Navigating Utilities Asset Management with QGIS, QField, and X5 Mobile PRO: A Pasifika Wayfinder's Journey

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Abstract:

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This presentation explores the use of Free and Open Source Software for Geospatial applications (FOSS4G) in utilities asset management and disaster risk resilience in the Pacific Islands, focusing on an ADB Renewable Energy Development Project[1] in the Federated States of Micronesia.

We demonstrate how QGIS and QField have revolutionized our approach to mapping critical infrastructure, modeling hazard impacts, and conducting field surveys. These tools enable comprehensive geospatial analysis and efficient data collection, even in remote areas.

The adoption of FOSS4G aligns with principles of democratization and community empowerment, particularly crucial in the Pacific Island context. It offers an accessible path for building local technical capacity without the constraints of proprietary software.

We introduce the GNSS X5 Mobile PRO as an affordable option for sub-meter accuracy data collection. This ultraportable GNSS receiver, weighing only 45 grams, offers centimeter-level positioning using all major satellite constellations. It supports PPK, RTK, and NTRIP modes, making it versatile for various surveying needs. The X5 Mobile PRO's compatibility with smartphones and its ability to work within a 10km radius (in RTK mode) or up to 70km (in NTRIP mode) make it an excellent choice for Pacific Islands utilities seeking cost-effective, high-precision mapping solutions.

Complementing this, we discuss the potential of Starlink Mini for enhancing data connectivity in remote locations. This compact satellite internet solution, measuring just 11.4 x 9.8 inches, provides up to 100Mbps download speeds with low latency. Its portability, affordability (expected to cost around $299), and easy setup make it an ideal companion for field data collection and transmission in areas with limited or no traditional internet connectivity.

By combining FOSS4G tools with affordable, high-precision hardware like the X5 Mobile PRO and innovative connectivity solutions like Starlink Mini, we're charting a course towards more resilient and self-reliant Pacific Island communities in the face of climate change and natural disasters.

1 ADB 175726: GRANT-0813 FSM: Renewable Energy Development Project, Disaster Risk Resilience (DRR) Consulting Services (49450-027)