Geological Society of Zimbabwe

Newsletter

October 2022 No. 3 of 3 of 2022

Zimbabwe makes the front cover of the *Nature* issue for 8th September in their claim for the earliest known dinosaurian remains from Africa. *Griffin et al. 2022*
Artist: Andrey Atuchin 2019

www.geologicalsociety.org.zw

The Geological Society of Zimbabwe, P.O. Box CY 1719, Causeway, Harare

Contents

Editorial

It is time for the Summer Symposium again – Friday 21st October in the Diamond Lecture Theatre across from the Geology Department at UZ. This is to be followed at 3.00pm by Sharad Master's delivery of the 12th A.M. Macrgegor Memorial Lecture, details for both important events being posted in this Newsletter. The Macgregor Lecture is public, so feel free to invite any interested guests. Sharad will lead a field excursion to the Lomagundi area on Saturday 22nd before transferring to Bulawayo to present his lecture at the School of Mines at 3.00pm on Monday 24th October. The Symposium is our prime chance to come together and catch up with friends and colleagues. We look forward to seeing you at these events.

Sadly we present obituaries for two of out Members, Phillip Dewhurst and Lovemore Chimuka, who have both made significant contributions to the furtherance of geology and the minerals industry in Zimbabwe. Their efforts are appreciated, and both will be missed by families, friends and colleagues.

Two features describe recent significant outcomes of the palaeontological research that has taken place in Zimbabwe through the auspices of the Natural History Museum in Bulawayo. A summary of these advances will be presented at the Symposium in order to share with you some of the media-hype that has transpired.

The sharing of news from our various Earth Science-orientated institutions is always appreciated, as are the efforts of the regular contributors who compile this news. Collectively, their contributions represent an important record. We look forward to the airing of more research activities being carried out through our institutions. Kennedy Mtetwa provides snippets from the international literature, which cover recent events of relevance to Zimbabwe's mining and minerals industry.

Tim Broderick

Join the Geological Society of Zimbabwe Facebook Group

Chairperson's Chat

Kennedy Mtetwa
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Greetings to you all.

We regret to announce the passing of two of our GSZ Members since publication of our last Newsletter. Philip Dewhurst who passed away in Tunbridge Wells, England in August and Lovemore Chimuka died in Angola in July 2022. MTDSRIP.

This year we continue to keep our geological community informed about points of geological interest in Zimbabwe. We will endeavour to organize more talks and field trips to interesting sites around the country. Members are most welcome to volunteer to present talks on any geological subject of their choice, either via zoom or in person. Those interested please do contact Steven Duma in this regard.

During the period under review, the GSZ hosted two talks by Members via the Zoom platform. The first, entitled '*Quantification of the impacts of rock mass quality on stope width control and pillar stability in a hard rock narrow reef mine*' was presented by Omberai Mandingaisa. The second talk titled '*Geology of the Navachab gold deposit – Theory on ore genesis*' was presented by Richard Manyanga. Both talks were very well presented and the attendance was very good. Records for these and other talks can be accessed on our web site.

Zimbabwean geology was once again put in the world spotlight with the announcement of the age of the dinosaur fossil that was found in the Zambezi Valley in 2017. The announcement claimed the discovery as 'Africa's oldest known dinosaur' – a 230 million-year-old. The small sauropodomorph ancestor (0.5m at the hip) is helping reveal how dinosaurs first spread across ancient Earth. The dinosaur's scientific name, *Mbiresaurus raathi*, honours Mbire, an historical empire of Zimbabwe's Shona people that once included the site where the fossil was unearthed. The dinosaur is also named for southern African palaeontologist Michael Raath, whose work in the area from the 1960's and later in the 1990s helped lead to its

discovery. Due to their age, *Mbiresaurus* and other fossils found alongside it shed light on how dinosaurs first arose and spread across Earth during the Triassic, which stretched from 252 million to 205 million years ago. Bookended by two mass extinctions and filled with major climatic shifts, the Triassic was a critical period of transition for life on Earth. During this time, the ancestral lines of several key reptile groups first started to split from one another, giving rise to dinosaurs as well as crocodilians and the flying reptiles known as pterosaurs.

Renias Tirivabaya continues to work on progress towards the professional registration of geologists. To this end on 3rd August 2022 Renias submitted a letter to the Permanent Secretary in the Ministry of Mines and Mining Development spelling out the need by GSZ to become a professionally registered body. It was communicated that the Geological Society of Zimbabwe (GSZ) seeks to be the benchmark of geological excellence, as such it seeks to be able to regulate the practice of geology or geosciences in the country to protect the interests of exploration and mining investors. Over the years there have been mining investors who have been misled by some people claiming to be geologists or earth scientists. Unfortunately, without legal protection for the professional title Geologist, the GSZ has not been able to seek recourse against such people and protect the public interest. Some of these mining investors have then gone on to bad-mouth the calibre of Zimbabwean geologists. This poor and unprofessional conduct taints the country as a poor mining investment destination and results in exploration and mining capital fleeing elsewhere. Your GSZ seeks to be able to determine who can use the professional title Geologist and to regulate the conduct of geologists in the country. It will be necessary to consider the qualifications and experience required for registration as a geoscientist in this country. Having the GSZ become a professional board governing the practice of the science, will help weed out unscrupulous geologists and non-geologists for the good of the mining industry and the profession in general.

The highlight of the year will be the prestigious 12th A.M. Macgregor Memorial Lecture entitled '*Geological Evolution and Metallogeny of the Palaeoproterozoic Magondi Belt Zimbabwe and Botswana*' to be held in the afternoon of Friday 21st October in Harare at the University of Zimbabwe, and similarly on 24th October in Bulawayo at the Zimbabwe School of Mines. This public lecture will be presented by **Dr Sharad Master**. The Harare event will be followed by a field trip led by the presenter to the Magondi Belt on Saturday 22nd October.

On the same day, Friday 21st October, the GSZ will host the 2022 Summer Symposium in the morning, in which you are encouraged to participate.

I would like to encourage our Members to be up to date with their annual subscription payments so that your Society's kitty can be replenished. On your side, as Geological Society of Zimbabwe Members, please encourage your colleagues to join the Society. Recent geology graduates are enticed to join the Society, one of the benefits being that they will be able to participate in the soon to be launched mentorship programme. Application forms are available on the webpage: **www.geologicalsociety.org.zw**

I continue to look forward to your enthusiastic support as we progress through our 2022 journey, and wish you all the best for the final quarter of this year.

Profiles for new members of your Committee for 2022

Tenyears Gumede (Vice Chairman)

MSc, BSc (Hons), PGC (ITC, Delft), PGCRS, Dipl,BA (Nilai), Member GSZ, FSAGA

Tenyears Gumede studied at the University of Zimbabwe and attained a Master of Science Degree in Exploration Geophysics. He then attended ITC Delft (now the University of Twente, Netherlands) where he studied Airborne Mapping in the application of Geology, Geophysics and GIS) and then Business Studies at Nilai University, Malaysia. Tenyears has some 25 years of industry experience including 10 years as a graduate/staff/senior/expatriate geophysicist with Anglo American Corporation and as an expatriate geophysicist for Mineral Search of Africa and Norilsk Nickel Burundi for 4 years. He was a team player in several Anglo Projects including the Bubi, McKays and WHEN gold mines in Zimbabwe. He was also involved in the evaluation of Unki Platinum Mine on the Great Dyke, the Hunters Road low-grade high tonnage nickel deposit in Zimbabwe and exploration for the Merensky Platinum Reef (BIC) using Reflection Seismics.

Since joining Knowledge Factory in 2009, Tenyears has consulted on a variety of mineralization styles searching for gold (vein, shear and BIF-hosted), nickel (sulphide and lateritic), zinc (sulphide), iron ore, manganese, lithium/beryl, ruby and other pegmatite-hosted minerals/gems (tantalum, niobium, tourmaline etc.), coal and diamond whilst applying a variety of geophysical techniques including remote sensing, GPR, aero/ground magnetics, radiometrics, resistivity, gravity, seismic, electromagnetics and others. He has carried out exploration programmes in Zimbabwe, Mozambique, Zambia, Botswana, the DRC, South Africa, Botswana, Burundi, Malawi, Rwanda, Uganda and Kenya.

Tenyears is currently exploration team leader for Oneiric Minerals (Pvt) Ltd, an exploration/mining development company actively exploring for molybdenum and tungsten mineralization associated with the Mutandahwe Igneous Complex of southeastern Zimbabwe.

