

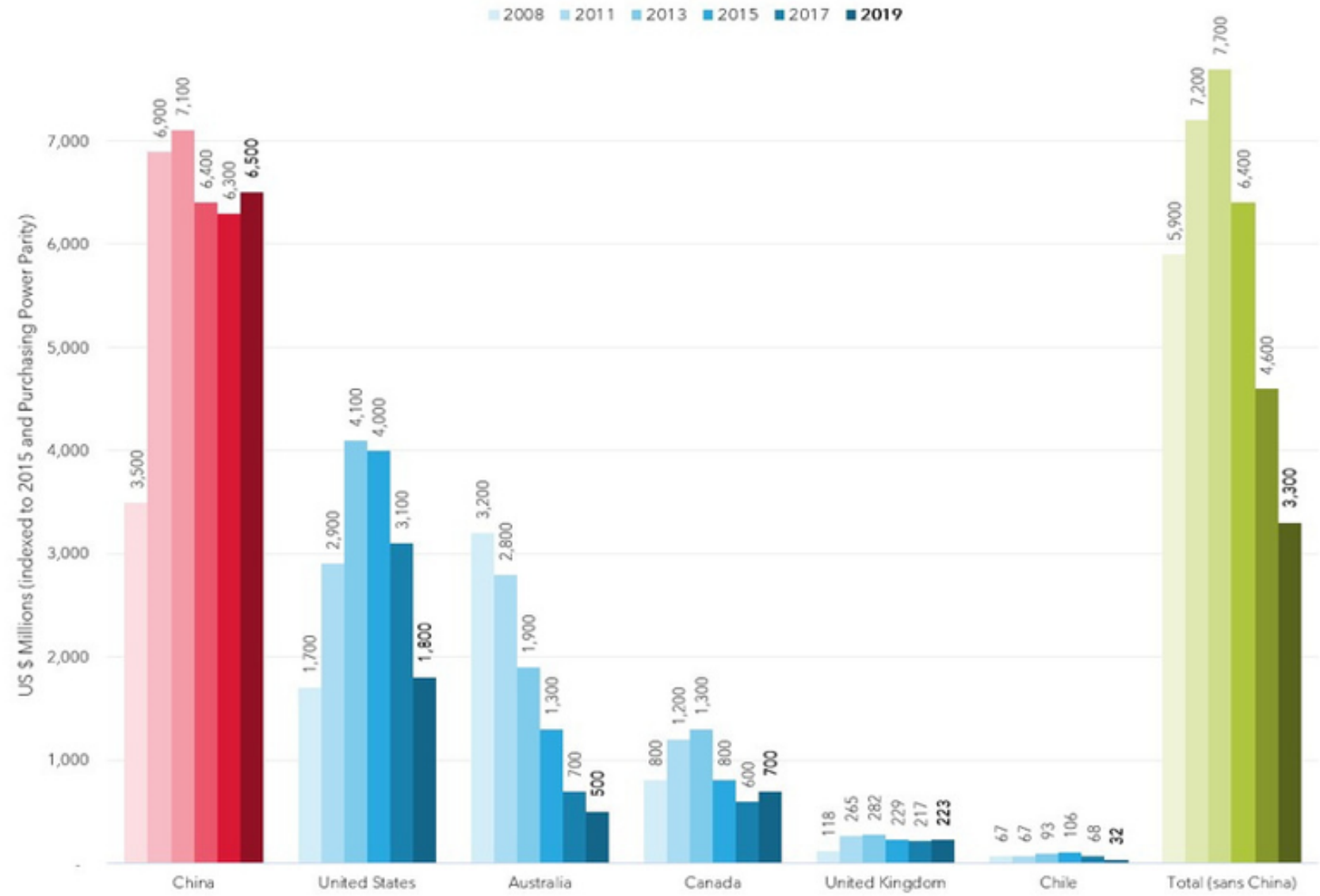


Unlocking Africa's Talent

Dr Jacqui Coombes

amira 

Mining Industry Business Expenditure on R&D (2008 to 2019)

