

**LITHOLOGICAL CLASSIFICATION OF DIKES
IN THE MALGUZAR MOUNTAINS****Berkinov Nodirbek Alisher ugli**Junior researcher, Institute of mineral resources,
TashkentEmail: nberkinov@gmail.com**Atabayev Javlon Tolliboy ugli**

Junior researcher, Institute of mineral resources, Tashkent

Email: ataboyevjavlon3@gmail.com**Boboyorov Asliddin Akrom ugli**

Junior researcher, Institute of mineral resources, Tashkent

Email: asliddinboboyorov097@gmail.com

Received: June 22, 2024; Accepted: June 29, 2024; Published: July 21, 2024;

Abstract: Objective: This study aims to provide a detailed geological analysis of the Malguzar Mountains, focusing on the lithological classification of dikes, structural features, and mineral resources within the Southern Tien Shan fold system. **Method:** A combination of field observations, petrographic analysis, and geochemical studies were employed to classify the dikes and examine their structural characteristics. The research also involved a comprehensive review of the geological history and mineral potential of the region. **Results:** The Malguzar Mountains are identified as a key structural unit within the Southern Tien Shan fold system, consisting of a large anticlinorium formed by complex Silurian-Devonian rock formations. The study found a diverse range of dike types, with significant variations in composition and mineralization, which have implications for the area's economic geology. **Novelty:** This research is one of the first to systematically classify dikes in the Malguzar Mountains and analyze their role in the broader tectonic context of the Southern Tien Shan. The findings contribute to understanding the geological framework of the region and offer insights into its mineral resource potential, which may aid future exploration efforts.

Keywords: Malguzar Mountains, Southern Tien Shan, Fold system, Anticlinorium, Dikes, Gabbro-diabase, Petrography, Zeravshan-Turkestan zone, Hercynian tectonic stage, Two-layered structure, Turkestan anticline, Titanium-containing ores, Mineral resources

This is an open-access article under the [CC-BY 4.0](https://creativecommons.org/licenses/by/4.0/) license**Introduction**

The Malguzar Mountains are part of the Southern Tien Shan fold system and serve as a connecting link between the Turkestan-Alay and Nurata mountain ranges.

Structurally, the Malguzar Mountains represent a large anticlinorium with a core composed of complex Silurian-Devonian formations. These formations consist of Paleozoic sedimentary-metamorphic rocks (Lower, Middle, and Upper Silurian, Lower Devonian) and various magmatic rocks of differing compositions and ages (Figure 1).

Earlier geological surveys and studies in the Malguzar Mountains primarily focused on searching for mercury, polymetallic deposits, and rare metals. Gold exploration, however, was almost non-existent, despite the presence of both direct and indirect indicators of gold

mineralization. One such indicator is the occurrence of gold in placer deposits and primary sources. Geochemical sampling has revealed arsenic and gold dispersion halos.

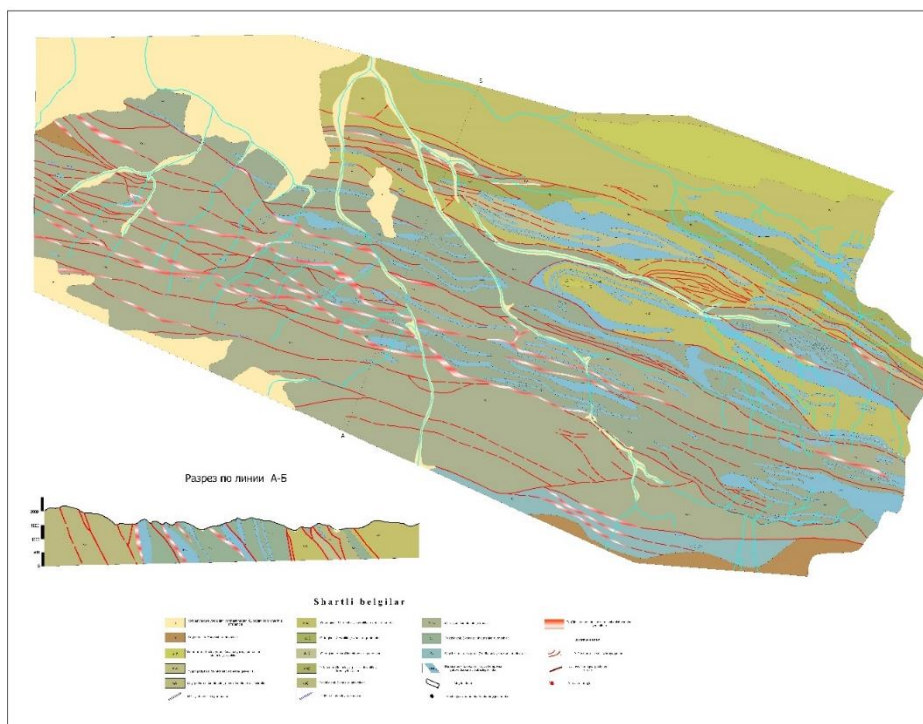


Figure 1. Eastern Part of the Malguzar Mountains

The geological structure of the studied area includes sedimentary-metamorphic and igneous formations of Paleozoic and Cenozoic groups.

