ABSTRACT

The study area is bounded by longitudes 38 0 4ôE to 38 0 20ôE and latitudes 1 0 48ôS to 2 0 8ôS in South Kitui within the Kitui County occupying about 100 Km 2 . This area can be accessed from Nairobi - Thika - Kitui ,Nairobi ï Machakos - Kitui roads, or from Mombasa ï Kibwezi ï Ikutha ï Mutomo road. Mineral deposits in Kenya occur in different geological settings, such a s those associated with Tertiary rocks (Turkana sapphire deposit). Most of the mineral deposits like iron ore located within the Neoproterozoic Mozambique o rogenic b elt have not been properly evaluated in geological and metallogenical context . This work intends to relate , evaluate and scientifically place the geological framework of iron deposits in Mutomo ï Ikutha area of Kitui County, Kenya to the specific events within the litho and tectonothermal evolution of the Mozambique mobile Belt. A thorough inv estigation of the major and minor geological structures as well as metamorphism will be elucidated in the project area on their role in the formation of iron deposits. The establishment and economic and scientific investigation of iron deposits in the stud y area for purposes of mining and wealth creation in the region is of great importance in this research work. The application of the research to exploration and development of artisanal mining in Kenya will be successful in terms of prospecting at the regi onal and scale, by determining the l ithological, geochemical and tectonic controls for the mineralization. The Mozambique Belt has a long and complex history, marked by a succession of major tectonothermal events. This belt runs from Egypt through, Sudan, Ethiopia, Kenya, Uganda, Tanzania and ends in Mozambique. The methods to be used to achieve the aim of this research will include; geological, geochemical and geophysical investigations . Preliminary investigation will be carried out using remote sensed da ta. Laboratory analysis will include X - ray florescence, X - ray defractomet ry, and electron Microprobe . The data obtained will be analyzed using Oasis montaj software, Matlab and any other relevant software. The updated geological and structural maps will be compiled using Arc GIS software. This study is expected to provide comprehensive understanding of the tec to nothermal scenario and its associated economic mineralization in the Mozambique belt.