

## EDITORIAL

# Editorial for *Advances in Geological and Geotechnical Engineering Research*: Vol. 5 Issue 4 (2023)

Amin Beiranvand Pour 

*Institute of Oceanography and Environment (INOS), Universiti Malaysia Terengganu (UMT), Kuala Nerus, Terengganu, 21030, Malaysia*

## 1. Introduction

The scope of *Advances in Geological and Geotechnical Engineering Research* journal covers a variety of geology and environmental earth sciences. This journal is preparing to rivet a diversity of research and support the Earth in the imminent future. The achievements of articles presented in this volume are summarized in the following section.

## 2. Summary of paper presented in Vol. 5, Issue 4 (2023)

Rasouli and Vaseashta <sup>[1]</sup> studied groundwater quality assessment in Pul-e-Charkhi region, Kabul, Afghanistan for different types of usage, such as

drinking water, agriculture, and industries. The study presented the assessment of groundwater quality observed on several water samples taken from water supply sources in the Pul-e-Charkhi region, which is located near the eastern part of Kabul and has seen steady growth in population after the U.S. military left Afghanistan. The Pul-e-Charkhi region has experienced momentous industrial growth ranging from pharmaceuticals, metals, auto-repair, construction, and even bakeries—all producing CO and CO<sub>2</sub> emissions as well as a mixture of waste discharge in the water basin including micro/nano plastics, metals, volatile organic compounds, and new and emerging contaminants. The contaminants in groundwater were determined to observe what restrictions might pose for recycling and reusing. The samples were

### \*CORRESPONDING AUTHOR:

Amin Beiranvand Pour, Institute of Oceanography and Environment (INOS), Universiti Malaysia Terengganu (UMT), Kuala Nerus, Terengganu, 21030, Malaysia; Email: [beiranvand.amin80@gmail.com](mailto:beiranvand.amin80@gmail.com)

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analyzed for temperature, electro-conductivity, dissolved oxygen, total dissolved solids, salinity, pH, color, turbidity, hardness, chemicals, and heavy metals. The groundwater samples and parameters showed virtuous results with national and international standards, indicating that water can be recycled using standard coagulation, flocculation, and bleaching methods.

Oborie et al. <sup>[2]</sup> integrated GIS with the Generalized reciprocal method (GRM) for determining foundation bearing capacity in Opolo, Yenagoa Bayelsa State, Nigeria. The study utilized Geographic Information System (GIS) with the Generalized Reciprocal Method (GRM) for construction planning in the region. The near-surface seismic refraction surveys were conducted along three designated lines, utilizing ABEM Terraloc Mark 6 equipment, Easy Refract, and ArcGIS 10.4.1 software. Key geotechnical parameters essential for soil characterization at potential foundation sites were determined using the methodology. Three different geoseismic layers were identified, including (1) the uppermost layer, within a depth of 0.89 to 1.50 meters, exhibited inadequate compressional and shear wave velocities, (2) the second layer (1.52 to 3.84 m depth) displayed favorable geotechnical parameters, making it suitable for various construction loads, (3) the third layer (15.00 to 26.05 m depth) exhibited varying characteristics. The GIS analysis emphasized the unsuitability of the uppermost layer for construction, while the second and third layers were found to be fairly competent and suitable for shallow footing and foundation design. The results highlighted the variations in soil competence in the study area, which can guide site selection for specific projects and inform decisions about foundation types and construction techniques.

Yin et al. <sup>[3]</sup> identified the origin of the Dashuigou independent tellurium deposit at the southeastern Qinghai-Tibet plateau based on the abundance of trace elements in the country rocks. Abundances of the main ore-forming elements such as Te, Bi, As, Se, Au, and Ag are not high in the regional geological background, normally lower or close to their respective crustal Clark values, but almost all altered

country rocks contain high levels of ore-forming elements. This designates that the deposit's ore-forming elements do not come from the country rocks and the geological thermal events causing alteration and mineralization originated from depths and may be related to mantle plumes. The migration of deep metallogenic elements is not achieved through the diffuse infiltration between particles in the overlying formation rocks, but through non-widely distributed concentrated penetrating faults, such as the intersection of two groups of faults in different directions, or the expansion structure formed by the intersection of linear and circular structures. Existing geophysical, geological and geochemical maps show that the study area is located on the edge of an extremely active crust and upper mantle in the Qinghai-Tibet plateau. Geological structures including deep and large lithospheric faults are well developed in this zone. This is a favorable geological background that the ore-forming elements such as tellurium were enriched in the upper mantle through nano-effects and then intruded along deep and large faults into appropriate parts of the crust to precipitate the tellurium deposit.

### **3. Concluding remarks**

The considerate and thoughtful comments conveyed by the reviewers enriched each of the papers published in this volume. We would like to express our appreciation to the Editorial Office, all authors and reviewers who contributed their time, research, and speciality for this volume. We hope to receive a variety of manuscripts from different fields in the future.

### **Conflict of Interest**

There is no conflict of interest.

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