Water scarcity in developing countries is one of the main issues that plague our community. In Douala, the local community are obtaining their drinking water from shallow aquifers through hand-dug wells and boreholes. This is commonly observed in Makepé Missoke which had a landfill (dumpsite), and its known to be the most populated locality in Douala; which is housing mainly low-income citizens that live in high- risk flood areas. In this locality, the aquifers can easily be polluted by both natural and anthropogenic activities such as salinization or leachate from landfills.

Water quality assessment is done by analysing water samples obtained in the locality. Geophysical studies are rarely used to investigated aquifer pollution but are mostly used to estimate the depth and thickness of aquifers. The pollution caused by leachate migrating from the landfill to the shallow aquifers was assessed and found to migrate towards the nearby rivers. Integrating geoelectrical and seismo-electrical method is reliable to characterize aquifer thickness, geometry, structure and pollution in coastal environments where leachate migration in a sedimentary basin is observed.

Seismo-electromagnetic method (SEM) generally known as seismo-electric tomography (SET) is a new geophysical method that is used for petroleum exploration (Laboratory experiment) and is not widely used for near-surface exploration such as groundwater exploration and management despite the fact that it is cheap and less time consuming to collect, process and interpret the data. The objective of the study was to characterize the coastal aquifer using SEM, couple with already well known geoelectrical method. During this process low resistivity anomalies were observed, which indicates the presence of leachate, and the hydro-geochemistry of the study area was determined that help to obtained the water quality index which confirms that the shallow aquifers are polluted mainly due to their unconfined nature while deep aquifers (> 60m) are not polluted.

Integrating geoelectrical and seismo-electrical method is reliable to characterize the subsurface and aquifer systems where leachate migration in a sedimentary basin is observed.

***The SEM was carried out using a mobile phone as a receiver instead of a geophone couple with two metal rods as receivers (antennae)***.