Title: Improving Maternal and Child Health Planning in Nigeria: A Pilot of the GeoST4R Geospatial Microplanning Toolkit (GMT)

Authors: Dr. Amina Aminu Dorayi, Dr. Sakina Amin Bello, Dr. Hafiz Yaro, Dr. Olufemi Ibitoye, Hauwa Usman, Praise Agbe

Keywords: *Maternal Health, Geospatial technology, Microplanning, Primary health care*

Background

Nigeria continues to face some of the highest maternal and child mortality rates globally, driven in part by inefficient data systems and reliance on paper-based microplanning. The Geospatial Data Tools and Technology for RMNCHN micro-planning and decision support (GeoST4R) project aimed to address these challenges by integrating geospatial technology into microplanning.

Methods

In 2024, Pathfinder, in collaboration with GRID3, Natview Foundation, Data Science Nigeria, and the SMOH and SPHCDBs, piloted the GMT in Kano and Kaduna States. GMT automates geospatial microplan creation and supports outreach planning. The pilot spanned 101 wards in eight LGAs and 352 facilities. Preliminary assessments informed tool design, with standardized guidelines developed. 218 healthcare workers and 57 supervisors were trained on GMT for data-driven microplanning. State teams used GMT to update facility and settlement data, enhance accuracy, optimize outreach using the Reach Every Ward (REW) strategy, and export microplan tables and maps.

Results:

The pilot demonstrated substantial improvements in geospatial data quality and planning precision. In Kano, the number of recognized settlements increased by 17% from 3,990 to 4,654, while 664 new outreach sites were identified. In Kaduna, settlements increased by 7% from 3,581 to 3,839, with 344 outreach sites newly mapped. Kaduna also recorded an increase of 7% in health facilities from 273 to 292. In Kano, the number of facilities decreased by 22% from 298 to 231, indicating a data validation and reclassification process. Updates to outreach sites, settlement and facility layers, including name corrections, coordinate adjustments, and facility type verifications, contributed to more accurate population targeting and better alignment of service points with community needs.

Conclusion

Geospatial innovations provide granular insights into population distribution, healthcare accessibility, and facility mapping, enabling targeted RMNCHN interventions. The Geo-ST4R pilot demonstrates the transformative potential of digital solutions in improving maternal and child health outcomes in Nigeria.