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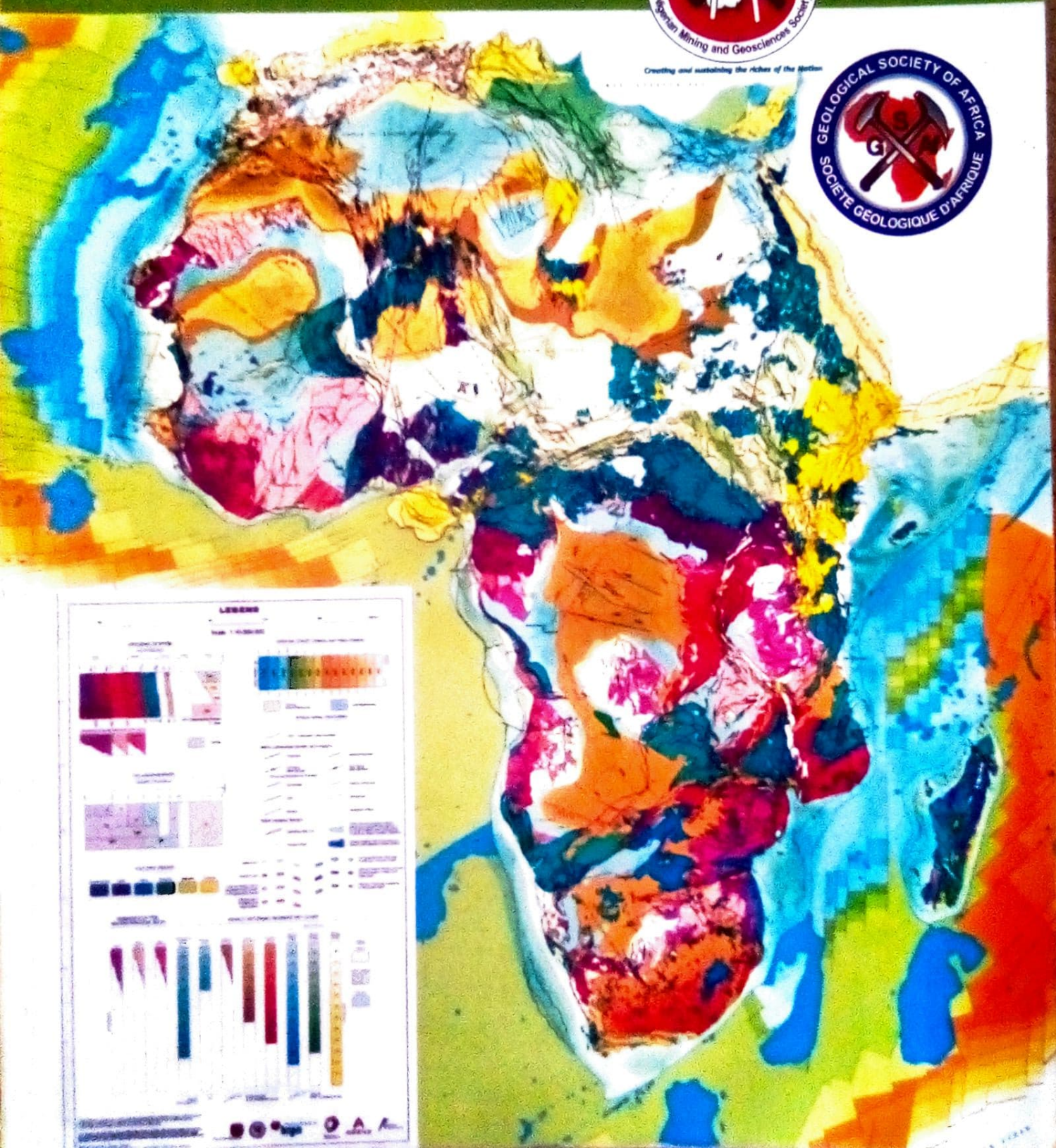
Unlocking Earth Science Potentials for Sustainable Development of Africa



surface conditions which may have adverse effect on the proposed buildings. The survey provides continuous subsurface information and locates geological structures where geotechnical tests such as pit tests and boreholes would probably miss the information. Therefore, it is strongly recommended that the building foundation sites should be selected away from these geologically active zones

Keywords: *Electrical resistivity tomography, Magnetic anomaly, Magnetic method , Inverse model resistivity section*

Gully Erosion as an Impediment to Sustainable Economic Development in Parts of Niger State, North-Central Nigeria

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The menace of gully erosion in parts of Niger State, Nigeria has been studied with a view to identifying the driving geologic mechanisms and socio-economic impact. Preliminary results show that both the basement complex and sedimentary parts of the state are equally vulnerable to erosion due to either deep weathering of crystalline rocks or loose, very friable sediments in parts the Bida Basin. This is further exacerbated by intensive vegetation removal which leaves land surface bare and accelerated runoff. Most of the towns and roads linking them have been found to have been impacted by intense gullying. Damage of infrastructure such as roads, bridges and residential buildings and destruction of arable land affects the agricultural, commercial and tourism potential of the affected areas. This has attendant adverse economic consequences for the state and Nigeria as a whole. Concerted efforts in form of erosion control measures must be made in order to arrest the problem. Channelization of run-off water, together with revegetation and stream bank re-enforcement are some of the measures advanced to minimize the impact of gully erosion in the study area.

Keywords: *Gully, environmental impact, run-off, road failure*

Multidisciplinary Studies of an Open Dumpsite in a Basement Complex Terrain: A Case Study of Gbagede Dumpsite, Ilorin, Southwestern Nigeria

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This study aimed at determining the groundwater flow direction, geotechnical properties and contamination status of Gbagede open dumpsite located west of Ilorin town in SW Nigeria. Geological, hydrogeological, geophysical and geotechnical investigations were carried out. Detailed geological mapping on a scale of 1:12,500was followed by water level inventory around the dump site which led to sampling of twenty (20) water wells for hydrogeological studies. Four (4) soil samples collected from four (4) trial pits were subjected to analyses of grain size determination, Atterberg Limits and permeability test in order to determine their geotechnical properties. Porphyritic granite and granite gneiss that were intruded into by pegmatite form the main rocks of the