CHRACTERISTICS OF MAFIC-ULTRAMAFIC COMPLEX OF ORISSA, INDIA

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Ultramafic and mafic rocks hosting triplex ore deposits crop out along the fringe of the North Orissa craton starting from Similipal in the north to Sukinda in the south through Boula-Nausahi. The litho-assemblages comprises dunite, peridotite, pyroxenite, followed upward by gabbro, anorthosite, and intruded by granophyre and dolerite. These rocks are altered to serpentinite, talc-serpentine, fibrous tremolite-actinolite schist, talc-chlorite schist, steatite-talc schist etc. The rocks are sheared and subjected to polyphase deformations. The ultramafites are syn- to post-kinematic with the basement rocks. The minerals present may be related to three phases of alteration processes namely, (1) serpentinisation, (2) metamorphism and (3) deep weathering. Chromitite with high chrome ore occur with dunite/harzburgite near Boula-Nausahi and Sukinda areas. The chromitite bodies display rhythmic layering comprising of alternate bands of chromite and silicates. Ti-V-magnetite with hogbomite occurrences are located in Boula and south of Sukinda. Magnesite and asbestos have developed along deformational fractures. The presence of prognostic concentration of PGE phases are significant because of their economic potential. The trend of the complex along NE-SW bordering the North Orissa craton implies that the complex might have been emplaced along amajor lineament. Varied petrography and mineralogy besides a host of alteration products are considered to be the result of a tectono-metamorphic event. The geological data lead to the interpretation that the mafic-ultramafic complex is a tectonite, layered and differentiated body developed in an extensional environment, perhaps, a rift in a continental cratonic margin setting.