

# TANZANIA GEOLOGICAL SOCIETY



**Annual Conference Held at Tanga Beach Resort and SPA, Tanga  
from 04<sup>th</sup> to 06<sup>th</sup> December 2024**

## *Theme*

**Harnessing Tanzania Mineral Wealth for Sustainable Economic Growth and  
Smooth Energy Transition.**

*Tanzania Geological Society*

*2024*

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## ***LIST OF ABBREVIATIONS***

**2D** Two Dimensions

**3D** Three Dimensions

**GGM** Geita Gold Mines

**NEMC** National Environmental Council

**PURA** Petroleum Upstream Regulatory Authority

**STAMICO** State Mining Cooperation

**TEIS**

**TGRB** Tanzania Geoscientists Registration Board

**TGS** Tanzania Geological Society

**TPDC** Tanzania Petroleum Development Cooperation

**UDOM** University of Dodoma

**UDSM** University of Dar es Salaam

## EXECUTIVE SUMMARY

Tanzania Geological Society (TGS) organized an annual conference under the theme, Harnessing Tanzanian Mineral wealth for sustainable economic growth and smooth energy transition. The Conference was held on 04th to 06th November at Tanga Beach Resort and SPA in Tanga Region. It gathered geoscientists, engineers, academicians and young researchers, stakeholders from public and private sector and talented students from different geoscience perspectives.

The objective of the conference was to bring together a multidisciplinary group of brilliant geoscientists working in different insights into the latest research, major milestones, experiences and new ideas related to minerals, energy and water sectors of Tanzania. Such insights were shared through individual presentations and panel discussions on the mineral sector, energy and water resources.

The conference was inaugurated by the Deputy Secretary for ministry of Minerals Mr. Msafiri Mbibo. The inauguration was followed by presentations of various topics on different issues pertaining to the mining industry, energy and water. The presentations and panel discussions were followed by stakeholders meeting to discuss a proposal for the Tanzania Geoscientific Registration Board (TGRB) and finally the TGS annual meeting. This report captures key issues which transpired during presentations and discussions in the conference.

Some major outputs were as follows:

1. TGS would advise the government on how to promote growth of local junior exploration companies. This will avail and create an understanding on the availability of earth resources in the country and their socio-economic implications.
2. TGS encouraged the government to fast track the process of establishing TGRB, through which authenticity of data and reports on mineral resource potential accrued from exploration will be established. Guidelines for establishing authenticity will be set by the TGRB report similar to JORC but customized to our environment. This will enable financial institutions to establish appropriate areas for provision of financial support, reduce risks in their investments, and hence promote their appetite to engage in the sector.
3. TGS advised the Government that the Strategic minerals exploration should be fast tracked in order to reach the 2030 vision Minerals are wealth smoother. The smooth energy transition needs to also account for the re-use and recycling of the waste produced from extracting the strategic minerals. Policy and laws governing mine closure for strategic minerals should account for their specialty and reflect as such to allow room for sustainable mining of these minerals.

## **DAY ONE, 4TH DECEMBER 2024**

### **1.0 Opening Session**

The conference started with registration which ran from 7:30AM to 9:00 AM, followed by a 30 minutes tea break. The guest of honor, Mr. Msafiri Mbibo, the Deputy Secretary for the Ministry of Minerals, arrived at 10.00 AM to inaugurate the event. The minister started by visiting the booths of the participating companies and poster presentations.

### **2.0 Opening of the TGS 2024 Annual Conference**

The Guest of Honor entered the conference venue at 10:30 HRS. The TGS Secretary, Dr. Emmanuel Kazimoto, delivered a welcome address to the Guest of honor and participants, welcoming everyone to the TGS 2024 Annual Conference. He provided a brief introduction about TGS and proceeded with the introduction of participating members.

The TGS Secretary introduced various guests present in the auditorium. He gave a special welcome to Guests from Uganda the Umoja Conservation trust, Guests from the Ministry of Minerals Zanzibar and RSK Acoustics, a new institutional member of TGS. He also welcomed guests from various member institutions within the country.

Thereafter, the TGS president, taking the floor mentioned all government institutions and private companies whose contributions and efforts ensured a successful TGS 2024 Annual Conference. The TGS president highlighted some of the aims of the TGS as being:

- To bring together geoscientists from different parts of Tanzania.
- To get a common understanding of geoscientific research conducted in the country.
- To advise the government on different geoscientific activities undertaken in the country

He then stressed on the use of Geoscience industry ethics to ensure sustainable use of resources towards achieving the 2030 Vision (Minerals are life and Wealth). The TGS President reminded the guest of honor on fast tracking the formation of TGRB (Tanzania Geologist Registration board).

