

Abstract

Vandalisation of petroleum pipelines is a major cause of pipeline fire disasters. However, except the number of deaths recorded, little information of the effects of such disasters on the environment is often reported in developing countries, and post-disaster remediation process is thus usually unmonitored or ineffective. This study investigated the effect of a major pipeline disaster in a rural environment in Nigeria from multi-date satellite imageries (orthophoto map, Landsat Enhanced Thematic Mapper Plus, ETM+ and IKONOS), social and ecological surveys. Results showed that some of the affected settlements were within the pipeline corridor before the disaster, and pipeline vandalisation was encouraged by one or more cases of faulty and exposed pipeline, deficient pipeline monitoring system, sabotage and readily available markets for siphoned oil. Ecological effects include loss of about 200 ha of vegetation resulting into significantly lower woody and herbaceous plant species in the affected regions than the adjacent plots. Significant proportion of the survivors also reported lower quality of groundwater (well water), air and streams, health problems (mainly abdominal pain) after they drank the well water and destruction of their crops and farmlands. The study concluded on the need for enforcement of the right-of-way laws on pipelines in Nigeria.

Keywords

Pipeline explosion, Ecosystem, Perception, Resource management