Tarisai Marazani

Tarisai Marazani is a professional geologist who has 22 years post graduate experience in the mining industry in Zimbabwe. Tarisai graduated with a BSc General (Geology and Statistics) double major degree in 2000 from the University of Zimbabwe. He also holds a post-graduate certificate in geostatistics from the university of the Witwatersrand. Tarisai has extensive experience in mineral exploration, production and Resource estimation in the iron ore, chrome and PGM mining sectors. He is currently employed by Zimplats as Resource Evaluation Manager.

Chenjerai Chiumburu

Chenjerai Chiumburu is a Professional Geologist with 14 years post-graduate experience in the Mining Industry of Zimbabwe. Chenjerai graduated with a Bsc General (Geology and Biological Sciences) double major from the University of Zimbabwe in the year 2000. He also holds a post-graduate diploma in Project Planning and Management (DPPM), again from the University of Zimbabwe (2005), and is currently completing an MBA in Strategic Leadership through the same university. Chenjerai has extensive experience in base metal, gold and PGM resources. He is currently employed by Zimplats as a Senior Geologist.

Articles and Reports

Africa's oldest dinosaurs reveal early suppression of dinosaur distribution

Christopher T. Griffin, Brenen M. Wynd, Darlington Munyikwa, Tim J. Broderick, Michel Zondo, Stephen Tolan, Max C. Langer, Sterling J. Nesbitt & Hazel R. Taruvinga

The vertebrate lineages that would shape Mesozoic and Cenozoic terrestrial ecosystems originated across Triassic Pangaea. By the Late Triassic (Carnian stage, ~235 million years ago), cosmopolitan 'disaster faunas' had given way to highly endemic assemblages on the supercontinent. Testing the tempo and mode of the establishment of this endemism is challenging—there were few geographic barriers to dispersal across Pangaea during the Late Triassic. Instead, palaeolatitudinal climate belts, and not continental boundaries, are proposed to have controlled distribution. During this time of high endemism, dinosaurs began to disperse and thus offer an opportunity to test the timing and drivers of this biogeographic pattern. Increased sampling can test this prediction: if dinosaurs initially dispersed under palaeolatitudinal-driven endemism, then an assemblage similar to those of South America and India—including the earliest dinosaurs—should be present in Carnian deposits in south-central Africa. Here we report a new Carnian assemblage from Zimbabwe that includes Africa's oldest definitive dinosaurs, including a nearly complete skeleton of the sauropodomorph *Mbiresaurus raathi* gen. et sp. nov. This assemblage resembles other dinosaur-bearing Carnian assemblages, suggesting that a similar vertebrate fauna ranged high-latitude austral Pangaea. The distribution of the first dinosaurs is correlated with palaeolatitude-linked climatic barriers, and dinosaurian dispersal to the rest of the supercontinent was delayed until these barriers relaxed, suggesting that climatic controls influenced the initial composition of the terrestrial faunas that persist to this day.
Nature | www.nature.com | https://doi.org/10.1038/s41586-022-05133-x

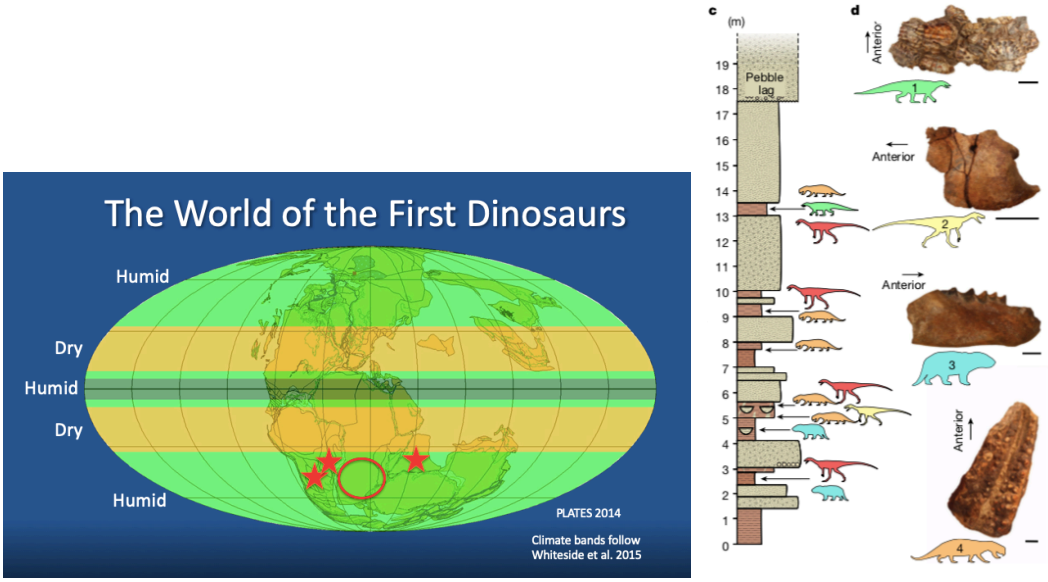


Figure 1: The new Zimbabwean assemblage is on the same palaeolatitudinal climatic belt as other Carnian dinosaur-bearing assemblages and has a similar taxonomic composition. Summary stratigraphic column of the Pebbly Arkose Formation at the type locality in Zimbabwe showing the records of *Mbiresaurus raathi* gen. et sp. nov (red), a herrerasaurid dinosaur (yellow), a traversodontid cynodont (blue), a hyperodapedontine rhynchosaur (orange) and an aetosaur (green).

Figure 2: The almost complete skeleton of *Mbiresaurus raathii* recovered from the Dande area in 2017. Standing at about 0.5m at the hip, this ancestral sauropodomorph is from the 230Ma , Carnian-aged Pebbly Arkose of the Upper Karoo of the Cabora Bassa Basin.

Sauropodomorph dinosaur material from the Upper Triassic Pebbly Arkose Formation of Zimbabwe

Paul M. Barrett*, Kimberley Chapelle, Lara Sciscio, Michel Zondo, Darlington Munyikwa, Tim Broderick, Steve Edwards, Kathleen N. Dollman & Jonah N. Choiniere
*Corresponding author: p.barrett@nhm.ac.uk

Presented at the 21st Palaeontological Society of South Africa (PSSA) Meeting, Golden Gate National Park, Free State September 2022

The Karoo-aged basins of Zimbabwe contain thick sequences of terrestrial sedimentary strata that are generally recognized as lateral correlatives of Permian–Early Jurassic deposits in the main Karoo Basin of South Africa and Lesotho. However, the Zimbabwean basins have been less extensively explored than their southern counterparts. Consequently, their precise stratigraphic relationships to each other, and to other Karoo-aged basins in the region, as well as their palaeontological resources, are relatively poorly known. Here, we report on new dinosaur material collected from Spurwing Island, in Lake Kariba on the northern border of Zimbabwe. The specimen was collected from the Pebbly Arkose Formation (PAF) (Upper Triassic) and consists of an articulated partial hind limb. Various features of the specimen support its referral to Sauropodomorpha and cladistic analyses place it within a clade of Norian-aged taxa from both South Africa (*Eucnemesaurus*) and Argentina (*Riojasaurus*), suggesting a wider distribution of this group ('Riojasauridae') in southern Gondwana and, potentially, further biostratigraphical evidence for the Norian age of this section of the PAF. Preliminary work suggests that the Spurwing sauropodomorph is distinct from these taxa, but the material is fragmentary and might not warrant the description of a new species at this time. However, other isolated sauropodomorph bones are common nearby and there is high potential for additional discoveries that will further clarify the species-richness and composition of these Zimbabwean dinosaur faunas. Moreover, this – and other discoveries along the Kariba shoreline – suggests that the PAF offers a window into several different, contemporaneous palaeoenvironments. Other localities in the PAF yield a predominantly freshwater fauna (phytosaurs, lungfish, amphibians) with few terrestrial reptile remains, whereas sauropodomorph material has not been found in association with these aquatic taxa so far.

Kathleen Dollman excavates the articulated partial hind limb of an early sauropodomorph discovered from the Pebbly Arkose Formation exposed on Spurwing Island, 2019.

Obituary

Philip Dewhurst

20th June 1948 to 3rd August 2022

Philip Arthur William Dewhurst was born in Barrowford, Lancashire, UK and his family moved to Rhodesia in 1956 when he was 8. He went to St Michael's then Hartmann House and finally St George's College. After school he studied at the University of Rhodesia and gained a BSc in Geology and Zoology in 1970.