The guest of honor's speech was not farfetched he congratulated TGS and the members on accelerating initiatives to make the 2030 development goal achievable. He also promised to fast

track the formation of TGRB and encouraged Geoscientists to be brothers' keepers so that collectively the integrity of the industry is maintained.

During the next activity, the guest of honor provided awards to members of two groups.

- The main sponsor of the event: Gold Sponsorship - Twiga Barrick Gold Corporation and Stamico.
- The Most Outstanding Tanzanian Geologists.

TGS this year recognized the efforts made by outstanding geologists whose contribution in one way or the other have played a vital role in promoting, encouraging, advising and advocating for TGS activities. These are Mr. Erick Kalondwa, Mr. Manyama Makweba and Mr. Desmond Risso. The guest of Honor and the TGS president presented an award to them as a token of appreciation for their unending selfless commitment.

TGS also gave a gift to the guest of honor for participating in the 2024 annual conference meeting.

### **3.0 Photo session and Closing of the Opening Ceremony**

Group photos were taken with the guest of honor after which he left the conference venue at 1205HRS.

### **4.0 Keynote speech; Presenter: Prof. Nelson Boniface, DVC Research - UDSM**

Professor Nelson Boniface presented “Tanzania Strategic Mineral Deposits”. His presentation covered what strategic minerals are and their mode of formation and how well can they be utilized. Professor Nelson’s talk paved a way for reflection as Geoscience, if the industry is ready to tackle the 2030 Vision aggressively using the huge strategic mineral deposits available at our disposal in the Country.

### **5.0 Oral presentations**

In this session a number of geoscientists presented their works and after each presentation, questions and discussions followed.

- Dr. Remigius Gama: Tanzania Geological Society and Its Services to the Society: Does it matter?
- Umoja Conservation Trust: Joint Sustainable Natural/Mineral Resources Utilization: A must if Africa is to Develop.

- Lucas Tumbu: The use of Audio Magnetotellurics (AMT) techniques to explore Tanzanians strategic minerals.
- Edward J Maarifa: Prospecting potential Geothermal resources through mapping of surface hydrothermal alteration minerals and geological structures in the Songwe region, SW Tanzania.
- Tukupala Mwalyolo: Advanced Geological mapping: High resolution UAV-Based Magnetic surveys for mineral exploration in Northern Tanzania.
- Basilius J Ndimbo: Fast-tracking Tanzania Strategic Minerals: Identification, Development and value chain optimization.
- Ernest Mulaya: The Helium Budget in the East African Rift System.

#### **6.0 Panel Discussion: Tanzania's strategic Minerals, Energy transition and net Zero Carbon emission.**

The first presentation session was followed by a panel discussion convened by Mr. Albano Mahecha and included the following panelists: Mr. Ernest Kafu from Mining Commission, Mr. Gerald Chuwa an Exploration Geologist, Mr. Manyama Makweba a Consulting Geologist, Prof. Nelson Boniface the DVC Research UDSM and CPA Dr. Venance Mwasse the Managing Director STAMICO.

Mr. Gerald Chuwa – The Market for Strategic minerals is mostly outside of Africa. So why doesn't Africa make a market within itself? We need not just to train we need to train very fast in order to match up with the current speed at which things are moving in the world. We need to have multiple strategies, research on the resources spent on critical minerals so we have some left for upcoming generation. Financial plans need to be set so to smoothen the exploration and mining of these critical minerals this in turn will solve the unemployment issue for the young geologists.

Dr. Venance Mwasse – Zero Energy emission is a global and international race what is needed is availability of these critical minerals with sustainable supply this poses a question of how do we ensure sustainable supply and encourage discovery? We need to ascertain the role of Tanzanians specifically small-scale miners and average citizens both as producers and markets respectively. We need to create a good environment for mining, good infrastructures and workable mining and refinery policies.

Mr. Ernest Kafu – the critical minerals industry is still new (less than 15 years) Mining act is still in reviews and in amendments. Mining commission websites glossary has uploaded value addition industries through their regulations these initiatives are all aimed to support small scale miners and facilitating refineries.

Mr. Manyama Makweba – Foreseeing huge production of Critical minerals by 2050 and lots of waste materials produced in the ecosystem arising from exploitation of such. Technologically speaking we are not prepared to handle the waste products from the mining and processing critical minerals so having knowledge on the mobility of elements we need to manage the wastes derived from the process. We need to set up value addition plants and plan on the recycle/reuse programs.

