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# Enhancing Geoscience Awareness through Educational Outreach: Programmes for Namibian Learners and Educators

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**Abstract** :- This report highlights geoscience outreach efforts by the Geoinformation Division of the Geological Survey of Namibia (GSN), focusing on initiatives to align geoscience topics with current school curricula and inspire learners and educators with the importance of geoscience. In 2024, Regional Geoscience Outreach Programmes in the Kunene and Omusati Regions engaged over 2 500 learners, while Geoscience Teachers' Workshops in the //Karas and Erongo Regions involved 17 educators and 500 learners (teachers). These programmes were based on presenting practical applications of geoscience, with the intention to foster interest in science concepts and provide career guidance in the field of geoscience. Through interactive activities at schools and educator-focused workshops, these initiatives demonstrated means for geoscience to bridge the gap between science and classroom learning, and its practical application.

**Keywords** :- Geoscience education, Outreach

## Introduction

Namibia's abundant natural resources emphasise the vital role of geoscience in societal development. However, awareness of geoscience and its practical applications remains limited among learners as well as educators. This is partly due to the fact that geo (or earth) science is not explicitly included in the Namibian school curriculum or in teacher training programmes - a trend seen in many countries worldwide.

To bridge the gap in geoscience education, integrating geoscience into existing curricula through innovative teaching approaches is essential. This strategy, when applied creatively, has the advantage not only of aligning with current educational curricula, but also of helping learners to connect theoretical concepts to real-world applications. During the last decade, but especially over the last few years, the GSN Geoinformation Division has taken significant steps in this direction by implementing outreach programmes in Windhoek and throughout the country that emphasise geoscience applications, inspire enthusiasm for science in general, and hopefully result in novel ways of interaction between 'geoscience-educated' teachers and their pupils (Mocke and Mhopjeni, 2020; Uushona and Hipangwa, 2024).

## Geoscience outreach programmes

Two key initiatives were conducted in 2024, i. e. the Regional Geoscience Outreach Programme and Geoscience Teachers' Workshops. Specifically, these projects targeted learners and educators in the Kunene, Omusati, //Karas, and Erongo Regions, aiming to enhance geoscience literacy and teaching capacity both among students and educators.

### Regional Geoscience Outreach Programme

This initiative reached over 2 500 learners from Grades 8 to 12 in sixteen schools across the Kunene and Omusati Regions of north-western Namibia. Learners explored fundamental geoscience topics, such as rock classification, the rock cycle and mineral identification, with special focus on the practical usages of specific rocks and minerals in everyday life (Fig. 1). Included in the agenda were also career guidance sessions intended to generate and expand learners' awareness of job opportunities in geoscience and related fields (Fig. 2).

**Figure 1**. Josephine (GSN) showing and describing different types of rocks and minerals during the regional geoscience outreach programme at Otjerunda Combined School, Kunene Region

**Figure 2**. Josephine explaining different geoscience disciplines and career opportunities at John Pandeni Combined School, Omusati Region

**Geoscience Teachers' Workshops**

Jointly organised by the Geological Survey of Namibia and the GeoBus initiative of the University of St Andrews, Scotland, these workshops aim to equip educators with innovative teaching techniques in the field of geoscience (Fig. 3). Following the success of a similar workshop during the 29th Colloquium of African Geology held in Windhoek in 2023 (Uushona and Hipangwa, 2024), the initiative extended its reach to regional educators, focusing on teachers from //Karas and Erongo. The workshops also included learners and outreach-focused students of the University of Namibia (UNAM) based in Keetmanshoop. Topics covered included plate tectonics, earthquake monitoring, volcanic activity and fluvial processes. Interactive activities, such as modelling earthquake-resistant structures (Fig. 4) and demonstrating geological processes by using easy to come by, inexpensive materials (e. g. cookies, backing flour, effervescent tablets, food colourant, glue) made geoscience concepts accessible and exciting.


**Figure 3**. Lyn from GeoBus, giving a lecture on seafloor spreading during the geoscience teachers workshop at the University of Namibia (UNAM) Geology Department, Keetmanshoop, //Karas Region

## Key Learnings

**Regional Geoscience Outreach Programme**

The outreach programmes demonstrated the importance of aligning content with school curricula to ensure relevance and engagement. Incorporating relatable, real-world examples of geoscience applications engendered interest and created a positive attitude towards learning. Additionally, discussing regional resources, such as local mineral occurrences and mining operations, instilled a sense of ownership and responsibility among students. Interactive teaching techniques, in tandem with the use of comprehensible, non-academic language, and a conducive learning environment, encouraged active participation. Familiarity with Grades 8 to 11 curricula ensured further that the outreach activities were relevant to students' educational needs, while career guidance sessions provided insights into geoscience pathways.

**Figure 4**. Teachers from PK Devillers Secondary School (//Karas Region) participating in the interactive session of building an earthquake-resistant structure

**Geoscience Teachers' Workshops**

The teachers' workshops emphasised the advisability of scheduling sessions during mid-term breaks to ensure teacher availability and minimise conflicts with curriculum delivery. Distribution of educational materials and certificates of completion was designed to enhance the professional development of the participants, serving at the same time as an added incentive for enrolment. Practical exercises promoted critical thinking and improved comprehension, while career guidance discussions highlighted the potential of geoscience as a career field for students.

## Recommendations

To heighten the impact of future programmes, the development and distribution of educational kits containing such item as rock samples, minerals and basic testing tools, which could be loaned or donated to schools, is envisaged. Collaboration with institutions like the Namibia University of Science and Technology (NUST) could provide simple laboratory equipment for under-resourced schools lacking the funds to invest in such items. Hands-on, practical sessions in smaller groups would allow deeper engagement with geoscience concepts and students for a more satisfactory learning experience. And lastly, the dissemination of promotional materials, such as pamphlets, would enhance the overall experience, as well as serve as an advertisement for future events, while providing refreshments will help to create a positive, eager learning environment.

The incorporation of short field trips into future workshops would reinforce theoretical concepts with real-world, personal observations. But expanding the programme's reach and scope requires additional financial resources and fostering partnerships with local institutions to develop and distribute teaching aids. By addressing these recommendations and working towards their realisation, GSN geoscience outreach will continue to inspire learners and educators, and bridge the gap between classroom learning and 'real-life', while promoting geoscience as a vital and vibrant discipline at Namibian schools.

## References

Mocke, H. and Mhopjeni. K. 2020. Twelve years of outreach at the Geological Survey of Namibia. *Communications of the Geological Survey of Namibia*, **22**, 116-134.

Uushona, J. and Hipangwa, M. 2024. Geoscience education in the classroom – a case study of the first Namibian Teachers' Workshop. *Communications of the Geological Survey of Namibia,* **27***,* 110-114.