

PanAfGeo

Pan-African Support
to Geological Sciences and
Technology Africa-EU Partnership

Appui panafricain aux géosciences
du partenariat Afrique-UE

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WP-B TRAINING SESSION – MINERAL RESOURCES ASSESSMENT

The WP-B delivered its third training session of the PanAfGeo-2 edition in English, which took place in Kitwe, Zambia. It brought together 21 participants from twelve African English-speaking countries, i.e. Egypt, Tanzania, Zambia, Zimbabwe, Ghana, Botswana, Kenya, Eswatini, Libya, Malawi, Nigeria, and Liberia. Trainers from Europe were Stanislaw Wolkowicz from the Polish Geological Institute (PGI), Duska Rokavec and Emil Pucko from the Geological Survey of Slovenia (GeoZS), João Xavier Matos and Maria João Batista (WPB Leader) from Geological Survey of Portugal (LNEG). There were also trainers and guests from Africa, including Mr. Umar Bature, Co-Leader of the Nigeria Geological Survey Agency; Prof. Michael Musialike from Kitwe University; Mr. Frederike Ngona, a geologist with wide-ranging thirty-three years experience in both the Zambian and Congolese Copperbelt; and Mrs. Rovina from Gentina Mines LTD, the president of the Association of women in Emerald mining in Zambia.

The third training session of WP-B was conducted from the 11th - 21st of March 2024. It was jointly organised by LNEG, Portugal (Maria João Batista, WP-B leader) and the Geological Survey Department of Zambia. Locally, Mrs. Gertrudes Mundi was the consultant for the organisation and contributed to the successful organisation of the session.

On March 12th, the welcome address of the opening ceremony was given by Mr. Lawrence Mwanza, the District Commissioner; Mr. Simutowe, the Geology Superintendent at Mopani Copper Mines Plc and the Interim President of the Geological Society of Zambia. The welcome speech was also given by Mr. Umar Bature, Co-Leader of the Nigeria Geological Survey Agency, followed by the opening remarks made by Mrs. Maria João Batista. Maria João Batista presented the PanAfGeo project, introduced the training session dedicated to “Mineral Resources Assessment” and mentioned the Return-to-Work project that the participants have to provide in one year as feedback. The opening day sessions were dedicated to the mineral potential of the Copperbelt Zambia.



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The ten-day training was organized as classroom-type sessions, lectures, and field visits.

The training related to the theme Cu-Co of the Copperbelt located in Lufilian arc on the edge of the Katanga basin, which took place between the 11th and 21st of March. The training had a total duration of 37 hours, including numerous theoretical presentations one hour or one and a half hours paired with practical classes, and field trips to visit Nkana and Mufulira Cu-Co mines assisted by Mopani Copper Mines PLC and the Grizzly Emerald Mine. It is important to mention that all the field visits happened during the last two days of the programme, so the trainees had already received all the necessary knowledge before exploring the mines. For example, before examining the mines on-site, trainees had been instructed on the geology and genesis of the mineralisation of the Copperbelt by Prof. Michael Musialike, who gave an hour-and-a-half lecture about the mineralisation of the Copperbelt.



During the visits trainees and trainers received on-site explanations about the mineralisations and extraction methods. During the Nkana visit, it was also possible to observe a drill core with the complete stratigraphy of the ore horizons and host rocks.

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During the visit to the Grizzly Emerald mine, the participants could observe the open pit and learn about the stratigraphy, the location of the ore horizons, etc. The Geologist Manager Mr. Stanley Chasauka made a very detailed explanation of the methods of exploration and the perspectives of the Grizzly Mine in terms of other commodities apart from emeralds that are also present.

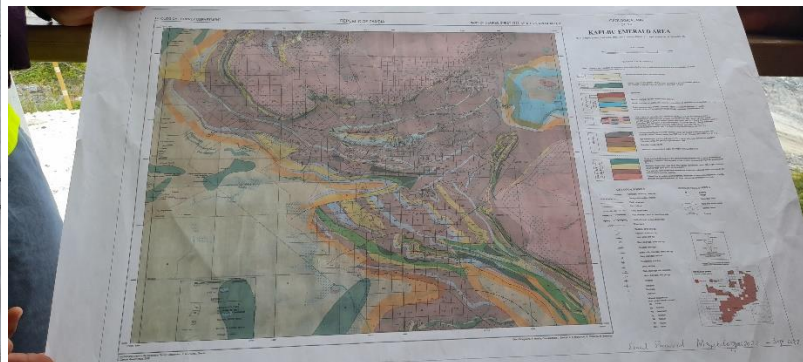
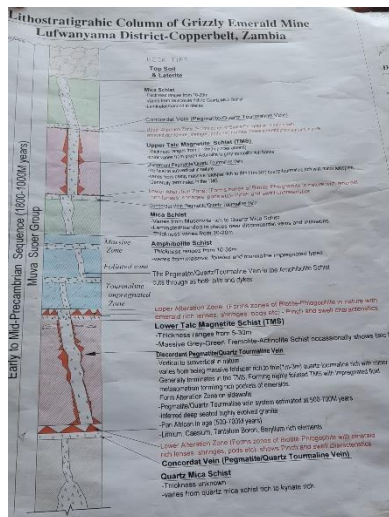