Professor Nelson Boniface – Stressed on training of individuals on these critical mineral exploration, exploitation, substitute use and rehandling. If we are to reach the 2030 vision, we need to have skilled staff that not only knows how to handle critical minerals but can also manipulate them and substitute their uses for everyday consumption like the use of Apatite to make fertilizers. Resources are available at the University lets make the most of it. The University is ready to give demand based short courses to empower workforce and disseminate knowledge.

***Take home message from the panelists.***

- It is a wake-up call. NEMC and other regulatory bodies should think on the mine closure process for these minerals if it is to conform to the standard backfilling process or we opt for one that can ensure sustainability in exploitation of such. Dr Venance Mwasse
- Major Companies should allocate blocks to be explored by young and upcoming geologist to cater for employment needs. Mr. Gerald Chuwa
- We have to hunt and be aggressive. Coordination in all sectors will help us achieve the 2030 Vision Quicker and with less struggle. Mr. Ernest Kafu
- The transitional energy minerals are transitional. What happens after the transition? What do we expect to happen when the zero-emission goal has been achieved? Are we prepared for the aftermath? Mr. Manyama Makweba.
- Training, Training, Training. We need to have proper information and necessary skills as we approach this. Professor Nelson Boniface.

Day 1 ended at 18:30Hrs.



## **DAY TWO, 5<sup>th</sup> DECEMBER 2024.**

Day Two started at 9:35am

The Dean of Ceremony welcomed the conference participants with individual presentations chaired by Mr. Gerald Chuwa. This was preceded by a short summary of the presentations and events from the previous day.

### **7.0 Oral presentations**

- Befrina Igulu: Impact of Urbanizing Watershed on Flood: Case Study of Msimbazi Catchment Dar es Salaam.
- Daniel Clare & Antonio Sanchez: Environmental Hazards: Advanced Acoustic Monitoring and Analysis by RSK Acoustics & RSK East Africa.
- Ernest Mulaya: Building Landslide Resilience in Tanzania: A Lesson Learnt from the Hanang Catastrophic Event.
- Mwadawa K. Gwebe: Deforestation and Changes in Land Use and Cover Caused by the Artisanal and Small-Scale Mining in the Biharamulo Forest Reserve, Tanzania.
- Elisante Mshiu TGSMC: Reporting Code for Artisanal and Small-Scale Mining (ASM/SSM) in Tanzania.

### **8.0 Panel Discussion: Geoparks, Geohazards and Environmental Conservation.**

The presentations were followed by panel discussion chaired by Ernest Mulaya with panelists from Daniel Clare & Antonio Sanchez from RSK Acoustics, Mr Amogola Maurice from Umoja Conservation Trust, Mr Amir Kiwanda the Chief Executive Officer of AfriGaurd Risk Solutions, Dr. Crispin Kinabo a Representative from the Department of Geosciences, UDSM and Dr. Befrina Igulu from National Environment Management Council (NEMC) - Tanzania. The topic for panel discussion was Geoparks, Geohazards And Environmental Conservation.

Question to Dr. Kinabo on what should be then solution and mitigation measures on the issue of geohazards and effect from climate change. He responded by saying climate change indeed affects the occurrence of geohazards specifically the rise of temperature and sea level causing drought and floods. The way forward is combating climate change. He also suggested the use of bioleaching processing plants like the kasese plant in Uganda as an environmental strategy in mining.

Engineer Befrina commented that there need to be appropriate policies and they need to be implemented.

Daniel Clare & Antonio Sanchez were asked on how they plan on launching their system for detecting and monitoring landslides. They responded by saying they want to educate people on how to use the system and give them a capability to stand on their own in case of geohazards. Compared to loss of life, the costs from it is almost invaluable.

Dr. Kinabo also gave a caution to the infrastructures like the SGR train and the DRT “Mwendokasi” that are built in geohazard prone zones. These need to be corrected for all the geotechnical issues that need to avoid further disasters.

#### **9.0 Second round of Oral presentations**

- Janeth J. Kimario: Factors Controlling the Rate of Movement of the Shifting Sand, Ngorongoro-Lengai Geopark, Tanzania
- Mwakajumba Hobokela: Calcite Scaling Potential in the Songwe Geothermal Prospect, Southwest Tanzania.
- Mwita S. Maswi: Geochemical Mapping and Geo-Health- Concept, Principle and Application.
- Julius K. Dallu: Improving Community Livelihoods through Improved Availability of Water Resources in Semi-Arid Areas.