The Paleozoic system comprises terrigenous, terrigenous-carbonate, and carbonate rocks of Cambrian, Ordovician, Silurian, and Devonian ages. The Cenozoic system is represented by Quaternary deposits, which are widely distributed along the valleys of the Ismani and Urukli rivers and their tributaries. In watershed areas, these deposits have been preserved as thin and limited cover layers. The Quaternary system consists of conglomerates, gravel, sandy-clay sediments, and loess-like silts, with thicknesses reaching 40–50 meters.

The study area features prominent intrusions of the Malguzar diabase-diorite-granitoid complex. In the Ismani and Urukli river basins, over 70 dike bodies are spread across 29 km². The dikes of basic rocks typically form exposed rocky relief. These bodies vary significantly in size and extent. Smaller dikes are 10–15 meters thick and slightly longer in length, while larger bodies reach thicknesses of 100–200 meters and extend over 15 km. A characteristic feature of nearly all dikes is their parallel alignment with both each other and the fold structures. An exception is a dike on the eastern flank of Aiksai (the left tributary of the Ismani River), which forms a ring structure. In addition to dikes, small stock-like bodies are also noted. The morphology and petrographic composition of these bodies indicate complex structures. The marginal parts of large bodies and small intrusions are composed of fine-grained to aphanitic diabase, while the central parts of large dikes and stocks are represented by medium- to coarse-grained gabbro-diabase, differing from the edges by the consistent presence of quartz and potassium feldspar. In rare dikes, coarse-grained gabbro and diabase porphyrites or diorites are observed.

Methods

This research study employs a qualitative technique to provide comprehensive, contextualized insights into the human resource management difficulties confronting tourism enterprises in Iraq. Qualitative approaches are consistent with the examination of complicated

phenomena within specific real-world situations, Price. This methodology can capture industry viewpoints in participants voices using flexible, discovery-oriented methods.

Tourism is an activity offered by people and is a sector where productivity tends to be low and increases in tourist activities lead to the creation of new jobs. Despite progress in the reorganization of the production process of tourist services, accelerated by the application of new technologies, opportunities for additional and better and more diverse professions can be expected, especially in countries with potential but a less developed tourism sector.

Most countries are well developed in terms of tourism-related businesses and should be able to cope with future challenges. Nevertheless, there is still room for improvement to overcome the constraints that often prevent tourism-related businesses in many countries, especially UBBs, from taking advantage of these market-favorable perspectives. These include:

- a. Insufficient strategic information on tourist demand and its operational use.
- b. Inadequate use of qualitative quality control and management techniques in tourist service production, marketing, and provision.
- c. Insufficient recognition of Europe's diverse attractions as potential sources for new products and destinations.
- d. Meeting tourists' increasing demand for personalized, high-quality tourism services is often difficult as some tourism sectors lack qualified personnel and often suffer as a result of a shortage of high-class personnel due to the unattractive nature of the tourism working environment, Piwowar-Sulej.

Due to the low barrier to entry for tourism entrepreneurship, microbusinesses (those with fewer than ten employees) dominate the sector. Some business owner-managers have serious deficiencies in management skills, especially financial management and human resources management. This affects the survival of small tourism businesses as well as their capacity to offer an attractive career package to ambitious staff.

Global research has identified significant issues with recruiting and skill gaps within tourist organizations, particularly in filling technical roles, managerial positions, and new digitally-oriented occupations [6]. Unfavorable career perspectives, job insecurity, a scarcity of skilled recruits, and a failing training infrastructure are among the reasons, Parsons et al. This manifests as difficulties in attracting and retaining people, as well as a reduction in service quality.

Braun and Clarke's, approach is used to evaluate data inductively through thematic analysis. Interview transcripts were thoroughly reviewed to find code-capturing components pertinent to the research question. Related codes were cross-referenced, checked for redundancy, and organized into coherent groups. These categories were then consolidated into broad themes indicating important HRM challenge areas using a synthesis of the gathered material. The investigation aims to extract significant problem characteristics directly from participant narratives. Several measures improved analytic rigor, including peer debriefing on new discoveries and establishing an audit trail that documents crucial decisions, Byrnes.

Results and Discussion

In the general tectonic zoning scheme, the study area belongs to the Zeravshan-Turkestan structural-formational zone of the Southern Tien Shan fold system.

The formation of this zone concluded during the Hercynian tectonic stage in the Late Paleozoic. During the Alpine tectonic stage, the zone experienced only minor oscillations, resulting in the accumulation of thin Paleogene and Neogene deposits (outside the study area).

