Geology and Gold Mineralization Potential of Rocks and Soils in

Butu Area, Paiko Sheet 185 North Western Nigeria

Adamu Adamu HARUNA and Adekola A. ALABI

Geology Department, Federal University of Technology, Minna Nigeria

\*Corresponding Author: hadamu343@gmail.com; +2348076244202

Abstract: Geology and Gold mineralization potential of rocks and soils was carried out in a

17square kilometers area around Butu, Paikoro local government area of Niger state, North

Central Nigeria. A detailed Geological mapping on a scale of 1:25,000 was conducted across

the area alongside the rocks and soils sampling points on systematic grid basis. Results of

geological field mapping reveals four (4) lithological units namely; pegmatite, granite, schist

and gneiss. A total number of 25 soil samples were carefully collected between 40cm to 70cm

depth of B – Horizon on a systematic regional grid basis and 10 were analysed using EDXRF

spectrometer and 4 rock samples were also selected out of 15 and sent to the laboratory for

both EDXRF and EDXRD respectively. The enrichment factor of the elements were

calculated using Taylor and Mclennan published crustal concentration as baseline and the

values revealed shows that both rocks and soils are enriched in Au, Ag and As and depleted

in Cu, Pb and Zn. Correlations between some elements to gold are well significantly

correlated while others are non-significantly correlated. However, some that are best

correlated are noted and will be considered to be the pathfinder elements for gold. The most

noticeable positive element correlated with gold is Au Vs As while the others are Ni, Zn, Th,

Ba and V.

Keywords: Mineralization; Pathfinder; Geology; Correlations; Paikoro