#### **10.0 Panel Discussion: The Role of Water in Livelihood Improvement.**

The presentations were followed by panel discussion chaired by Jumanne Mpemba with panelists Geo. Amos S. Magige a Senior Hydrogeologist at GGM, Geo. Emmanuel Kisendi from Lake Victoria Basin Water Board, Mwanza, Mr Athumani Ramadhani a hydrogeologist from Lake Tanganyika basin and Miss Mwanamkoma, a hydrogeologist. The topic for panel discussion was The Role of Water In Livelihood Improvement.

Question to Mr. Kisendi on if the water basins were aware of the surface and ground water resource in the country. He replied by stating that there currently are nine inland water basins in the country with a total 126 billion meter cubic volume of water where 104 billion is surface water and the rest is underground water.

Question to Mr. Athumani was how is equitable distribution of the water resource contribute to people’s livelihood nationally. He responded by saying that since the resources are unequally

distributed geographically, some places at a greater advantage than others. The ministry works to help the less advantaged areas enjoy the benefits that the rest of the areas are by reaching such areas by tapping water to them. The vision is that by 2025 at least 85% of rural areas and 95% of urban areas have access to water.

Question to one of the panelists how does NAWAPO address livelihood of vulnerable groups such as small-scale farmers. The response was that NAWAPO's objective is to develop a comprehensive framework of sustainable resource. This is by ensuring a clean water availability within every 400 meters. Also, an integrated water resource is implemented.

Question to Mr. Amos on what is the role of water in mining operations. His response was that mines use water in their production activities and also their social activities. In GGM for instance water is useful in ore treatment and by camp inhibitors. Currently 20 to 25 thousand cubic meters are used daily.

***Questions from the audience.***

To the hydrogeologists, do we have data that states what specific mines contribute to groundwater pollution? It was responded by stating that the data exists but it cannot be disclosed. The large scale miners follow the environmental policy for ground water preservation. The small scale miners are the ones not following water preservation schemes.

To the panel, how is the water challenges from urbanization are being combated? The response to it was that although the citizens are still resilient and difficult to monitor, the prescribed length of wells was 15 meters and above and permits that go hand in hand with some follow up ground water surveys are done for such cases. The ministry has not accepted defeat and it will continue to monitor the country's water resource's sustainability

To the panel, how close is the percentage intended for 2025 vision attained? It was answered by stating the vision was yet to be attained but efforts are still being done to ensure 28 cities and 900 wells are currently being dug. The movement is still ongoing.

**11.0 Third round of Presentation Session.**

- Japhet Fungo Application of Principal Component Analysis (PCA) in Remote Sensing for Mapping REE-Bearing Carbonatites: A Case Study of the Sangu-Ikola Carbonatites South-western Tanzania.
- He used ASTER and DEM data to map the area's structural and lithological occurrence with the PCA as a multivariate tool isolating spectral features of one mineral from the

other. His results identify the mineralized calcific and dolomitic zones but this is still in progress. The challenge was the complexity of distinguishing ambiguous mineral signatures from PCA.

- Gerald Chuwa Lithomagnetic Domains and Metallogenic Zones in the Karagwe Ankolean Belt of Northwestern Tanzania: Insights from On-going Regional-scale Aeromagnetic and Gravity Data Interpretation.
- He used aeromagnetic maps and gravity results from satellites to study the structural orientations of and to see the depth extension of the granites. His results showed the dominant minerals in the eastern, the lineaments central and western parts being gold, nickel-copper and tin-tungsten with a model summarizing this system still in progress.

One of the questions from the audience was how was it possible to encounter lithium from the s-type granites. He very clearly answered by saying that it all depends on the mineralization phase the hosting granites was from.

Day 2 ended at 18:35Hrs

## **DAY THREE, 6<sup>th</sup> December 2024**

Day Two started at 9:35am

### **12.0 Oral Presentations**

- Hulda Mangachi: Overview of the Petroleum Industry in Tanzania.
- Oras J. Mkinga: Petrophysical Identification and Characterization of Cenozoic Hydrocarbon Reservoir Zones at the R field, Northern Rovuma Basin, Tanzania.
- Wangese M. Misiwa: Hydrocarbon Potential for Mandawa Salt Basin the sedimentary sequence ranging from cretaceous to Jurassic with various lithologies.
- Mr. Maarifa: Prospectng potential geothermal resources through mapping of surface hydrothermal alteration minerals.

### **13.0 Panel Discussion: Contribution of The Petroleum Industry in Energy Transition**

The presentations were followed by panel discussion chaired by Desmond Risso with panelists Mr. Paschal Njiko the Director of Exploration, Development and Production from TPDC, Geo. Abdulsatari Maulid Salim from the Ministry of Water, Energy and Minerals - Zanzibar, Dr. Oras Mkinga, Representative from the Department of Petroleum Science and Engineering, UDSM and Geo. Shigela Malosha the Director of Contracting and Licencing, PURA. The topic for panel discussion was Contribution of The Petroleum Industry in Energy Transition.

