

Delineation of Oil - Polluted Sites in Ibeno LGA, Nigeria, Using Microbiological and Physicochemical Characterization

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Abstract : Mobil Producing Nigeria Unlimited (MPNU), a subsidiary of ExxonMobil and the highest crude oil & condensate producer in Nigeria has its operational base and an oil terminal, the Qua Iboe terminal (QIT) located at Ibeno, Nigeria. Other oil companies like Network Exploration and Production Nigeria Ltd, Frontier Oil Ltd; Shell Petroleum Development Company Ltd; Elf Petroleum Nigeria Ltd and Nigerian Agip Energy, a subsidiary of the Italian ENI E&P operate onshore, on the continental shelf and in deep offshore of the Atlantic Ocean, respectively with the coastal waters of Ibeno, Nigeria as the nearest shoreline. This study was designed to delineate the oil-polluted sites in Ibeno, Nigeria using microbiological and physico-chemical characterization of soils, sediments and ground and surface water samples from the study area. Results obtained revealed that there have been significant recent hydrocarbon inputs into this environment as observed from the high counts of hydrocarbonoclastic microorganisms in excess of 1% at all the stations sampled. Moreover, high concentrations of THC, BTEX and heavy metals contents in all the samples analyzed corroborate the high recent crude oil input into the study area. The results also showed that the pollution of the different environmental media sampled were of varying degrees, following the trend: Ground water > surface water > sediments > soils.

Keywords : microbiological characterization, oil-polluted sites, physico-chemical analyses, total hydrocarbon content

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