GSW73751: Geological investigation of dimensional stone in the Dumka district of Jharkhand at Mandaldih

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Abstract

The Chhotanagpur Granite Gneiss Complex (CGGC) encompasses a diverse range of geological formations and rock types of various ages. Within this area, one can find high grade meta-sediments, gneisses, migmatites, khondalite, leptynite, granulites, and meta-igneous rocks. These formations have been intruded by mafic-ultramafic rocks, gabbro-anorthosite, granite, rapakivi granite, syenite, pegmatite, aplite, and dolerite. Additionally, the region has witnessed the presence of tholeiitic basalts (known as Rajmahal Traps) during different geological periods. The CGGC is characterized by its complex geological structures and the wide variety of rock types it encompasses.

This particular region falls within Block- Saraiyahat, District- Dumka, Jharkhand, with a scale of 1:4,000. The area is situated between the latitude coordinates of 24°35'5.36"N to 24°35'15.22"N and longitude coordinates of 87°02'29.69"E to 87°02'45.02"E. It encompasses a portion of Survey of India Toposheet No. 72-P/2, OSM No. G45V2. The location is approximately 6km southwest of Hansdiha main market and 5km northwest of Saraiyahat main market and block on SH 16. The region's country rock consists of Granitic gneiss, which is primarily composed of Quartz, Feldspar, Garnet, and Biotite. This gneissic rock, found in the area, is characterized by its firmness, compactness, medium to coarse grain size, and light greyish white to pinkish coloration. The prismatic compass and dumpy level with grid pattern method are utilized to survey the investigated area. The coordinates have been accurately marked using a handheld GPS device.

The region benefits from excellent connectivity through State Highway and National Highway roads. Moreover, the area boasts readily available infrastructure facilities and a skilled workforce. The deposit holds immense potential for creating sizable blocks that can be utilized across diverse industries, including Decorative, Dimensional, and Ornamental applications, as well as stone chips in aggregates.

Keywords: Dimensional stone, Geological investigation, Dumka district Jharkhand, Granitic gneiss