Question to Dr. Shaibu: In the shift to new cleaner energy, a strategy to phase out and phase down petroleum resource and net zero emission, are we prepared to transition? His answer was, in a global perspective abandoning fossil fuel into renewable energy, the agenda of energy transition can't move all the countries in the same pace. The energy mix of developing countries, their building blocks and major contributors are fossil fuels and dependable unlike natural gas like Tanzania. The demand for oil and gas will still persist at least up to 2050.

Tanzania is doing it best. There is natural gas which is a cleaner fossil fuel. The country understands the global agenda but will not at the same pace as the rest of the countries. The issue being energy security for the nation first.

Question to Pura being responsible in petroleum resources, what should happen on what we have now towards an advantage in energy transition? The response was that the country has discovered natural gas and we have to move with the transition. Natural gas in the country contributing to a less emission compared to other fossil fuels. We are lucky that natural gas is

classified in the less emissive fuels. In the transitions, there are required efforts. PURA is working hard in investing more exploration and develop it not leaving behind buried resources in the subsurface. We still have to focus in energy mix. We are to invest in renewable energy, apply technology to make discoveries. Monitoring companies, international ones on how they are exploring.

Question to Dr. Oras Mkinga, what is happening in academia in respect to how technology will help the global call of net zero emission? His answer was in the University of Dar es salaam a lot of research and projects are being done. For instance two years ago a student project to install detectors for gas emissions to reduce the emissions and make it safer to the user's environment. Last year a mater's student evaluated how much carbon dioxide a reservoir can store and more research is being done on various candidate geological systems.

In the country natural gas using vehicles are being introduced converting the normal petrol engines and one of the stations is being constructed in the university of Dar es Salaam. TPDC with the government have distributed natural gas around the campus. So research for power efficiency tools and development of energy saving with less emission is being done.

Question to TPDC, companies have also tried to move to this transition, are there any plans into venturing into new commercial portfolios? The response was TPDC according to the law has a mandate to commercially control this. The individual companies have been removing oil into energy from their tittles so they are beginning to invest into wind energy which is renewable. Our ambition as a technical arm is the trend and opportunity and ambition in a long term have seen a need to venturing but this cannot happen without influencing policy makers as they control what happens. It is a good time to see if we can build on the expertise. One of the reasons is securing energy security and another could be to obtain revenue.

Question to Mr. Mkenyeri, the call for transitioning has stricter petroleum industry policy. How will you manage the petroleum upstream operations ? his response was it is the role of PURA to encourage the government to continue with exploration. But these exploration and strategies operations have to comply with technologies that comply with reducing emission of carbon, some technologies being de-carbonization. And influence investors to use these technologies like carbon capture. Setting up framework and enforcement mechanism to ensure sustainable exploitation and affordable and sustainable energy.

Question to panel, from the developing countries a lot of academic institutions are phasing out petroleum courses out and of our responsibilities is to teach the younger generation to not only inherit knowledge but also transition with the world to renewable energy. So what is the take from academia? The response was the petroleum programs are not phased out but being renamed and transformed to allow unlimited collaboration from various institutions in the government. Giving students on personal capacity to do energy mix and do environmental friendly activities. Petroleum industry won't change any time soon so to be cleaner and less emissive is the goal.

***Questions from the audience.***

Previously coal was said to be environmental unfriendly but now that we are exporting the same countries are buying it. So how should listening to them be an answer to us while these energies were going to help our nation grow and opting to suffer and make green energy. It was answered by Shahidu who said the transition from fossil fuels is anchored at the consumer's taste, the business and policies around and lastly technology and services. Say If fossil fuel using cars are no longer produced, we will forcibly have to move. But coal should be our Tanzania's energy source until the deposit is over.

Is there a way to improve the rate of distribution of gas in households ? the response was the songosongo and msimbati gas is not LPG, which cannot be packed into same LPG cylinders, so delivering modality is hard. The cost issues, the regions with installation is government sponsored as it is expensive. The challenge is in terms of cost and overall infrastructure. Also the natural gas is not of surplus, and everything being produced is consumed. Consumption being almost equal to production. The gas from next year will probably increase in production and so cover demand.

How will PURA and TPDC mediate over scramble between energy resources that share the same system? The response from PURA was since these resources belong to the government with different bodies responsible to regulate them. The best thing is to have collaboration and sharing modalities to ensure there is no overlap of the resources.