His first job was with Bamangwato Concessions Ltd in Botswana looking for copper and nickel.

After marrying Renée Franklin in 1973 they moved to the UK were Phil worked for Roskill Information Service (London) writing reports on the economics, production, uses and outlook of many metals and minerals such as gold, magnesium, titanium, copper, nickel, platinum, tin, manganese and iron.

In 1975 they returned to Rhodesia and Phil worked for Union Carbide in Kwekwe investigating the non-coking coal deposit near Beitbridge. He also looked at the possibility of delineating the thin, platinum reef at Mimosa.

They had another stint overseas from 1977 to 1982 where Phil worked remotely for Roskill's, operating their Irish branch. Their two children, Rachel and Raoul, were born in Dublin.

In June 1982 they returned once again to Zimbabwe where Phil worked first for Rio Tinto Zimbabwe on project development, which included the recovery of fresh emeralds at Sandawana and then, in 1984, he moved to Mobil as Operations Manager for African Affiliates.

After a short stint with Art Corporation, Phil joined Reunion Mining in 1991 as Project Director where he worked with Nick Graham, Andrew du Toit, Mike Moles, Hillary Gumbo and Gayle Hanssen, and was involved mainly in diamond exploration and the development of the Sanyati Copper Mine.

After retiring from Reunion and from active geology in 1998 he worked from home for Roskill's, as an external author and associate consultant.

In 2010, Renée and Phil moved to Tunbridge Wells in Kent, UK where they lived until his death in August 2022. While in the UK, he volunteered at the Citizens Advice Bureau and the local Oxfam Book Shop. He kept himself busy with a wide range of interests - gym, golf, history, politics, bridge and scrabble.

Philip was excellent company, always ready to share entertaining tales of his life in Africa and he was a great friend and advisor to his many friends and colleagues.

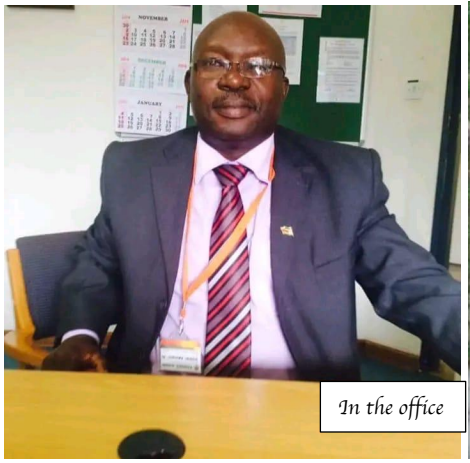
Phil came from a large family and throughout his life, family was his top priority. In recent years he was a proud and doting grandfather and became very involved in the day to day lives of his grandchildren. He will be greatly missed by his family and many friends and especially by Renée, his children Rachel and Raoul and grandchildren Max, Elise, and Niamh.

Andrew du Toit and Renée Dewhurst

Obituary

Lovemore Chimuka

22nd March 1966 – 31st July 2022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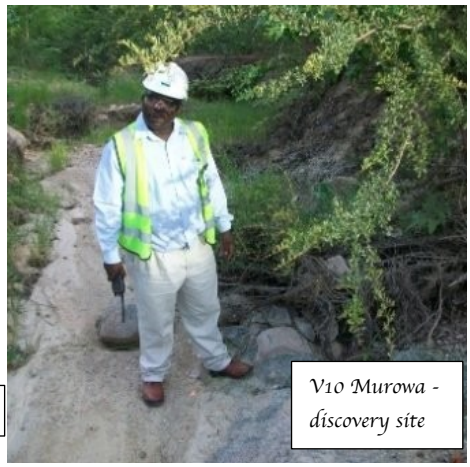
V10 Murowa - discovery site

Lovemore was born on the 22nd March 1966 in Honde Valley and went to St. Mary's Magdalene Secondary School in Nyanga followed by Goromonzi High School for his Forms 5 and 6. He graduated with a BSc General Degree in Geology and Chemistry from the University of Zimbabwe in 1993. In 2012 he completed an Executive Master's in Business Administration (EMBA) from the Midlands State University (MSU) in Gweru.

His first job was with Kimberlitic Searches, a de Beers company, from 1994 to 1995 where he was an exploration geologist for diamonds and base metals in the area around Mwenezi. It is with de Beers that he made his first mark in diamond exploration by successfully identifying a kimberlite pipe.

From de Beers he joined Rio Tinto where he played a key role in the finding of various kimberlites in the Beitbridge and Masvingo districts, being intimately involved in the life cycle of Murowa Diamond Mine from the exploration phase, through feasibility studies, construction to commissioning and production. He fulfilled various roles in this process:

- 1995 to 1999 Rio Tinto Zimbabwe: Exploration Geologist for diamonds using various techniques. Lovemore is officially credited with finding the Murowa kimberlite cluster (V10) in 1997 through stream sediment sampling – a big milestone for him, the Company and the country at large.
- 1999 to 2000 (six months): Rio Tinto Australia: Exploration Geologist (Secondee). The purpose of the secondment was for him to learn but more importantly for him to make a contribution to the execution of Rio Tinto's grass-roots exploration programme in the Yilgarn Province of Western Australia.
- 1998 to 2001: Evaluation and feasibility study of the Murowa Diamond deposit. This included geological and geotechnical logging of diamond drill core derived from the delineation and target drilling programmes. He was involved in shaft sinking and in the diamond resource and reserve calculations.
- 2001 to July 2004: Senior Project Geologist - Area selection and designing grassroots exploration projects. Mapping of diamond prospects. Evaluation and feasibility studies, including the Clare, Sese and Murowa kimberlite pipes.

- July 2004 to 2008: Mining Superintendent - with responsibilities for the mining, continuous exploration and mineral resources classification as per Australian Joint Ore Reserve Committee Code (JORC Code) and SAMREC codes. With this appointment, he was effectively the Deputy Mine Manager.
- 2008 – 2009: Murowa Diamonds Mine, Zvishavane : Senior Mining Superintendent: Reporting to the Mine Manager with responsibility for contractor management of the drill and blast and the load and haul contracts, for grade control and estimation, and with long-term planning.
- 2010 (March to November): Argyle Diamonds, Western Australia: Seconded to the Rio Tinto Australia-owned operation as part of a leadership development programme. This mine employed more than 1000 staff at the time and Lovemore worked with a large team leading geotechnical, geology, survey, mine planning and contractor management units. Lovemore had a lot of amusing stories to share about his stay in Australia.
- Jan 2011 – March 2012: Rio Tinto Zimbabwe / Murowa Diamonds Mine Project, Zvishavane - Assistant Operations & Projects Manager with responsibility for open pit operations at the mine
- April 2012 – Nov 2017: Exploration Manager and HSEC**:** Reporting to the Managing Director with responsibility for a wide spectrum of areas including, community relations, stakeholder engagement, health and safety, and brownfield exploration around the mine.

During his time with Rio Tinto, he wrote and co-authored papers on diamonds that were published in internationally respected journals and elsewhere. He also mentored many young geologists and surveyors, both locally and internationally in Australia during this time.

After Lovemore left Murowa Diamonds, he worked as Technical Director for his own company, Sharpur Mining, which provided mining advisory services to investors. He was then head-hunted by diamond companies in Angola. He worked on several diamond exploration programmes there for two companies evaluating diamond mines as new investments. He managed diamond project start-ups and a brownfields diamond project, as well as overseeing process plant construction and commissioning. At the time of his death, Lovemore was working for his second company in Angola, SMC Gold.

Lovemore was a member of professional bodies including the Australian Institute of Mining & Metallurgy (MAusIMM) (2010), the Association of Mine Managers of Zimbabwe (2010) and the Geological Society of Zimbabwe (1994).

Lovemore was a principled man, and a cheerful person, who loved playing golf and cracking jokes. He worked with others to design the Murowa mine golf course.

Lovemore left a great legacy in the field of geology, particularly in diamond exploration, and his contribution will be missed. We extend our sincere condolences to his family and friends on the sad loss of Lovemore Chimuka. May his soul rest in eternal peace.

Ellah Muchemwa

News

Geology Division: Department of Chemistry and Earth Sciences, University of Zimbabwe

Fadzanai Bornwell Mupaya and Shephard Mabhanga

Two departmental field trips were successfully effected, one in July and the other in August. From 22nd to 29th July, Level 2 and Level 4 students combined in a joint field trip to Murehwa and Chinhoyi over 7 days. The areas are representative of the Archaean and Proterozoic terranes respectively. Students were practising and enhancing their field mapping skills as well as appreciating Zimbabwean stratigraphy first hand. The mapping exercise was carried out as traverses along and parallel to the Mazowe where this river transcends both the Shamvaian and the Lower Bulawayan groups. The Chinhoyi mapping exercise was carried out along a 9km road traverse cutting across alternating Magondi Belt sediments.