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The theoretical lectures and practical lessons dealt with a variety of different topics with the mineral resources assessment as a general theme. Hence, the training included:

- all phases of mineral exploration with mineral resources exploration techniques, including the use of portable XRF and the advantages of its use in an early phase of mineral exploration. Trainees also received information regarding the ways to read the data produced by a portable XRF. Other instructions were dedicated to the application of the gamma-ray spectrometer, especially when to use it and how to interpret the acquired data;
- geochemical exploration including sampling in environments of different morphoclimatic conditions;
- geophysical methods in mining and mineral exploration with examples from Australia;
- lectures on data treatment with practical exercises and statistical approaches with different quality of data;
- geochemical mapping and prospectivity mapping and differences to predictivity mapping;
- the lecture with examples of exploration of massive sulfides of the Iberian Pyrite Belt near mining exploration methods;
- secondary raw materials and environmental improvement in mining areas in Zambian Copperbelt, Iberian Peninsula, and Poland Kupferschiefer;
- lectures on stratabound mineralisation of Kupferschiefer and comparison with stratabound mineralisations of Copperbelt in Zambia;
- the presentation of the use of robotics in the mining of lithium-rich pegmatites and gems;
- lectures about very important subjects to the EU such as circular economy, including the conservation of all resources using responsible production, consumption, reuse, and recovery of products, with no discharges to land, water, or air that threaten the environment or human health;
- mineral reserves classification (UNFC-AMREC) and principles provide the classification framework;
- the topic of the global market for raw materials and supply.

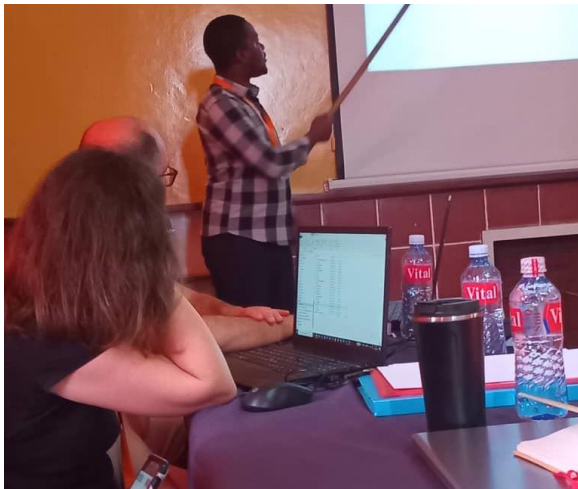
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At the end of the week, trainees are invited to present their Return-to-work project.

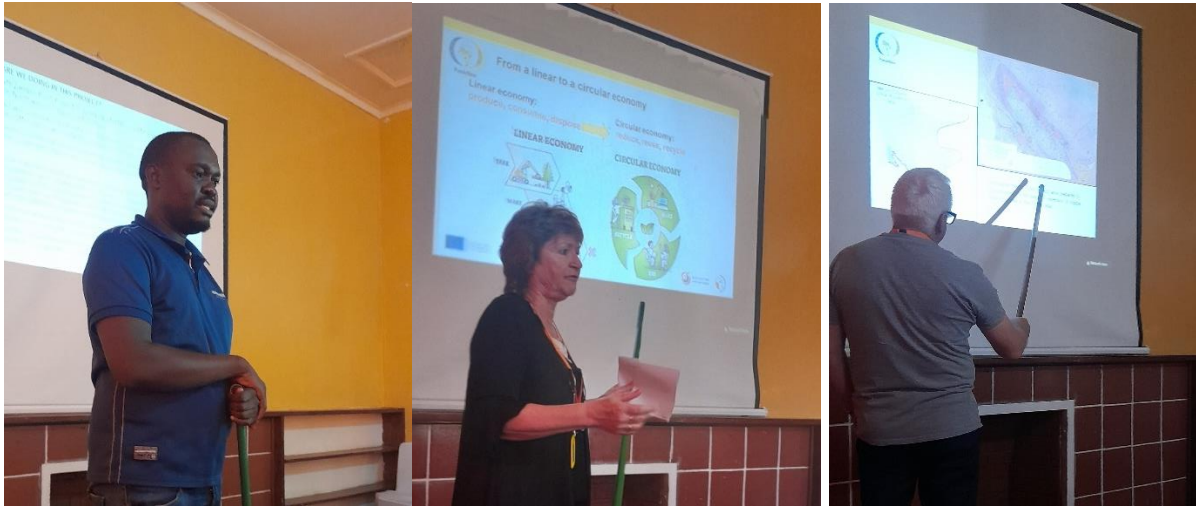


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After the training certificates were formally handed over to each participant by Mr. Alex Simutowe Geology Superintendent at Mopani Copper Mines Plc and the Interim President of the Geological Society of Zambia. The concluding remarks were given by Mr. Maria João Batista, the Co-Leader of Nigeria, Mr. Umar Bature, Dr. João Matos, and Prof. Stanislaw Wołkowicz. After the training session, it was concluded that the network formed by the participants should be developed for future cooperation. The focus will be on addressing less developed subjects in African countries, such as those related to climate change, energy transition, and the raw materials needed for these challenges.



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