What is the national agenda for sustainability for oil and gas? What is the carbon footprint of the oil and gas sector? Could we have strategic engagements, plans and policies? The answer was, the agenda is divided into upstream and downstream. The agenda are there on upstream to explore and develop our resources. Downstream agenda is to look for cleaner sources of energy for instance the natural gas which is relatively very clean compared to coal. For the carbon

footprint, in 2022 we had 17.5 million tons of carbon dioxide emissions. With 38percent from the industries.

Is there a way to set aside for exploration blocks for only Tanzanians ? Tanzanians participation with exploration has no current specific mechanism. It's now open to all. There is the national oil company with five blocks doing exploitation.

To all the panelist, how AI is it being incorporated into the exploration on these challenges and how much funding do we get from PURA, TPDC and the industry to spearhead these study? Is it difficult to get funds? The response was, for funding, no funds are being received from government. The companies like Equinor are the sponsors. In response to AI some students are working in this.

#### ***14.0 CLOSING REMARK.***

Welcoming speech to the guest of honor from TGS president.

Mshiu explained briefly to the Guest of Honor a short summary of the conference and the pleasant stay the TGS community had had in Tanga.

With the vision 2050 as citizens and specialists we are responsible to making the vision of strengthening the geological surveys to increase the discovery of newer mines and deposits. Geoscientists are the man resource trained to identify these resources.

A board of geoscientists is therefore of urgent need as it would control poor work ethics from geoscientist both local and international, this board would combat the theft and false data still going on. This board would also help foster the surveys aiming at attaining vision 2030 and 2050. The board would also internationally market the geologist's and also the nation's resource potential. The few geologists who have done this have greatly struggled on their personal efforts. Having this board would help the stop of using external geologists and sending much money on them. The board would attain this vision and the developed countries all around the world has this board and having it is thus necessary.

He thanked the committee and sponsors for helping the accomplishment of the conference. And welcomed the guest of honor to speak to the geoscientists and various members of this conference.



### ***15.0 CLOSING SPEECH FROM GUEST OF HONOUR.***

He gave the speech on behalf of the head of the region Tanga. He recognized professor Evelyn Mbede, president of TGS, Dr, Elisante Mshiu and the secretary of TGS Dr Emanuel kazimoto. He thanked the association for allowing Tanga to host the conference and following the right protocol in doing so.

He claimed to be aware of the discussion done including critical minerals, the geohazards and green energy towards carbon emission reduction and he was sure that these discussions have helped the nation solve some of these issues already. Tanga is enriched with a lot of minerals and he welcomed geoscientists and students to keep going to Tanga for exploration and discovering more minerals for the good of Tanga and Tanzania as whole.

He appreciated Dr. Mshiu and all the specialists ensuring the dos and donts of the industry are being followed and that It is good that the need for a board has risen. As human beings having rules standby and a regulatory board helps crosscheck the human errors and incompetence's to our works.

He urged the sponsored students to please respect the privilege given to them and go grow their careers. He declared the conference closed at 13:30pm.

### ***TGS ANNUAL MEETING***

The TGS annual meeting was officially opened by the TGS President, Elisante Mshiu at 14:30 p.m. with the following agendas:

#### **Meeting Agendas:**

- (a) Opening
- (b) TGRB
- (c) Agreed action points from TGS 2023 AGM
- (d) Revenues and expenditures
- (e) Audit report.
- (f) TGS Journal
- (g) TGS extractive industry solutions.

### ***Agreed action points from TGS 2023 AGM***

TGS Secretary, Emmanuel Kazimoto a recap of last year's agendas whose theme was blue economy. These agendas were as follows:

- a. To advice on the exploration for ground water resources.
- b. TGS would table a proposal on the creation of the geological map of Zanzibar.

TGS was prepared but it was not possible to do. Other consultants like GST were involved.

- c. TGS in collaboration with respective stakeholders to conduct awareness campaigns on both critical and strategic minerals (availability, exploration status and usage).
  - d. TGS to advice the Government on effort to enhance exploration and production of critical and strategic minerals especially the ones required for industrial use.
  - e. TGS to submit advice to the government on application to the extension of continental shelf.
- TGS to grab seabed mining training opportunities. On seabed mining about three members took part in this mapping the TGS treasurer being one of them. TGS Treasurer said of the teaching

she attended was on the deep-sea exploration of deep-sea Sulphide minerals in west south Africa around the mineralization on geothermal veins for about 40 days. Although it's expensive but as a country we ought to do that. It is a way to discover a lot of minerals at once.

f. TGS to oversee strict adherence to professionalism amongst the members. (TGS to advice the Government on curriculum development).

g. TGS finalize establishment of TGRB.