The second field trip, with Level 1 students, was conducted from 13th to 19th August in areas around Zvishavane. The main objective of this trip was to equip students with field observation skills necessary for future mapping exercises and in the interpretation of field data whilst heightening their appreciation of Zimbabwean stratigraphy. These students also visited the Cam and Motor and Sabi gold mines, and included the Drummond Quarry in order to introduce them to different mining methods and for them to appreciate the role of a mine geologist.

Both field trips were successfully carried out despite the transport challenges faced, which made it very difficult for both students and staff alike.

About 46 students are expected to graduate this year, 19 from the August 2021 semester and 26 from this years' February semester.

The department has welcomed 20 new geological sciences students at Level 1 and at mid-year, two more students, Enerst Gotosa and Matthew Magagula, registered for the M Phil Degree in Geology through the University of Zimbabwe. Enerst is working on the mineral paragenesis at the Empress Nickel Mine, whilst Matthew is studying the Mutirikwi River Shear Zone around Renco Mine near Chiredzi. Liberty Nyandoro is progressing well with his study on the influence of rock mechanics in landslide propagation around Chimanimani. Bornwell Mupaya, a D Phil student, identified more zircons and ilmenites in thin-polished sections for further studies as to the provenance of the Chimanimani diamondiferous conglomerates.

The Mennell Society students are arranging a field trip to the stromatolites in the Iron Mask Range above Mazowe Dam. They will use this opportunity to welcome new members from the part one August 2022 intake.

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MIDLANDS STATE UNIVERSITY

FACULTY OF ENGINEERING & GEOSCIENCES
ZVISHAVANE CAMPUS

Updates from the Faculty of Engineering & Geosciences

Introduction

This is the last contribution to this newsletter from MSU's Faculty of Engineering & Geosciences. Future contributions from MSU will be from the Department of Geosciences, the department within the Faculty which is most relevant to the Geological Society of Zimbabwe. The contributions from the Department of Geosciences are poised to be more in-depth and more informative on geoscience training, research, publications, field trips and other relevant issues.

Learning and teaching are ongoing in the Faculty as our academic calendars normalise to replace the Covid-instigated road-maps imposed.

Faculty of Engineering & Geosciences

As the Newsletter will from now-on focus on the Department of Geosciences, put in context, all departments in the Faculty with programmes currently on offer are listed.

- Department of Mining Engineering
  - BEng (Hons) Mining Engineering

- Department of Metallurgical & Materials Engineering
  - BEng (Hons) Metallurgical Engineering
  - BEng (Hons) Materials Engineering

- Department of Mechanical Engineering
  - BEng (Hons) Mechanical Engineering

- Department of Fuels & Energy Engineering
  - BEng (Hons) Fuels & Energy Engineering
  - BEng (Hons) Electrical & Electronic Engineering

- Department of Geosciences
  - BSc (Hons) Applied Geology
  - BSc (Hons) Exploration Geophysics

Staffing

Taken overall, the current staffing situation within the Faculty, which includes part-time staff from industry, is satisfactory. Several vacant posts in the Department of Metallurgical & Materials Engineering were filled recently. The Department of Fuels & Energy Engineering is gearing up for interviews following a successful re-advertisement for posts.

Student Activities

Following periods of inactivity due to the Covid-19 pandemic, students have regrouped and are revamping student societies across departments. The Department of Geosciences will communicate updates in this regard to the GSZ soon.

Conclusions

In-depth, GSZ-relevant contributions are expected from the next issue of the newsletter when the MSU Geosciences Department takes over the contributions, which have hitherto been generalised faculty-level overviews.

Submitted by Dr Antony Mamuse, Executive Dean
mamusea@staff.msu.ac.zw

ZIMBABWE SCHOOL OF MINES

Serving the SADC mining industry

The second semester at ZSM began on 1st August with 100 percent of first and third year students returning to school. However, a fifth (97) of all second-year students are still seeking attachment, 27 of whom are geology students. The school is appealing to the industry for attachment places for these students who cannot proceed with their studies until they have successfully completed their attachment obligation.

The third-year geology class visited the Mid-Zambezi Basin on a week-long excursion that left them exhausted. However, they did learn a lot.

We are very grateful for the core samples that we have received, but we are still looking for more, so if anyone has drill core that they no longer need, please contact us.

This year's graduation ceremony is set for 7th October.

Submitted by Fyrence Ndebele

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Department of Mining and Processing Engineering

We are glad to note that the department has been joined by two new lecturers Mr M Chimombe and Miss M Majaha under the metallurgy division. Lectures proceeded smoothly on both face-to-face and online media platforms through to completion of the end of semester exams.

The new semester was set to begin with face-to-face lectures resuming for first-year, third-year and final year students on 15th September. The remaining students will start physical contact on 17th October.
Our lecturers, in conjunction with students and colleagues from international universities, have made research efforts and publications this quarter in areas of stope stability analysis, the improvement of blasting techniques in open pit mining operations, and in the optimization of water reticulation systems. We are grateful to key industrial players who helped with the collection of data for the research projects done.

We continue to encourage our partners to assist our students with industrial attachment, as work-related learning continues to be an essential part of the students' education.

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Contributed By: Hazel Chibaya

Research. Innovation. Sustainable Development.

Evaluation of the Effect of Rock Joints on the Stability of Underground Tunnels

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Abstract

To facilitate the water supply to the main cities in Malaysia such as Kuala Lumpur, Putra jaya and Cyberjaya the Pahang-Selangor Raw Water Transfer Tunnel project was constructed in 2015. Facility tunnels of 44.6km length with 5.2m diameter are being constructed to transfer water from Karak to Hulu Langat. Granitic rock with dominant intrusive zones in various ranges of I to V were observed in the studied tunnel length. This tunnel has a cross cutting shear zone that categorized into fair, poor and very poor rock classes with moderate to heavily jointed rock. At NATM-1, the discontinuities, including joints, located close and far from the fault represent one of the most important causes of instability, which reduces tunnel performance. In this paper, the joint orientation, overburden and distribution of discontinuities (joints and faults) within the tunnel were evaluated. These data were then simulated using discrete fracture networks relating to the direction of excavation in the tunnel. Movement of blocks in the tunnel roof and wall is possible due to the creation of more intersection points in the critical zone. It also highlights how minor features, such as step-over joints in the rock mass, can have a significant impact on instability.

IOP Conf. Series: Earth and Environmental Science 1071 (2022) 012006 doi:10.1088/1755-1315/1071/1/012006

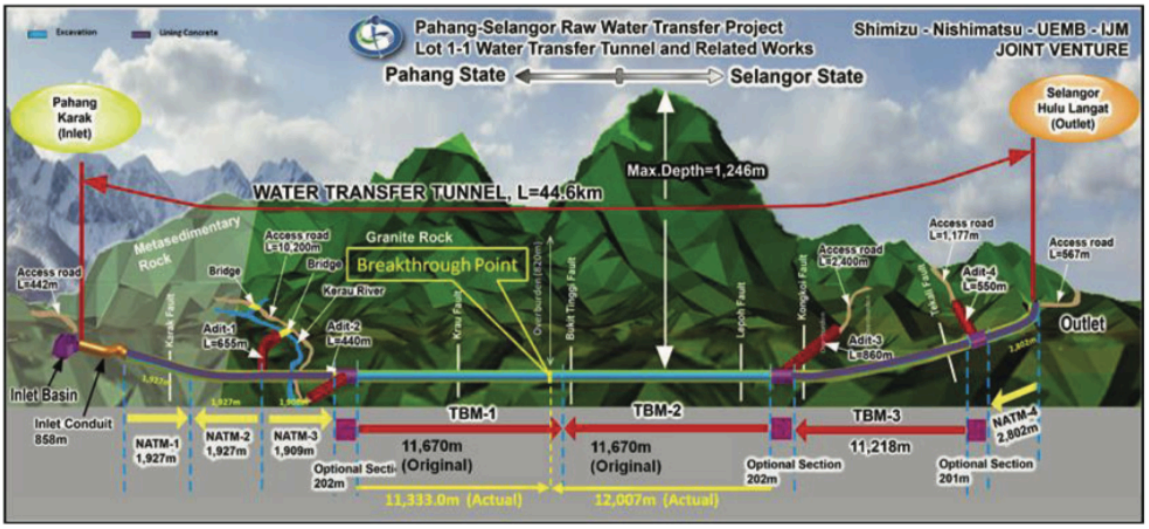

Figure 1. Study area NATM-1 (yellow arrow) aligned with the Pahang–Selangor Raw Water Transfer Tunnel (modified after Ketha, 2000)

NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF APPLIED PHYSICS
EARTH SCIENCES
Contact person: Dr. Tendai Njila, *Senior Lecturer, MSc Geophysics Coordinator*
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Clean Energy Drive

THE Geophysics Research Group in the Department of Applied Physics at NUST is currently investigating the potential of geothermal energy from the hot springs in Zimbabwe, mainly within Binga and the Eastern Highlands. The research group is led by Professor Dumisani John Hlatywayo as the principal investigator and Mr. Mervyn Gumbo, the co-investigator. This Clean Energy drive comes at a time the country is exploring alternate renewable energy sources within the context of the National Development Strategy 1 (NDS 1) framework. This project is being supported by the International Science Programme based at Uppsala University in Sweden, the Government of Zimbabwe and local communities. The team is using traditional geophysics methods to establish the sources of geothermal energy as a basis for a feasibility study. Considerable strides have been made in assessing the geology of the areas in terms of lithology and structural trends in search of a heat reservoir at depth. This Geophysics Research Group has previously investigated the quantity and levels of contamination of groundwater sources in Bulawayo and the Matabeleland provinces.

MSc in Geophysics

The Masters programme in Geophysics resumes on 3rd October 2022 and will run for 2 years with the current enrolment of 12 postgraduate students associated with the mining, groundwater and environmental industries. As a regulation, the MSc programme at NUST will undergo periodic review to suit the requirements of national growth and industry, in line with the adjustments made within the BSc programmes and according to future trends.

BSc (Hons) Earth Sciences

The second group to graduate with a BSc Honours in Earth Sciences through the Earth Science programme at NUST will take place in November 2022. Currently there are over 25 students enrolled in this 4-year Honours programme. Learning continues to be blended between face-to-face teaching and online learning. Practical laboratory sessions, as well as fieldwork and examinations are being conducted in the face-to-face mode.

In the pipeline

We are in the process of fully equipping our laboratories and improving the staff compliment. We appeal for assistance from all the relevant sectors. Our aim is to ensure that our programmes satisfy the requirements of various sectors aligned to applied earth sciences.

Staffing

The current staff compliment is 14. Of these, there is a Co-ordinator, a Full Professor, an Associate Professor, two Senior Lecturers, eight Lecturers and a Research Fellow as shown in Table 1 below. Capacity, staff development programmes and regional contributions are underway, with staff members also carrying out doctoral studies in clean energy resources, groundwater, and mineral exploration. Two of our staff members were selected as Peer Reviewers for Programme Accreditation in Namibia this year for Geology and Physics. The department also welcomes temporary full-time lecturers for our earth sciences and physics programmes.

Table 1. Staff compliment for the Applied Physics and Earth Sciences programmes

Name	Position	Contact
Dr T.V. Chabata	Chairman	tichakunda.chabata@nust.ac.zw
Prof G.G. Nyambuya	Professor	golden.nyambuya@nust.ac.zw
Prof D.J. Hlatywayo	Associate Professor	dumisani.john.hlatywayo@nust.ac.zw
Dr T Njila	Senior Lecturer	tendai.njila@nust.ac.zw
Dr P Baricholo	Senior Lecturer	peter.baricholo@nust.ac.zw
Dr C Mahuvava	Lecturer	courage.mahuvava@nust.ac.zw
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Mr Z. Zulu	Lecturer	zenzo.zulu@nust.ac.zw
Mr M Gumbo	Research fellow	mervyn.gumbo@nust.ac.zw

Geological Survey Department

The Geological Survey, together with other departments in the Ministry of Mines and Mining Development, welcomes **Pfungwa Kunaka** who was appointed the new Permanent Secretary for the Ministry following the retirement of **Onesimo Moyo**. Mr Kunaka, holder of a BSc degree in Economics, is a career civil servant who rose through government services from being an economist in the Ministry of Finance and Economic Development, to the post of Chief Economist Revenue and Expenditure, Director Fiscal Policy and Advisory Services, and Chief Director Expenditure Management. We hope he will, like other Secretaries before him who rose through government ranks, steer the Ministry well.

Ernst Mugandani, Deputy Director, returned to the Geological Survey after having been seconded to provincial offices of the Ministry in Gweru and Mutare, respectively. His experience will tremendously benefit the department that is currently depleted of experienced geoscientists. Still on staffing matters, we convey to **Mathias Ndoro**, Principal Geophysicist, good wishes for the future following his resignation from the department that he served for so many years. **Sicelo Makhaza**, Geological Technician, also resigned from the department some months after acquiring his BSc Honours degree in Geology from the Midlands State University. We wish him the best.

The Director, **Forbes Mugumbate**, and **Evelyn Marumisa**, Geologist, accompanied the Minister of Mines and Mining Development to Perth, Western Australia, for the *Africa Down Under* mining conference. The conference, which is an annual event, brings together policy makers from both Africa and Western Australia, mining companies doing business in Africa and Western Australia, and investors. The various presentations made at the conference demonstrated the ever increasing demand for the so-called decarbonization minerals used in the manufacture of batteries. These

minerals include copper, cobalt, lithium, graphite and REE minerals, which are being discovered in many parts of Africa by Australian junior companies. Zimbabwe was conspicuous by having very few Australian companies doing exploration here.

Admire Charumbira, Senior Geophysicist, and **Diana Mugadza**, Geologist, are in Maputo, Mozambique for a training seminar on artisanal and small-scale mining dubbed *From Stepping on a Stone to Opening a Mine*, which is organized by PanafGeo (Pan African Geological Surveys).

Members of the Geological Survey together with others from sister departments and other Ministries are involved in facilitating establishment of the so-called Mining to Energy industrial complex at Mapinga for beneficiating chrome, nickel, lithium, and graphite. The President of Zimbabwe witnessed the signing of an MOU between the Minister of Mines, Winston Chitando, and representatives of Eagle Canyon International Group and their partners Pacific Goal, both of Hong Kong, thus marking commencement of the project. Apparently the owners of Eagle Canyon are already active in Zimbabwe, being the owners of Sabi Star lithium mine, which is being developed east of Buhera, as well as partnering Pan African Mining in development of the Ayrshire and Muriel gold mines together with interests held in several prospects for other minerals.

The Ministry held its Strategic Plan Review meeting in Masvingo where three main areas were identified as requiring special attention. These are completion of amendments to the Mines and Minerals Act; completion of the Mining Cadastre Information Management System (MCIMS); and the achievement of the US$12 billion mining industry by 2023. While the Ministry has basically done its part in the amendment of the Act, and is ready to gazette the Bill at any time, a lot still needs to be done with respet to the other two projects. The Ministry is now targeting the gold sector to ensure enhanced production, and to implement initiatives to plug gold leakages. In this regard, the Ministry has instituted so-called Gold Mobilization teams that visit mining areas to ensure overall compliance with regulations, especially those with regard to safety, the disposal of gold, and the submission of returns. Staff from the Geological Survey are involved in this exercise. The up-loading of mining title data into the MCIMS at provincial level will be accelerated.

Submitted by: *Forbes Mugumbate (Director)*
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MINING NEWS

gleaned from https://www.mining.com/

by Kennedy Mtetwa

Huayou Cobalt to invest $300m in Zimbabwe lithium mine

Reuters | May 24, 2022 | 7:15am Battery Metals Africa China Lithium

China's Zhejiang Huayou Cobalt plans to invest $300 million on rapid development of a lithium mine and processing plant at its newly acquired Arcadia project in Zimbabwe, according to company documents seen by Reuters. Huayou, one of the world's biggest producers of cobalt, recently completed a $422 million purchase of the hard-rock lithium mine just outside Harare from Australia-listed Prospect Resources and other Zimbabwean minorities.

"We intend to develop the project rapidly over the next year and invest around $300 million to develop the mine and construct a process plant with a capacity to treat around 4.5 million tonnes of ore and produce 400,000 tonnes of lithium concentrate per annum," Huayou subsidiary Prospect Lithium Zimbabwe said in an update on the project.

