
MADI
Minerals Africa Development Institution
MADI AFRICA
Times
Newsletter
October - 2021 - Issue
www.madi.africa

EDITORIAL

By Frank Dixon Mugenyi

Transforming East Africa's Minerals Sector for Inclusive and Sustainable Exploitation : Critical and Strategic Minerals

What are Critical and Strategic minerals?

Minerals are deemed "critical and strategic" because they are essential to the economic and national security of the developed economies such as US, EU, China etc

What are Critical Minerals?

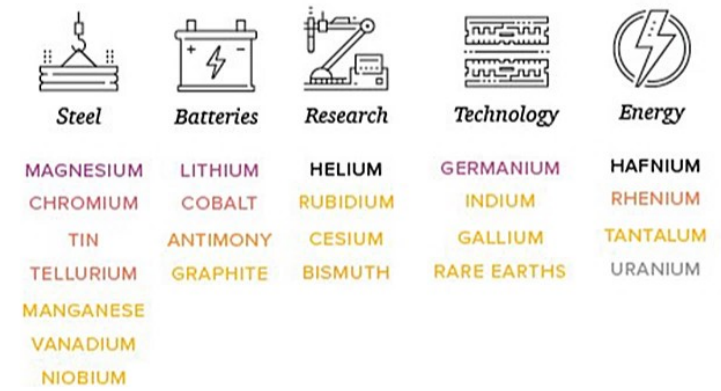
Critical minerals are metals and non-metals that are considered vital for the economic well-being of the world's major and emerging economies, yet whose supply may be at risk due to geological scarcity, geopolitical issues, trade policy or other factors.

How is the rest of the world planning? - USA

- USA – The Act of Congress in 2013
- Executive Order – Donald Trump 2017
- Executive Order Donald Trump 2020
- Executive order Joe Biden 2021

Strategic Planning for Africa

No matter what mix of clean energy technologies emerge, the World Bank forecasts that a low-carbon energy future will require some combination of more than 3 billion tons of new minerals and metals to achieve global climate goals by 2050.
The World Bank estimates that 550 million tons of copper will be needed to generate and transmit electricity over the next 25 years, which is roughly equivalent to all the copper mined by humans over the past 5,000 years.
It is estimated that 70% of global cobalt production comes from the Democratic Republic of the Congo (DRC) which means there is cobalt beyond DRC borders stretching to neighbouring countries, and that 80% of manganese resources are in Southern African region.



Conclusion

Africa needs to wake up and take advantage of its strategic position as a major producer of almost all minerals that are critical for the transition from fossil fuels to renewable energy.East Africa is at the heart of these minerals – geologists can confirm.
Inclusive and sustainable exploitation requires that we consider adding value to our resources in order to create wealth and jobs
Please remember – when we export raw materials and import finished products that can be competitively produced on the continent (region),

WE ARE EXPORTING WEALTH AND IMPORTING POVERTY

//EVENTS

MADI-PROF. CALESTOUS JUMA ESSAY COMPETITION

Minerals Africa Development Institution (MADI) in partnership with the Calestous Juma Legacy Foundation (CJLF) is proud to present the inaugural MADI-Prof. Calestous Juma Essay Competition. We seek to bring together great young African minds to deliberate on solutions to persisting problems that plague Africa's mineral resource sector, both at a national, sub-regional and continental level. We are inviting essays from all over Africa on relevant thematic areas affecting the mineral resource sector along the value chain as we position ourselves for Africa's social and economic structural transformation, inclusive growth and sustainable development.

Submission Guidelines:
Submit to
Language: English (UK)
Length of Essay: Between 800-1000 words
Format of essay: Persuasive Essay
Eligibility: Between 18 – 30 years, Nationality in African country (submit photo of ID for proof)
Mode of Receipt: Email: info@madi.africa
Attachments: Brief Bio with contact information
We would be awarding the top 3 essays: Gold for 1st place, Silver for 2nd place and Bronze for 3rd place.

Proposed prizes:
Gold: 700 USD
Silver: 350 USD
Bronze: 175 USD

The top 20 essays would also be featured on our website and in our publications.

Submit By:

31st December 2021 (11:59pm EAT / 8:59pm GMT)

Visit our website at: https://madi.africa for more information.

For more inquiries: email us at info@madi.africa or contact Charlotte Kwitonda +256 760092144

MADI
Minerals Africa Development Institution

MADI NEWS

EXPANSION OF THE MADI TEAM

Minerals Africa Development Institution announces with great pleasure that **Ms. Elizabeth Byarugaba has been newly appointed as Chief Operations Officer (COO) at MADI.**

We look forward to working with Elizabeth as we further our vision for sustainable development in the mineral resource sector for Africa.

