; GM Amira Africa



DEPARTMENT
OF MATERIALS
ENGINEERING



KNUST
KWAME NKURUMAH UNIVERSITY
OF SCIENCE AND TECHNOLOGY



COLLEGE OF ENGINEERING
Kwame Nkrumah
University Of Science
and Technology, Kumasi

What We do: Deliveries Through the Amira Projects

Products

- Software
- Process Models
- Guides and Manuals
- Gold Knowledge
- Patented Processes

Services

- Consulting
- Tech Transfer
- Professional Development
- Plant Surveys
- Circuit Assessments
- Benchmarking

R&D

- Process Optimization
- Process Development
- Process Model Development
- Future ores
- Preconcentration
- Mineral Processing
- Hydrometallurgy

Amira Africa Key Contact



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Want To Become A Member of Amira and Sponsor AACoE-FVCP?

Scan this QR code





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