The Arcadia project is expected to deliver its first batch of lithium-bearing minerals spodumene and petalite in 2023, the company said. Lithium prices have soared this year as carmakers have struggled to source the metal used in electric vehicle batteries. Prospect Lithium Zimbabwe said it would employ 600 locals during the construction phase, with up to 900 jobs being created when production begins.

(By Nelson Banya; Editing by Helen Reid and David Goodman)

China ban on foreign coal investment leaves Zimbabwe scrambling

Bloomberg News | June 8, 2022 | 8:36 am Africa China Coal

Zimbabwe's plan to refurbish two idled coal-fired power stations has been thrown into disarray by China's decision to ban investment in plants burning the dirtiest fossil fuel outside its borders. Zimbabwe was depending on China to help get the Bulawayo Power Station, which has a design capacity of 90 megawatts, and Munyati Power Station, meant to generate 100 megawatts, to produce electricity to fill a chronic shortfall in the southern African country.

"There is no funding for coal plants," Sydney Gata, the chairman of state-owned Zesa Holdings Ltd., said in an interview on Wednesday. "We don't have a plan yet," adding that while he has been in communication with the potential investors, the decision was made at a national level.

China's decision last year has hit a number of other coal projects globally. The Asian nation's biggest lender, Industrial and Commercial Bank of China Ltd., last year dropped a plan to fund a $3 billion coal mine and power-plant complex in Zimbabwe, which was being developed by RioEnergy, a unit of RioZim Ltd. Zimbabwe's Secretary for Energy Gloria Magombo didn't immediately respond to emailed questions she had requested.

The Bulawayo and Munyati plants were built between 1946 and 1957. Zimbabwe has an installed capacity to produce 2,100 megawatts but generates an average 1,200 megawatts to 1,300 megawatts. When possible, it meets the shortfall through imports.

(By Godfrey Marawanyika and Antony Sguazzin)

Sinomine invests $200m in Zimbabwe lithium project

Reuters | June 17, 2022 | 9:24 am Africa China Lithium

China's Sinomine Resource Group in June launched a $200 million project to build a plant and expand existing mining operations at its recently acquired Bikita lithium mine in Zimbabwe. The southern African country holds some of the world's largest deposits of lithium, a key battery mineral, and hopes for an economic boost from a global drive towards clean energy. Zimbabwe's President Emmerson Mnangagwa, who officiated at Sinomine's launch event at Bikita Minerals, 325 kilometres south of the capital Harare, said the investment positions the country as a major player in the global battery minerals supply chain.

"The launch of this project follows an investment of about $200 million by Sinomine Resource Group, which will see the building of a new plant and expansion of existing operations," Mnangagwa said.

Shenzhen-listed Sinomine acquired Bikita Minerals in a $180 million transaction in January. The mine has been in operation since 1950 and predominantly produces petalite, a lithium mineral used in the glass and ceramic industries, but Sinomine now plans to produce spodumene – a key battery mineral. On May 23, Sinomine announced plans to raise 3 billion yuan ($450 million) in a private placement to fund its lithium plans, including the Zimbabwe project.
Sinomine has also set up a joint venture with the Chengxin Lithium Group's Zimbabwe unit to drive lithium projects in the country. Chengxin paid $76.5 million last November for 51% of a company which owns lithium and rare earth mineral blocks in Zimbabwe.

Another Chinese firm, Zhejiang Huayou Cobalt, recently purchased the Arcadia hard-rock lithium mine just outside Harare from Australia-listed Prospect Resources and other Zimbabwean minorities in a $422 million deal. Huayou has announced plans to invest $300 million on the rapid development of a lithium mine and processing plant at Arcadia.

($1 = 6.7020 Chinese yuan renminbi)
(By Nelson Banya; Editing by Toby Chopra)

China's Huayou faces clash with regulator over Zimbabwe lithium project

Reuters | June 28, 2022 | 7:16 am Battery Metals Africa Lithium

China's Zhejiang Huayou Cobalt faces regulatory pressure to produce battery-grade lithium in Zimbabwe within five years, official documents seen by Reuters show, something the miner has already said cannot be achieved. China's biggest cobalt refiner acquired the hard-rock Arcadia lithium mine just outside Harare for $422 million earlier this year and has announced plans to spend $300 million. But it has said production of battery-grade lithium in Zimbabwe is "not feasible" due to a shortage of electricity and

other key inputs. However, as a condition for approving the deal the Competition and Tariff Commission has stipulated that battery-grade lithium be produced within five years.

"The transaction was approved subject to the condition that the merged entity, its subsidiaries, affiliates and successors in title should undertake to produce battery-grade lithium in Zimbabwe within five years of receiving this determination," the commission said in a June 22 notice seen by Reuters.

That is at odds with Huayou's stated plans to build only a concentrator plant to process ore, not a converter for further processing to produce battery-grade lithium carbonate.

"For each tonne of battery-grade lithium carbonate production, it needs 2,800 kWh of green renewable power, 500-600 cubic metres of natural gas, 2.2 tonnes of concentrated sulfuric acid (98.5%), 2 tonnes of first-class sodium carbonate, 20 kg of first-class sodium hydroxide, 4 tonnes of heavy calcium powder, and 1.6 tonnes of food-grade carbon dioxide," Huayou said in May when it announced its investment plans for Arcadia.

"There is a chronic shortage of these supporting and auxiliary materials in Africa, and the costs incurred by importation would be huge and unaffordable."

Neither Huayou nor Zimbabwe's mines ministry responded to requests for comment on the competition commission's directive.

Mining analyst Paul Chimbodza said Zimbabwe, which has a 5% tax on raw lithium exports to promote local processing, needs to temper its "noble" battery aspirations.
"This young industry needs to walk before it can run," Chimbodza said.

(By Nelson Banya; Editing by Helen Reid and Jason Neely)

Chinese investors plan $2.83 billion metals park in Zimbabwe

Bloomberg News | September 16, 2022 | 8:47 am Battery Metals Africa Lithium

Zimbabwe has the world's second-largest platinum reserves after South Africa, as well as large deposits of lithium, coal, gold, diamonds, chrome and nickel. Zimbabwe's government approved a proposal by a group of Chinese investors to establish a $2.83 billion battery-metals park that will process metals including lithium, platinum and nickel, its latest plan to revive its moribund economy.

Hong Kong Eagle International Investment Holding Ltd. and Pacific Goal Investment Ltd. intend to develop an integrated industrial park that will include lithium-salt and nickel-sulphate plants, and a nickel-chromium alloy smelter, Eagle International said in documents seen by Bloomberg and verified by Secretary for Mines Pfungwa Kunaka. An agreement on the plan will be signed later on Friday, Deputy Mines Minister Polite Kambamura said.

"The goal of the New Energy Special Economic Zone Industrial Park is to develop an industrial value chain represented by new energy metals such as lithium and nickel, to

increase the added value of the mineral products and form a new energy production base that embraced the world while based in Africa," the company said.

An accelerating shift to electric vehicles and soaring lithium prices have drawn investor interest to Zimbabwe. Chengxin Lithium Group Co. and Sinomine Resource Group Co. are setting up a joint venture to explore for the metal and Zhejiang Huayou Cobalt Co. plans to invest $300 million to develop the Arcadia lithium mine in the northeast of the country.

Still, Zimbabwe has announced several other major projects in the past that haven't come to fruition. President Emmerson Mnangagwa's government has announced more than $27 billion of planned investment since he came to power in November 2017, though the country has little to show for it. Platinum mine projects that were backed by Russian and Cypriot investors have shown little progress, as has a plan to revitalize a state-owned meat-processing company. The economy has been roiled by two decades of political and economic instability after the seizure of land owned by White commercial farmers in 2000 triggered the imposition of sanctions on the country by the US, UK and the European Union, as well as a number of smaller nations. Debts to multilateral lenders have gone unpaid and there have been two bouts of hyperinflation.

The planned agreement with Eagle International and Pacific Goal is "a major milestone for us," Kunaka said by phone. There were no details on how the project will be funded in the company documents and Bloomberg wasn't immediately able to find contacts for officials at Eagle International and Pacific Goal for comment. The 30-50 square-kilometre battery-metals park is expected to be completed by the end of 2025, according to the documents. It would be situated in Mapinga, about 48 kilometres northwest of Harare. Among the projects planned at the park are two 300-megawatt power plants to be built at a cost of $250 million each to provide electricity to the various refineries — the first is expected to be completed by 2024 and the second a year later. Other proposed infrastructure includes a nickel-sulphate plant at a cost of $1 billion, a nickel-chromium alloy smelter at a cost of $500 million, and a $450 million lithium-salt plant, the documents show. Lithium carbonate, lithium hydroxide and nickel sulphate are raw materials used to produce lithium batteries, which are used for solar-energy storage. Nickel-chromium alloys are used in stainless steel production.