THE CHANGE IN MADI DIRECTORS

Following MADI's an extraordinary Board meeting held on 30th September 2021, a resolution was passed appointing the following members as Directors of Minerals Africa Development Institution:

Mrs. Judith Karangi

Mrs. Angela Mulenga

THE MADI FAMILY IS GROWING!

MADI would also like to welcome new members to the MADI team:

Okot Sam Olaa

Advisor to MADI Management

Janet Nsabuwera

Administrative Officer

Kwitonda Charlotte

Information and Communications Officer

Raymond Amumpaire

ICT & Social Media In-Charge

INTERESTING READS

The Rise of Alternative Energy in Africa: Geothermal Power Generation

Source:
https://www.dlapiper.com/en/uk/insights/publications/2019/11/

By Lisa Dutiro

While climate conditions threaten the hydropower industry, solar and wind power continue to offer commercial viability. But much of Africa's renewable energy potential remains untapped and the scope for growth could create investment opportunities across the continent. Could geothermal energy be the solution to Africa's energy crisis?

The Current State of Africa's Power Supply

Africa is undergoing a period of accelerated economic growth and transformation in response to global pressures and demands. The availability of energy is a fundamental requirement for Africa to be able to foster and harness its sustained growth and achieve economic and social development. The International Renewable Energy Agency has estimated1that by 2050 the continent will be home to at least 2 billion people – almost double its current population. The rapidly increasing populace has led to power production capacities in Africa failing to meet current levels of consumption and demand. The deficiency in the supply of power across African nations is likely to hinder the continent's drive to achieve its economic growth projections.

The lack of power supply in various African countries can be attributed to the poor management of power utilities, the high costs involved in processing fossil fuels, and the large losses that are experienced from the aged electrical grids, as well as high tariffs. With the lowest electricity generation capacity and the most acute form of energy poverty in the world, Africa is in crisis because of the failure of traditional methods of power generation.

A Move towards Renewable Energy
As Africa labors for sustainability through dependency on costly and polluting energy generation, global efforts to eradicate reliance on finite fossil fuels have ushered renewable sources of energy into the spotlight.

The use of renewable energy allows countries to enhance their self-sufficiency and limit dependency on costly imports. Renewable energy is clean, non-depletable and has a much lower environmental impact than conventional energy sources. It guarantees sustainable future energy supplies and could help Africa achieve its economic objectives. The growth of the use of renewable resources on a global scale has led the cost of associated technology to fall dramatically. According to statistics provided by the African Development Bank in 2017, Africa's untapped renewable energy potential is estimated at 350 GW for hydroelectric energy, 110 GW for wind energy, 15 GW for geothermal energy and 1,000 GW for solar. If this large reserve of renewables is exploited, its effect could potentially alter the economies of many African countries, making it a key priority of sustainable development.

Historically, hydropower has been the most commonly used renewable source of energy in Africa. However, given climate change, hydropower generation has become very unpredictable as droughts continue to sweep across the continent. More recently, wind and solar power have become commercially viable, and although they are similarly reliant on weather conditions, solar energy potential in Africa remains high due to the continent's location. Options for power generation from solar energy include utility-scale conventional or concentrated photovoltaic (PV) and concentrated solar thermal power (CSP), as well as small-scale PV systems suitable for off-grid power generation. Solar energy can also be used to produce heat for domestic users or non-intensive industrial users. Top ranking solar markets are South Africa and North African countries due to their strong policies and commitment to investment. The Ouarzazate Noor solar complex in Morocco is one of the largest concentrated solar plants in the world; the plant aims to produce 2,000 MW by 2020, 680 MW of which has already been successful launched.

Wind turbines are widely used in most countries and are central assets for many rural communities. Factors determining the potential of wind power are wind speed, pressure gradients and the geography of the landscape. The presence of deserts, coastlines and natural channels also make for favourable wind speeds. Consequently, the best regions in Africa for wind farms are in the

rugged regions of the Sahara, along coasts and in the Southern African mountains and the Horn of Africa. Wind power production in sub-Saharan Africa is currently booming, and East Africa is leading the way with Kenya's recently unveiled wind power project – the Lake Turkana Wind Power Farm, which is the largest wind farm in Africa. It has 365 turbines and a capacity to dispense 310 MW of reliable, low-cost energy to the national grid.