TGS participated and facilitated the meeting between TGS and Ministry of Minerals in Morogoro on participation of TGRB Draft Document.

### ***Expenditures And Revenues.***

TGS treasurer stated that a summary of audited report that will be uploaded on the TGS website.

Of the assets and liabilities there currently are two plots of land in Dodoma that have already been paid for. The TGS administration suggests for one plot as to be an administrative center and another as a training center. Some amount was transferred to TEIS to pay for the pmls in Lugoba and these are also some of TGS assets. Them being worth more than 94 million.

The treasurer also presented a report of the administrative expenditures.

She then showed an audit report with observed risk, one of them being not filling per earner SGL. This year TGS applied for exemption so we it is still at cross roads on what needs to be done.

Another issue is to maintain proper accounting records apart from the bank statement from the treasurer. So moves are being made to make records by an accounting system.

### ***Comments from members***

From TGS President was a comment on the issue of annual fee. It is paid mainly during the conference. So what do be done? The administration made categories of TGS memberships where the member would pay for a series of years or so. These are all moves to have patriotic TGS members. With the ongoing to a long term investment through TEIS and once money is being made there is a need for people who are patriotic and committed to the cause to make sure the resource is being monitored.

Comment from member, he said it is a good strategy, but better promotion and awareness is necessary. How do we promote and show the promotion of this issue? To the groups, TGS can allow installation payment of the fees and allow them to have a period of time to pay.

Comment from member, he said on the issue of numbers, TGS is moving on the right direction. He suggested the TGS members should influence each other to attend the meetings. It should be a measure of one's commitment. The members who haven't paid the fee should be influenced to keep paying.

Comment from member, he said it's like TGS lost track of who its members are. He proposed a technical committee under a secretary that would go to offices with TGS members with contacts and add the members in TGS websites with assigned numbers to keep track and also alert the members to pay. We also can have a research department which would help in communication and market the TGS.

Comment from member, TGS also needs an accounting office that does follow up of the payments. It would make active activities including fees payment.

Comment from member, he suggested that during annual meetings, a large percent is made of academic presentations. Some people are not interested in that. So please focus on TGS issues. We can have a section of upcoming and senior careers presentation and other presentations from TGS say its research and development department showing things done and administered by TGS.

Comment from member, in academics, TGS could have sponsorships so that it grows.

Comment from board member, there is a need to have planner sessions, so everyone goes to what they are interested in.

Comment from Secretary on the benefits of paying the gold membership and silver memberships is the discount of the annual fee. There is other advantages which will be presented on the website.

### ***TGS journal.***

TGS Secretary presented the next agenda which was TGS journal. Initially called JGST. There was a discussion on changing the name and deciding the board of directors. Also the introduction of publishing one issue and of the submitted manuscripts, three papers have been published already so this was an achievement.

TGS Secretary added, as specialists and scientists there is a need to know as of EA there is no journal to publish our knowledge and findings for safe keeping for future generations. So we need to open the journal and wayforward is a need for six manuscripts to make one issue per year.

TGS has ISSN and ISBN and is on the move to get a DOI. TGS needs to submit issues for three consecutive years.

Comment from member, he said the abstracts could be published .

Comment from Secretary was instead of abstracts members could submit manuscripts.

Comment from member, this was a question. As per international journals, there is fees for submission of publication. So does this journal have fees or not?

Answer from TGS president was that for now it's free to motivate members. And the open access papers are usually the ones with payment fee. TGS journal is still at grassroot levels.

### ***TEIS***

TGS Secretary said, last year TEIS was introduced as a TGS company that began 2022 and 2023 it was a registered company. It aims as to be a company that can do various services related to the geoscience field. The motivation was, TGS has a pool of specialists meaning it already have man capital. Sometimes the members may not personally be able to search for clients but under TEIS this can be possible. TGS would also benefit by collecting revenues. TEIS can also use the experienced members to consult and verify its works. There are opportunities for investment and TGS bought its first license under TEIS

TGS president said TEIS can make sure of the wellbeing of TGS members and this is done by opportunities for consultation, investment and training young geos and students. Another opportunity members may be working in institutions where working on a project maybe a conflict of interest so TEIS can carry the name of the project while giving you a portion of revenue. The two plots are on PMLS with dolomites of high grades. This is a profitable mineral whose cost of production is lower than the preceded profit. There is a need for investors among us in TEIS projects who are among TGS. There is a need of about 120 million but only after a clear outline of the business and investment plan.

### ***Comments from Members***

Comment from member, he asked if TEIS registration, has it covered all the requirements of a registered company. Of which TGS Secretary answered, yes it has.