(By Godfrey Marawanyika)

Zimbabwe to raise taxes on platinum, lithium to boost revenue

Bloomberg News | July 28, 2022 | 8:02 am Battery Metals Africa Lithium Platinum

Zimbabwe plans to increase royalty rates on platinum producers and introduce one for lithium miners from 1st January as part of efforts to boost its coffers that have come under strain from weakening economic conditions. The rate for platinum miners will double to 5% and a new rate of the same amount will apply to lithium producers, Finance Minister Mthuli Ncube said in his mid-term budget review presented to lawmakers in the capital, Harare.

"Mindful of the fact that the tax regime is the main instrument for sharing benefits from finite minerals and also provides an important source of government revenue, it is necessary to maximize revenue to the fiscus," he said.

An accelerating shift to electric vehicles and soaring lithium prices have drawn investor interest to Zimbabwe. Chengxin Lithium Group Co. and Sinomine Resource Group Co. are setting up a joint venture to explore for the metal and Zhejiang Huayou Cobalt Ltd. plans to invest $300 million to develop its Arcadia lithium mine. The southern African nation has the world's third-largest known platinum reserves, after Russia and South Africa. Platinum producers in the country include units of Zimplats Holdings Ltd. and Anglo American Platinum Ltd.

Ncube announced the measures as he cut the nation's economic growth forecast for this year to 4.6% from 5.5% at the end of last year, citing the global economic slowdown. Growth is being crimped by Russia's war with Ukraine, the escalation of sanctions on Russia, a sharper-than-anticipated slowdown in China, and soaring inflation and a depreciating currency. Zimbabwe's annual inflation rate jumped to 192% in June, the highest level in more than a year, as food costs more than tripled. The increase in prices has been spurred by a sharp depreciation in the Zimbabwe Dollar, which has lost more than 74% of its value against the US currency this year. To boost growth and cushion the impact of the increased cost of living on public servants, the nation will increase expenditure to 1.9 trillion Zimbabwean Dollars ($4.6 billion) from a previous estimate of 968 billion Zimbabwean Dollars, Ncube said.

(By Godfrey Marawanyika and Ray Ndlovu)

Caledonia Mining to buy one of Zimbabwe's largest gold projects

Cecilia Jamasmie | **July 21, 2022 | 3:58 am** Markets News Africa Gold

Caledonia Mining Corporation is set to be the new owner of one of Zimbabwe's biggest gold mining projects after agreeing to acquire Bilboes Gold Limited, owner of the namesake gold project, in a $53 million shares deal, plus a royalty on revenues. The transaction could more than double Caledonia's annual production, potentially making it Zimbabwe's top gold miner. It would also help the company become a multi-asset mid-tier producer.

"We are delighted to have signed an agreement for the purchase of Bilboes, the premier gold development project in Zimbabwe, and indeed one of the best gold development projects in Africa," chief executive Mark Learmonth said in the statement. According to the latest feasibility study, the asset has the potential for an open-pit gold mine producing an average of 168,000 ounces per year over a 10-year life of mine.

Caledonia said it plans to conduct its own feasibility study to determine the "most judicious way" to commercialize the deposit. One approach that will be considered is a phased development, which would minimise the initial capital investment and reduce the need for third party funding, the company said. The transaction is subject to the current owners of Bilboes receiving confirmation from Zimbabwean authorities that the mine will be able to export gold directly and retain the sale proceeds in US Dollars rather than domestic currency. Prior to closing the deal, Bilboes will restart oxide operations with

the expectation of returning to profitable operations within six months. Caledonia currently owns 64% of the Blanket gold mine, in the southwest of Zimbabwe, which is expected to produce 80,000 ounces this year thanks to a new shaft.

Zimbabwe offers target-beating incentive for biggest gold miners

Bloomberg News | August 16, 2022 | 5:29 am Markets Africa Gold

Zimbabwe extended an incentive for the country's biggest gold miners to produce above state-set output targets. Large producers that exceed their goals will receive 80% of the payment for the additional output in foreign currency, Deputy Mines Minister Polite Kambamura said in an interview. That compares with the existing 60-40 split between foreign and local currency payments for gold produced in the southern African country.

"Overall, it's a good policy," said Isaac Kwesu, chief executive officer of the Chamber of Mines. "But for those that are already operating at full throttle, they will not be able to benefit from it."

Zimbabwe's gold miners say they can only make the investments required to help reboot the country's economy if they can retain a larger share of their foreign currency earnings. Gold exports are the No. 3 foreign currency earner, after platinum and remittances, in a nation that suffers from an acute shortage of dollars.

Kambamura said the government has identified two local lenders that could help provide the $1 billion of funding needed by the gold industry over the next five years. Kuvimba Mining House Ltd., 65% owned by the state, plans a five-fold increase in production at its Shamva Gold operation by next year, the deputy minister said.

"Shamva is coming up with a massive expansion project which will see them doing open cast mining," he said. Mothballed state-owned gold mines will be reopened, while those not fully operational will be recapitalized, Kambamura said.

Gold output in Zimbabwe climbed 47% in the first seven months of this year. The government wants the gold sector to account for a third of the targeted $12 billion the mining industry will generate next year, the deputy minister said.

(By Godfrey Marawanyika)

GSZ Research and Development Fund

Enquiries relating to the distribution of funds through this facility should be made with the standing Chairperson.

SEG Timothy Nutt Memorial Fund

This fund will be available to provide financial support for geology students and young economic geologists located in Zimbabwe or in southern Africa with ties to Zimbabwe. The fund may be used to support SEG student chapter activities, travel to meetings, field trips, for research or study grants, technical lectures or any other activities approved by the SEG Regional Vice President for Africa.

Strong preference will be given to those applicants who are SEG Student Members.

To become an SEG Student member visit www.segweb.org/join

Applicants must describe what the project is, why the research is important and how it is to be done.

An estimate of expenses for the project must be included with the application.

Grants are expected to be fully utilized by April 30 following the calendar year in which they are awarded / dispersed. .

Grant recipients are required to provide a year-end accounting of how the money was spent together with a suitable progress report or final abstract.

A 2018 Research Grant application form may be downloaded from
www.segweb.org/StudentResearchGrants

Student Research Grants Committee c/o Assistant for Student Affairs, Society of Economic Geologists Foundation 7811 Shaffer Parkway, Littleton, CO 80127-3732 USA

Phone: +1.720.981.7882/Fax: +1.720.981.7874

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Conferences

Geological Society of Zimbabwe

Summer Symposium 2022

Friday 21st October 2022

Diamond Lecture Theatre opposite Department of Geology, University of Zimbabwe

Registration 0745 (incl. teas and lunch) US$25 for members (non-members should join)

Topic	Speaker
Welcome	Kennedy Mtetwa - Geological Society Chair
Official Opening	Vice Chancellor Prof. Dr. Paul Mapfumo
Zoning in Archaean Li-Cs-Ta pegmatites from the Bikita field: Implications to rare-metals exploration	Godfrey Chagondah
High temperature thermochronology from the Paleoarchean eastern Pilbara craton and relevance to the granite-greenstone terranes of the Zimbabwe craton	Scott Maclennan
Tectonic evolution of the south-eastern Mesoarchaean Mwanesi Greenstone Belt: implications for the construction of the Zimbabwe Craton.	Brian Mapingere
"Dem Bones, Dem Bones" - Zimbabwe makes Palaeo-history - a Review.	Tim Broderick
The Future of Geoscience Education, Green Energy and the 4IR/5IR	Tendai Njila
Digital transformation in Mining	Patrick Weeden
Cloud Mining: Lessons from a parallel universe	Kingray Gowera
The use of Virtual Reality to promote effective training in the education of Geological Sciences	Tinotenda Chimbwanda
Summary.	Brent Barber

12th A.M. Macgregor Memorial Lecture
Public Lecture by
Dr. Sharad Master

Geological Evolution and Metallogeny of the Palaeoproterozoic Magondi Belt, Zimbabwe and Botswana

In Harare:-

At 3pm on Friday 21st October 2022 in the Diamond Lecture Theatre opposite the Department of Geology, University of Zimbabwe

In Bulawayo:-

At 3pm on Monday 24th October 2022 at the Zimbabwe School of Mines

Dr. A.M. Macgregor (1888-1961), studied at Queen's College in Cambridge. After succeeding A.E.V. Zealley in 1912 as Keeper of Geology of the National Museum in Bulawayo, Macgregor joined the Geological Survey in 1915 where he worked until 1948 with a short break to serve in France during World War 1. He was appointed Director in 1946 and during his time at the Survey, he produced eight Bulletins and seven Short Reports, which were the result of a total of 120 months of field work. He covered a wide range of Zimbabwean geological aspects including his 'Gregarious Batholiths', the subdivision of greenstone stratigraphy, the Karoo and the Kalahari, as well as pioneering the application of geochronology in the country.

