

Production Asset Protection Using GIS and Remote Sensing Techniques - the Shell Nigeria Experience

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SUMMARY

The magnitude of crude theft in the Nigerian oil rich Niger Delta has reached such an alarming level that a minimum of 150,000 barrels of the national daily crude production are said to be lost to Oil thieves. Curbing the situation has become a national challenge due to the organised international nature of the crime and a nightmare to the Oil companies that lose production (revenues) daily to the crude theft syndicates. Not just that oil is stolen, the act also leaves behind environment destruction and degradation that sometimes result in major oil spills, avoidable pipeline repairs and crude supply deferment and force majeure. As a major player and having suffered a lot of asset/revenue loss with attendant disruption of production activities, SPDC decided to explore technology solutions to narrow down assets (areas) most vulnerable to crude theft, using historical spill/illegal bunkering incidents' points and (ii) using aircraft overflight surveillance, equipped with GPS cameras. This paper is to share how geo-information (GI) was effectively used to create hotspot maps that led to focused actions at reducing the menace of crude theft and incessant pipeline vandalization and environmental degradation. The second part of the paper will focus on how Remote Sensing tools with GIS data integration were used to identify areas of major pipeline encroachment by squatters, and subsequent removal of the squatters and illegal structures from SHELL high pressure live oil and gas pipelines' right-of-way (RoW) corridor.