In terms of sedimentation, magmatism, and tectonic development, the zone exhibits a two-layered structure with a folded basement and a sedimentary cover. The basement consists of thick, typically geosynclinal sedimentary-metamorphic formations of the Paleozoic, while the sedimentary cover is composed of loose Cenozoic deposits. The upper structural layer deposits have little impact on the overall structural setting of the area, so only the structures of the lower Paleozoic layer are considered here.

The primary folded structure of the region is the Turkestan anticline. The study area represents its northern flank, which is complicated by higher-order folds. These folds trend northwest, and their flanks are disrupted by frequently overturned small folds and northwest-striking faults, the largest being the Archamazarek, Zrybulak, and North-Uruklin faults. The Yulsai and Talynok thrust faults are also briefly described.

Research and scientific investigations in Uzbekistan (by V.V. Baranov, S.S. Semenov, K.T. Tursunov, V.A. Gusev, A.M. Musaev, M.N. Rizaev, and R.G. Yusupov) have proven that titanium-containing ores in the gabbro-diabase rocks of the Malguzar Mountains can be used to produce titanium oxides. These oxides are currently imported for the metallurgical industry. To date, optimal beneficiation technology exceeding "GOST" standards has been developed (M.N. Rizaev, A.M. Musaev, L.K. Demidova). Experimental samples of ferrotitanium, ferrochrome, and pure iron have been successfully produced (Musaev et al., 2016).

Additionally, various researchers (Khamraboev, 1958; Musaev, Gamaleev, and Iskandarov, 1965; Likhoydov, 1965; Baranov, Kromskaya, and Vishnevsky, 1978; Semenov, 1982; Tursunov, 1995) have noted consistent changes in the mineral composition of the gabbro-diabase rocks of the Malguzar complex based on their distribution and placement conditions.

The intrusive magmatism of the area mainly comprises gabbro-diabase rocks forming dikes that penetrate slate formations. These dikes, varying in thickness and distribution area, often create prominent rocky outcrops. Small dikes range from 1.5–10 meters in thickness, while large ones can reach thicknesses of 100–200 meters and lengths of 15–20 km.

Despite the overall parallelism to folded structures, their nature is more typical of dike intrusions rather than stratiform formations. In addition to dikes, small stock-like bodies have also been documented. The morphology and petrographic composition of these bodies highlight their structural complexity. The marginal parts of large bodies and small intrusions are composed of fine-grained diabase to aphanitic diabase, while the central parts of large dikes and stocks consist of medium- to coarse-grained gabbro-diabase, characterized by the nearly constant presence of quartz and potassium feldspar in comparison to the edges.

These magmatic features, genetically associated with intrusive quartz-diabase formations, have also been considered by some (Lavrov, 1964) as large lopolith formations. The age boundaries of these magmatic features are not precisely defined, but it is undoubtedly older than C3-P1 sediments found outside the area.

Previous studies suggest that the gabbro-diabase dikes in the eastern Malguzar Mountains could be developed as a complex deposit containing iron, titanium, vanadium, and scandium resources, supplementing Uzbekistan's raw material base. Therefore, further geological exploration in this area is deemed appropriate.

Conclusion

Fundamental Finding : The tourism industry's success heavily relies on the quality of its employees. The sector faces a significant challenge in recruiting and retaining skilled staff with

proper knowledge and work attitudes, particularly outside larger organizations. **Implication :** Investing in training programs, including on-the-job modules and soft skills development, is essential to enhance employee performance and foster their commitment to the industry. Utilizing engaging training platforms linked to modern HR tools can make these programs more effective. **Limitation :** Despite the focus on training, smaller businesses often lack access to qualified personnel or advanced HR practices, leading to a disparity in employee quality and operational efficiency between large and small organizations. **Future Research :** Further studies should explore innovative HR strategies tailored to small businesses, including scalable training solutions and methods for integrating expertise from other industries into the tourism workforce.

References

- [1] T. Baum, *Managing Human Resources in the European Tourism and Hospitality Industry: A Strategic Approach*, Chapman and Hall, London, 1995.
- [2] T. Baum and E. Szivas, "HRD in tourism: a role for government?" *Tourism Management*, Elsevier, 2007.
- [3] A. C. Abdiyev and A. A. Alimardonov, "Personnel Management in the field of Tourism," *Scientific Progress*, vol. 3, no. 2, pp. 495–501, 2022.
- [4] T. M. Abebe, *Leadstar College of Management and Leadership Graduate Department of Business Administration*, 2020.
- [5] K. T. McCaffrey and M. C. Taha, "Rethinking the digital divide: Smartphones as translanguaging tools among Middle Eastern refugees in New Jersey," *Annals of Anthropological Practice*, vol. 43, no. 2, pp. 26–38, 2019.
- [6] Y. Orphanidou, L. Efthymiou, R. Morphitou, D. Vlachos, M. Papadopoulos, V. Yakavenka, and D. Psilla, "Exploring the skills gap in tourism and hospitality: Towards a new classification of skills, competencies, and attributes," 2023.