Every few years, the Geological Society of Zimbabwe honours the memory of Alexander Miers Macgregor OBE, MA, DSc, FGS by inviting a geologist of high international standing to deliver a talk that would have been of interest to Macgregor.

The Geological Society of Zimbabwe is pleased to announce that Dr. Sharad Master from the School of Geosciences, University of the Witwatersrand has agreed to present the 2022 Macgregor Memorial Lecture entitled: - ***'Geological Evolution and Metallogeny of the Palaeoproterozoic Magondi Belt, Zimbabwe and Botswana'.***

Sharad Master is a very active member of the Society, a regular contributor to the Summer Symposium and has led many field trips across Zimbabwe. He obtained his degrees from the University of the Witwatersrand, culminating with a PhD in 1992, on the copper deposits at Mhangura, Zimbabwe. In 1996/7 he was awarded a Harvard-South Africa Fellowship and was a Visiting Scholar at Harvard University.

He teaches courses in Stratigraphy, South African Geology, Economic Geology, and Tectonics of Africa at undergraduate and Honours Degree level. His research interests include Proterozoic metallogeny and crustal evolution in Africa, Palaeo- and Neoproterozoic chemostratigraphy, meteorite impact structures, palaeo-tsunamites, sedimentary structures, and the History of Geology.

Geological Society of Zimbabwe

Magondi Trip

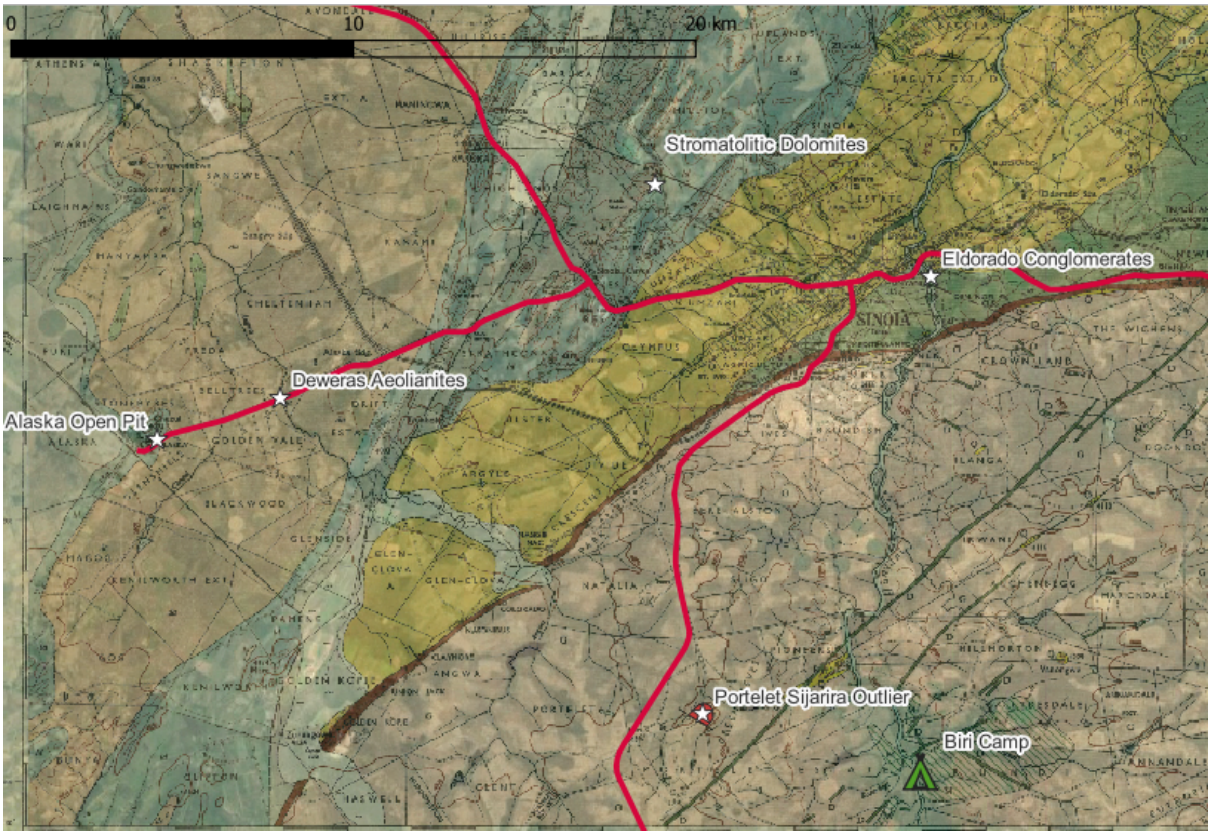
Saturday 22nd October 2022

Field Trip to the Magondi Area with Dr Sharad Master

Leave UZ - Geology at 7.30am

This is a free-to-members visit, but you need to arrange your own transport, food and refreshment.

Stop	Name
1	Eldorado Conglomerates
2	Stromatolitic Dolomites
3	Deweras Aeolianites
4	Alaska Open Pit
5	Portelet Sijarira Outlier



You will be able to return to Harare at the end of the afternoon

Optional Camping at Biri Dam on Saturday Night

$15 per head

Bring your Own Camping Equipment, Food and Drink. A braai fire will be provided.

GSSA Geocongress 2023

Stellenbosch, Western Cape
The next 125 years of Earth Sciences
11-13 January 2023
https://allevents.eventsair.com/geocongress/

Geocongress 2023 is scheduled for January 11-13 at Stellenbosch University and abstract submission and delegate registration is now live (see https://allevents.eventsair.com/geocongress/).

Given the vast interest from Earth Science colleagues in other parts of Africa, and also further afield globally, the organising committee has taken the decision to make Geocongress 2023 a hybrid style event. The Congress remains primarily an in-person event but for online attendees, the hybrid option offers an opportunity to live-stream all talks (in both parallel sessions), to present your own research by means of a virtual poster session and there are limited number of oral presentation slots.


GSSA
AFRICAN EXPLORATION AND TECHNOLOGY SHOWCASE
17 - 18 NOVEMBER
CPD POINTS PER DAY
GSSA - 8
SACNASP - 1
Hosted by Geological Society of South Africa,
Geological Society of Africa, Zambia, Zimbabwe and Namibia
This webinar aims to provide an opportunity for professionals in the industry to be informed about new African exploration projects and current developments. It is an ideal opportunity to learn more about deposits that could potentially add significant economic value to the continent's pipeline.
Our speakers are from major and junior mining companies, and from large consulting companies to independents, which should ensure an interesting event.
Members - R1,000 | Non-Members - R1,500 | Student/Retired - R500

GEOLOGICAL SOCIETY OF ZIMBABWE: CONTACT DETAILS OF MEMBERS OF THE EXECUTIVE COMMITTEE FOR 2021

NAME	PORTFOLIO	EMAIL
Mtetwa, Kennedy	Chairperson	kcmtetwa@yahoo.co.uk
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Musiwa, Kudzai	Hon. Secretary	kudzimusi@gmail.com
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du Toit, Andrew	Summer Symposium	andrewdutoitzim@gmail.com
Duma, Steve	Student Mentorship; Talks & Field Events	duma.steven@gmail.com
Tarasai Marazani	Student Mentorship; Talks & Field Events	tarisai.marazani@zimplats.com
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Institutional Membership, 2022

Bruker RSA

Chamber of Mines of Zimbabwe

Freda Rebecca Mine

Invictus Energy

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Metallon Gold

Mimosa Mining Company (Pvt) Ltd

New Dawn Mining

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Sandvik

SMC Drilling

Trojan Nickel Mine

University of Zimbabwe Geology Department

Unki Mines (Pvt) Limited

Vast Resources

Zimbabwe Geological Survey

Zimbabwe Platinum Mines Limited