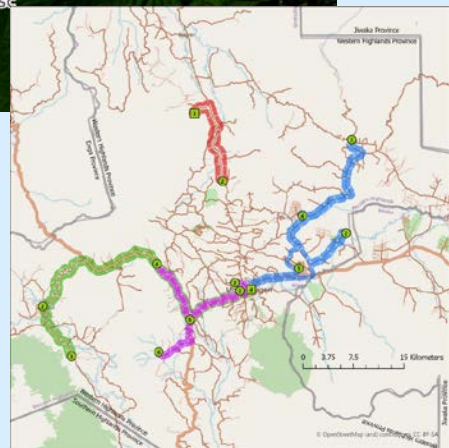
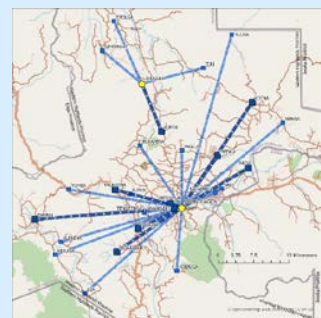
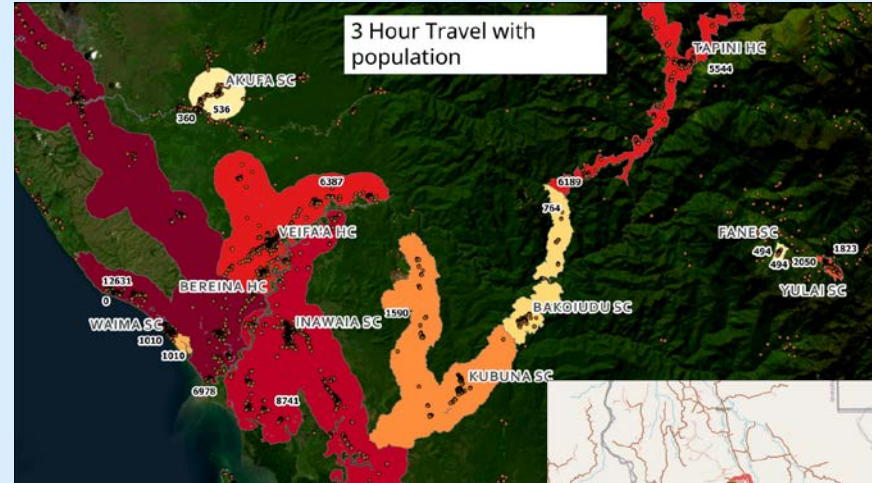
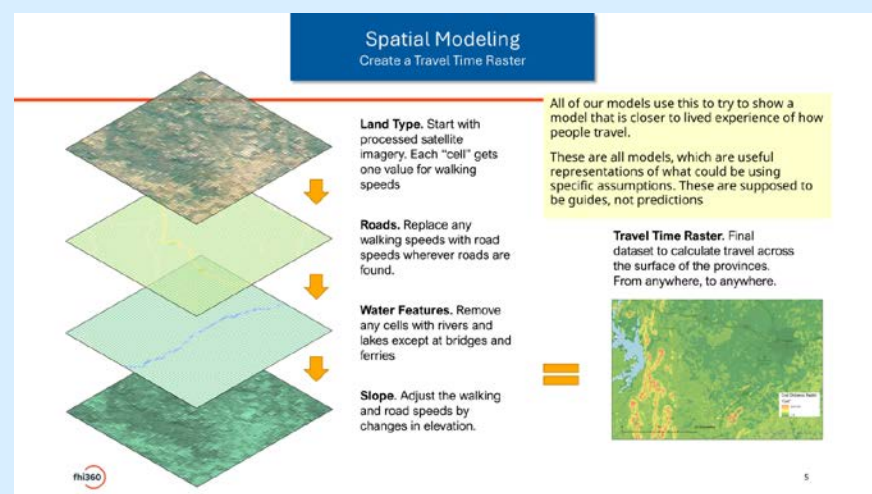


Diagnostic Network Optimization to Climate-Resilience: Equity & Access

- DNO → Governance foundation for equitable access
 - What the DNO did in Papua New Guinea:
 - assessed health facilities and labs,
 - travel times, referral flows
 - scenario design (patient hubs, facility upgrades, specimen referral systems)
 - Produced:
 - Provincial level operational plans and costed scenarios to strengthen service equity
 - Mapped access bottlenecks across diverse populations
 - Built a trusted, country-owned geospatial baseline for health access
- Why this matters in LMICs
 - Health access gaps are already a major challenge; climate impacts intensify them
 - When a single route fails, multiple facilities and communities lose access



Network Maps

Optimized Routes

The Method: Rapid, interpretable modelling for climate disruption of access

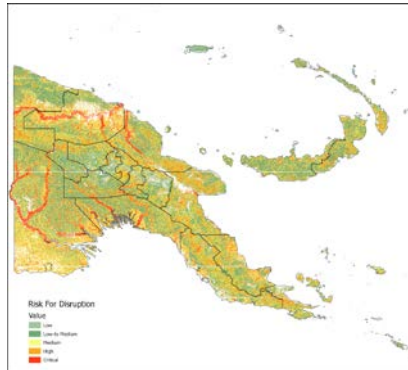
DNO base:

- facilities, labs, referral routes,
- cost-distance
- travel-time surfaces

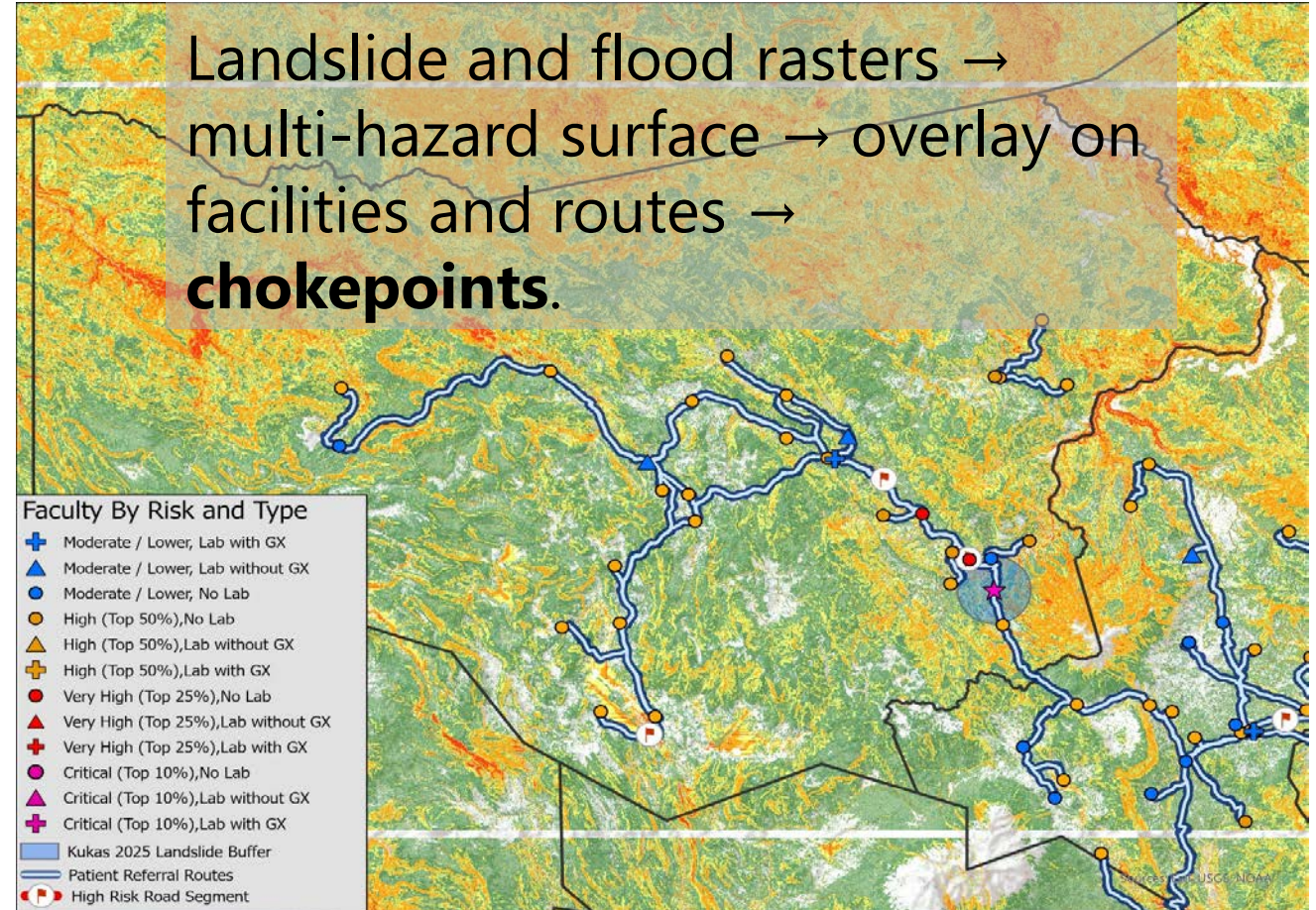


Climate add:

- FABDEM terrain
- GPM rainfall triggers
- HydroRIVERS
- Deforestation Pressure



Landslide and flood rasters → multi-hazard surface → overlay on facilities and routes → **chokepoints**.



Enables planners to understand **who** is cut off and **where**, supporting equitable allocation of limited resources

Making Climate-Health Analytics Work for LMICs

- Addressing the digital divide and global data bias
 - Global datasets frequently miss informal or seasonal routes
 - Local validation to correct road networks, travel assumptions and community access patterns is critical
 - Ensures analysis is locally trustworthy
- Turn climate risk into equitable planning
 - Use multi-hazard + provincial risk comparisons to prioritize provinces for staged investments
 - Direct limited resources to facilities and routes serving the most vulnerable
 - Combine population service-area data with climate disruption to quantify population level impact

Relative Flood, Landslide, and Multi-Hazard Risk Intensity by Province