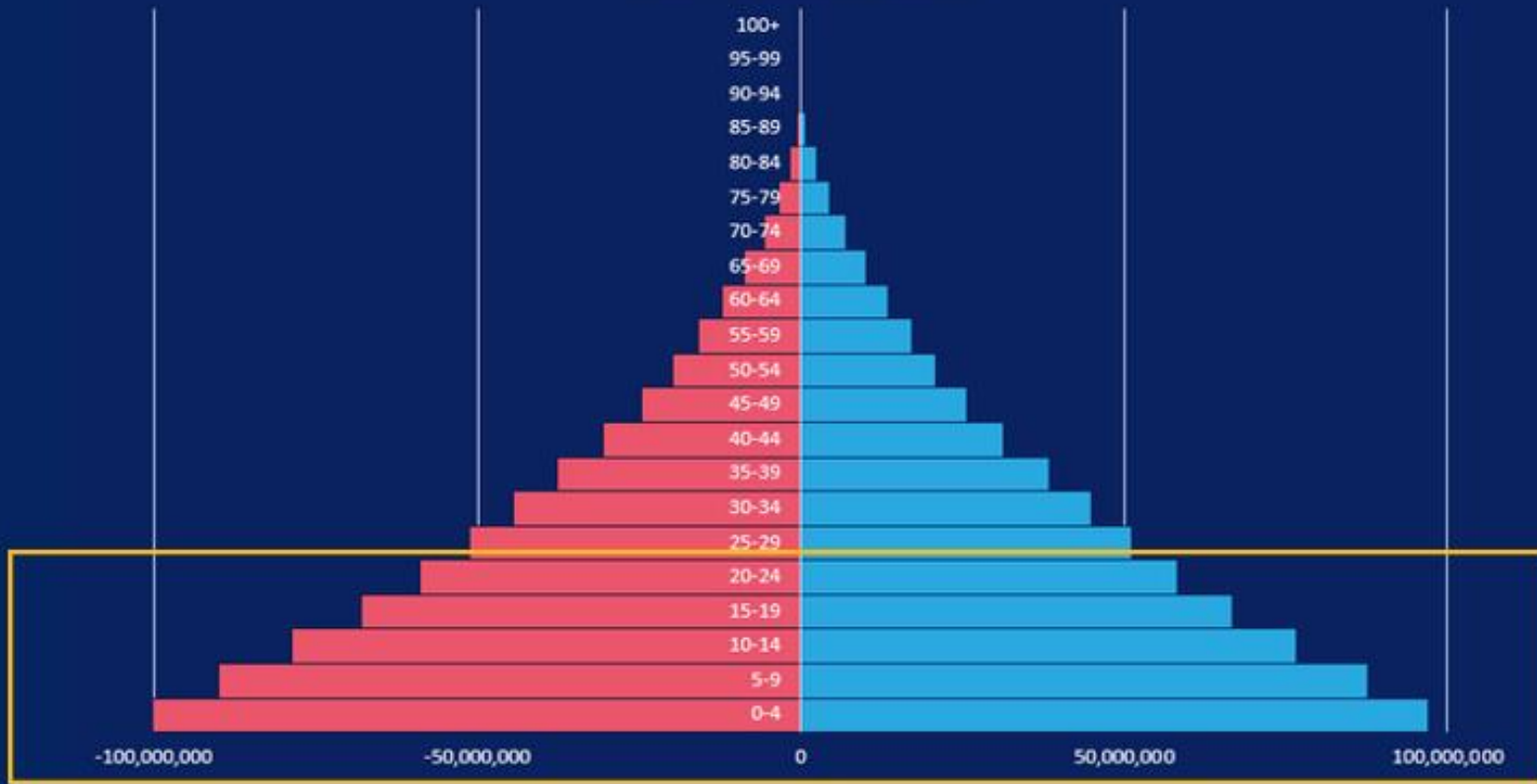


SOURCE: OECD; BERD by Industry; US Dollar, Millions, 2015, PPP

Big Problems to solve, but declining investment in R&D

Africa

Africa Population Pyramid



Africa's Youth represents a significant intellectual potential:

- 60% population <24 years old
- 90% <50 years old

WAXI, EAXI, P9, Refractory Ore

WAXI: West African eXploration Initiative

- ~60 PhD, Master by Research and PostDocs in region
- Collaboration between geosciences agencies across boundaries
- Regional geological database (English & French)

East African eXploration Initiative

- Analogy proposed for East African Region

P9 Mineral Processing

- 60 year old project, UCT leading latest round

Refractory Processing

- Developing project in collaboration between Moroccan, Ghanaian, South African, USA & Australian researchers



Amira's Governance Model



Amira's infrastructure to scale R&D impact for minerals industry



Mr Vaughan Chamberlain
Chair – Amira Africa Senior Vice
President: Strategic Planning
and Technical
AngloGold Ashanti



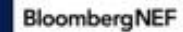
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CEO | Managing Director
Amira Global



Yves Ilunga
Chief Executive Officer
Mutanda Mining SARL at Glencore
Copper



Dr Kwasi Ampofo
Head of Metals and Mining
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Mr Anthony Mukutuma
General Manager Kansanshi
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Anthony Anyimadu
GM Africa/VP Mineral Processing



Bright Foli
Program Manager



Redeemina Comfort Bonnah
Program Manager



Ann Woolley
Global Support Manager



Claud Bilson
Communications & Marketing Officer

Amira & Africa

Amira's African Centres of Excellence

Locally relevant
Regionally representative
Globally connected



- Pan African Decarbonisation Institute
- Amira Full Value Mining Centre of Excellence (Ghana)
- West African Expolation Initiative (WAXI)
- East African Expolation Initiative (EAXI)
- P9 Mineral Processing (Global CoE)



Amira's infrastructure to scale R&D impact for minerals industry

Amira Centre of Excellence



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

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



Current status

- Advisory Board & West African Research Consortium established
- Scope Study and Design Development
- Prefinanced for Marketing and Engineering designs
- Four industrial landsites acquired (UMaT, Obuasi (AGA), UG &KNUST)

Sponsor Category	Year 1 Investment AUD \$ 1000
Big Operator Sponsor	250
Small Operator Sponsor	50
Big Supplier Sponsor	80
Small Supplier Sponsor	10
Non-Traditional Funders	1000

Scan To Join P1332



Advisory Board for the Amira CoE



Mr. Kofi P. Amponsah-Mensah
Director of Pamcor 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)

Pan-African Decarbonisation Institute



Unlocking Africa's Talent
to harness the decarbonisation opportunity



The Case for a Pan-African Decarbonisation Institute

Why Now?

- Worldwide decarbonisation targets are driving a surge in demand for new energy minerals
- The minerals industry, a high consumer of energy, is facing it's own decarbonisation aspirations
- However, there is simply not enough talent and skills to unlock and deliver the sciences, engineering, and technology required to meet these demands
- Africa is well placed in both mineral resources and intellectual capability to command a leadership role in the globe's and the mining industry's decarbonisation transition



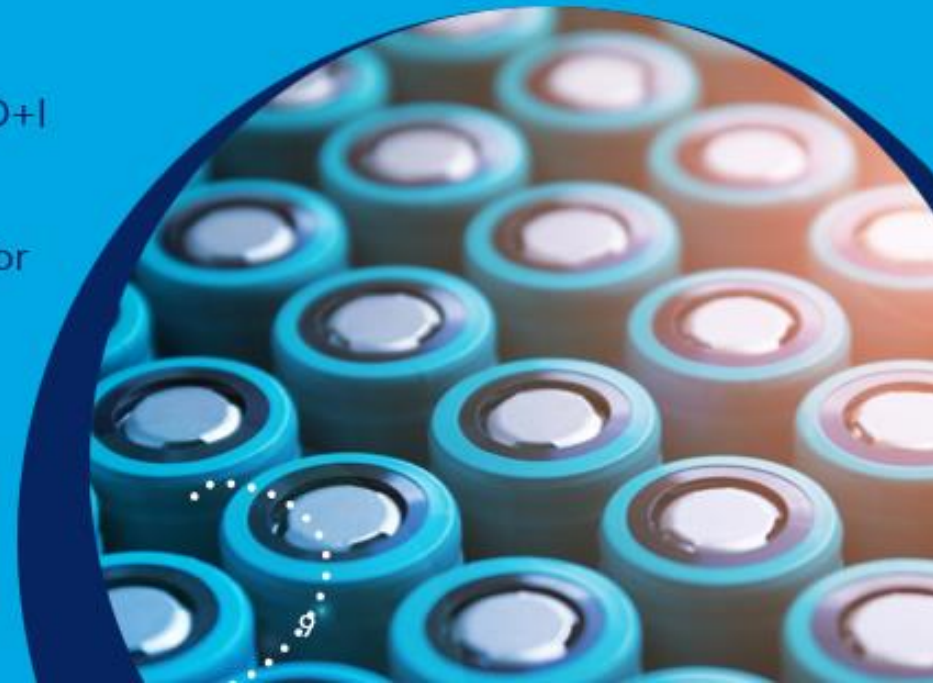
Why Africa?