Comment from member, he asked what's the structure of this company and what are its main activities. On the side of investment, TGS may be thinking of large scale investment because it has never done investment. Starting with strategic minerals maybe hard as beginner company so

why not apply on routine minerals like construction and industrial minerals as they need little capital. In minerals like gold high costs with low profits is little. So why not use the members to define say Dar, Morogoro and Dodoma, where the soil has gravel whose capital is way less than the crushers for mining. So why not start with ordinary minerals to achieve experience and later find funding. Also why not do a fundraiser to invite companies and stake holders to collect capital for this institution.

Comment from member, he said he had just found out about TEIS. The awareness of its coverage and all about it should be formally presented and the capital needed should be stated together with a sale of shares.

Comment from member, he said the company has mineral properties but TEIS needs partnership on short term to crush and extract ad blast and then collect capital to buy our own equipment and sponsor ourselves. In Lugoba there are three industries that does processing of dolomitic minerals. So why not mine and take it to them. Find companies with equipment and start being suppliers of this.

Clarification from TGS president on the TEIS administration. When registering TGS administration put as the TEIS leadership as it is still in the infant stages so that ideas are still being collected and start they will be worked on. He also said TGS can have a webinar meeting every quarter to do these timely meetings.

### ***ANNUAL CONFERENCE 2025***

TGS Secretary congratulated all for making this year's conference happen. So he asked the members to suggest the next conference location.

The suggestions from many members fell on Mbeya with the following reasons. To cover that side of the region and there is also geosites to visit like the Rungwe volcanics and Mbozi. It also has an animal park, and it is close to Mbozi and lake Rukwa although it is extremely cold. Of the many attractions of Mbeya is carbonatites and limestones and building material and so much more. Mbeya as there is carbon dioxide trapping. Another member suggested Kilimanjaro Moshi. To even visit Mount Kilimanjaro and it is also a clearly a nice place. There is also tourist attraction. Another member suggested Kigoma. Another member suggested TGS should have a base for these meetings like say Mwanza or any region chosen. It would help cut costs and ease the preparation of the meeting. Another member suggested Zanzibar. Another member suggested Arusha.

By vote Mbeya won as the next TGS venue.

***TGRB updates.***

Presented by a representative from the ministry: TGRB is under the ministry of mines and finance and instructed by it, he gave updates in the meeting and a summary of what has gone on.

TGS presented a proposal and write up to the cabinet secretariat and they will give their comment and it was submitted thrice. They gave corrections from the first two submissions and on the third gave a go ahead.

The name agreed upon is geoscience as it would accommodate people in water, Geotech, geophysics, palynology and all associated fields.

He said the root of why a board is needed was not clear, but it was later clearly defined.

Another concern is the source of revenue to the board are not sustainable and this TGS needs to think of other sources of funds and since it will be fostered under the government TGS needs to make new sources of income so that it's not a new government liability.

TGS president suggested consulting companies doing geological activities could be a source of fees.

Comment from member was why not copy from other boards what their sources of income are.

Comment from member was we can make an annual fee for the new companies to support this board.

Comment from member was TGS can make a verification fee on the consultancy companies. And also large foreign companies should also give a fee.

Comment from member was funds from TEIS can also contribute.

Comment from member was that there need be a financial analysis to have the entire expenditure analysis. A good financial analysis will verify and justify all these sources of funds' feasibility. Member from ministry replied that an estimation of the board and expenditures has already been done. The ministry is also avoiding changes in some other laws like forcing a company from paying these fees for the geological boards.

Comment from member was that the forty people in the board is too large. Why is there such a great number. TGS president answered saying these members have been defined by the government.

## ***AOB***

TGS president congratulated the academia industry and abstract submissions together with young geos presentations.

Comment from member was why not make the TGS annual meeting early on the conference to have more participants.

Comment from member was the Umoja trust members propose for a cooperation between TGS and Umoja trust and maybe partner and do business with them.

Comment from member was on reduction of the days spent on the conference due to interruption with working members.

Comment from member was on permanent location of TGS. This could cut down on costs and focus on the construction projects. Reduce presentation time and have an early closing of the sessions. Make a TGS slogan and motto. Be strict on the attendance of the conference.

## **Resolutions 2024/2025**

First TGS conferences and meetings. The documents for meetings will be presented seven days before the meetings.

On TEIS awareness, the TGS administration will give more information and advertise TEIS a lot more.

On TEIS, the members allowed the administration to look for partnership companies in these activities.

On TGRB the TGS leadership could make more research on how the other national boards go about their activities

Meeting closed.