Much like wind and solar power, geothermal energy has the potential to support the African power sector as it moves away from being over-reliant on hydropower and toward becoming drought resilient. Africa's known geothermal potential is predominantly present in the geologically active area of the Great Rift Valley, which extends from Djibouti to Mozambique. The valley is known to have over 30 active volcanoes and countless hot springs. With only 0.6% of Africa's known geothermal potential being exploited, this energy source has been described as a hidden gem in sub-Saharan electricity production.Although countries around the continent are exploring renewable energy potential and engaging in many notable projects, few countries have specific renewable energy laws or investment incentives. This creates difficulties in attracting foreign investment into the sector, and into less-developed energy sources such as geothermal energy, despite its abundant potential.

The Untapped Potential of Geothermal Energy
Geothermal energy is a form of renewable energy that can produce sustainable electricity using the Earth's own resources. It is generated and stored in the earth and can be captured from hot water springs or reservoirs located near the surface. These hot springs are found where water percolates into areas of volcanic activity in the Earth's crust and becomes superheated before forcing its way back to the surface. Heat derived from the hot water can be converted into electricity through electromagnetic induction. Geothermal heat can provide electrical power that is not dependent on weather conditions, making it a reliable renewable source of energy. The three most known types of geothermal power plants that convert thermal energy to mechanical energy and finally to electrical energy are binary plants, dry steam plants and flash plants. Binary plants can exploit low temperatures and do not release geothermal fluids or environmental hazards into the environment, making them a preferable mechanism for geothermal power generation. Other innovative ways in which geothermal power can be generated are through the conversion of waste heat from industrial processes, power stations and transportation into electricity through engineering that permits the thermal energy produced from the waste to drive a turbine.

Ithough the necessary technology is not widespread in Africa, geothermal energy can also be used in industries that need heat at low temperatures.

Kenya is currently the largest geothermal energy producer in Africa, with its power production contributing to over 40% of the country's electricity generation. The East African nation has successfully harnessed its geothermal capabilities, generating an estimated 630 MW, with nearly 400

MW of that production coming online since 2014. Kenya began exploring geothermal power in the late 1970s, and according to the Geothermal Council Resource (a US industry association), the rise of Kenya's geothermal industry ranks ninth in the world. The Infrastructure Consortium for Africa and the United Nations Environment Program has estimated a potential of 20,000 MW of geothermal energy across Eastern Africa, and nations such as Tanzania, Uganda, Rwanda, Djibouti, Eritrea and Comoros have undertaken preliminary exploration for geothermal potential. Ethiopia is currently harnessing its geothermal capacity, and according to Reuters, is aiming to reach 1 GW by 2021. Burundi, Zambia and Uganda are also currently operating small-scale geothermal plants.

Geothermal exploration can be expensive and risky. Much like oil and gas exploration, the exact potential of a site can be assessed and known only after drilling has taken place. Further impediments to the harnessing of geothermal potential in Africa are the lack of funding and technical expertise and poor governance. Many governments are still developing knowledge capacity for the sector. Countries that have not included geothermal production in their legal frameworks need to amend existing frameworks or craft legislation regulating investment schemes, development activities, the generation and distribution of electricity and the rights and obligations of holders of different kinds of licenses (exploration, development, use and selling) for geothermal exploration and production. Various incentive schemes that apply to renewable energy projects or projects that are likely to have national and economic impact tend to draw investor interest. However, a lack of regulatory frameworks specifically pertaining to geothermal production has the potential to ward off prospective investors, emphasizing the need for legislative development in this area.

What's Next for Africa?

In order for Africa to remain economically competitive and succeed in the rapidly growing global economy, its future energy needs will need to be considered and addressed at a legislative, technological and commercial level. Reliance on costly fossil fuels has failed to meet current power demand across the continent and there is a need for further engagement of alternative energy sources by African governments, FDIs and regulators. Renewable sources of energy will assist i

n the eradication of poverty and deprivation among the African population and stimulate economic growth and activity in the region. Further exploration into the mostly untapped potential of geothermal generation should be encouraged due to its reliability and ability to provide long-term, sustainable energy to the continent.

MINERAL COMMODITY PRICES

Source: WORLD BANK COMMODITIES PRICE DATA

Commodity	Unit	September 2021 (Price Average)	October 2021 (Price Average)
Aluminium	$/mt	2,603	2,835
Copper	$/mt	9,370	9,325
Iron Ore	$/mt	162.2	124.5
Lead	$/mt	2,414	2,248
Nickel	$/mt	19,141	19,377
Tin	$/mt	35,024	34,887
Zinc	$/mt	2,988	3,036
Gold	$/toz	1,785	1,775
Platinum	$/toz	1,009	973
Silver	$/toz	24.0	23.2

Available at http://www.worldbank.org/commodities

MADI
Minerals Africa Development Institution

www.madi.africa