Africa has a number of competitive advantages:

- 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
- 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
- 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

There is opportunity to use this competitive advantage to:

- › Align and collaborate across the continent to optimise use of investment in R&D+I
- › Accelerate development of step-change knowledge, data, and technology
- › Increase capability base to harness the opportunity and provide opportunities for talent to thrive and resolve mining industry's great challenges
- › Accelerate adoption of new community engagement protocols to improve relations with communities and investors
- › Align decarbonisation policy research & development across Africa





Vision

A self-sustaining pipeline of Pan-African research, operational, and technical leadership, talent, and skills in decarbonisation from resource management through to product development and delivery

Mission

To create a virtual Pan-African institute of **complementary and supplementary** research, development and training

that collaborates, connects, co-ordinates to co-create a **pipeline of talented Africans**

that position Africa as a leading player in the decarbonisation value chain,

and that transforms Africa's energy sector by leveraging Africa's new energy material resources and Africa's research, development and training capability.

Overview

As the world seeks to meet decarbonisation goals, demand for energy resources and products is forecast to increase 10-fold by 2030. Africa is blessed with abundant new energy resources (e.g. copper, cobalt, Rare Earth Elements (REEs) and graphite) that are critical to all decarbonisation efforts. Beyond the resources there is the allied demand for talent and skills to harness the opportunity and to deliver to the scientific and engineering challenges and the leadership and community engagement required across the mine value chain and into product development.

The world is short of skilled talent.

The Pan-African Decarbonisation Institute will provide leadership for Africa to participate meaningfully in the decarbonisation value chain. It will contribute industry focused research to the development of the whole value chain, transforming energy systems and sectors globally, and ensure economic return is maximised for Africa's new energy resources.

The Institute will connect world class research capability with the needs of the African industry to build knowledge, and develop processes and decarbonisation applications using Africa's resources.



The Pan-African Decarbonisation Institute will:

- Align and support development of complementary and supplementary research across Africa, and connect current and emerging talent into the global research landscape
- Connect companies with African research and development to support development of regional decarbonisation knowledge, data, technologies, and capability
- Connect government agencies to develop aligned policies and regulations to springboard domestic and export growth in decarbonisation efforts
- Develop leadership skills and talent to support industry and agencies to work with communities in ensuring public trust and social license
- Connect mineral resource operators, Mining Equipment, Technology and Service providers, end users and build critical mass across Africa to address decarbonisation



African Leadership of Pan-African Decarbonisation Institute



Prof. Jennifer Broadhurst
University of Cape Town



Prof. Glen Nwaila
Wits University – S.A



Dr. Intissar Benzakour
REMINEX, Managem



Emeritus Prof. Momade Francis
KNUST -Ghana



Mr. Cyril Muyoba
Mopani Concentrator



Prof. Jean Marie Kanda
University of Lubumbashi



Prof. Stephen Simukanga
University of Zambia



Prof. Grace Ofori-Sarpong
UMaT- Ghana



Dr. Marit Kitaw
Africa Union, AMDC



Mr. David Renner
CEO, Green Africa Minerals



Dr. Prince Amponsah
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