

## ***Geology of subsheets X of the Yabello map sheet (NB37-14)***

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### **ABSTRACT**

The study area is situated in southern Ethiopia. It is bounded between 4<sup>00</sup>'-4<sup>015</sup>'N latitude and 38<sup>030</sup>'-38<sup>045</sup>'E longitude and covers an area of 750 sq.km. It is covered by Precambrian crystalline basement rocks and Quaternary superficial deposits.

The Precambrian crystalline basement rocks are high-grade, low-grade rocks and syn to post tectonic intrusives. The high-grade rocks comprise banded granulites and granitic gneiss with a trend of NW and NS respectively. They exposed in the western and central part of the area. The low-grade rocks constitute amphibolites and serpentine-talc-tremolite/actinolite schists and found in north eastern and eastern part of the area. Both high-grade and low-grade rocks are intruded by syn to post tectonic intrusives comprising foliated granite/syn-tectonic, late to post-tectonic granites and massive monzonite. They are dominant in the central, eastern and southeastern part of the area. The Quaternary superficial deposits comprise calcrete and soils. They are found in most part of the plain lands.

Four deformational episodes D<sub>1</sub> (early folding), D<sub>2</sub> (gneissic layering), D<sub>3</sub> (open synformal and antiformal regional folding) and D<sub>4</sub> (conjugate strike-slip shear zone) are recognized.

The regional metamorphism had reached upper amphibolite to granulite facies in granitic gneiss and banded granulites respectively (M<sub>1</sub>) and epidote-amphibolite facies and greenschist facies in low-grade rocks (M<sub>2</sub>). Due to the conjugate strike-slip shear zone (D<sub>4</sub>) retrogression of low temperature and low-pressure minerals (M<sub>3</sub>) is observed in both high-grade and low-grade rocks. Contemporaneously with the shearing and uplift intrusion of syn to post tectonic rocks had occurred in the area. Later in Quaternary superficial deposits were deposited due to weathering of the bedrocks, gravity and stream transportation.

Metallic and industrial minerals are found in trace amount, dimension stones from granites and sands are important for construction and of economic importance. The plain lands with fertile red sandy and brown clay soils are important for extensive agriculture in the study area.