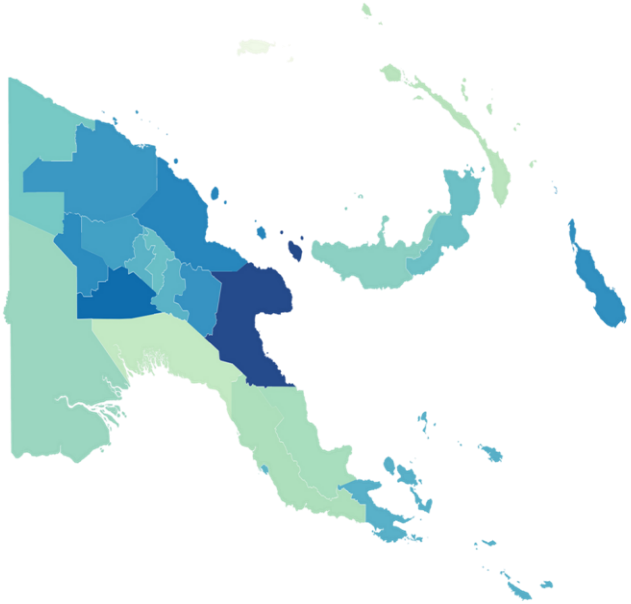


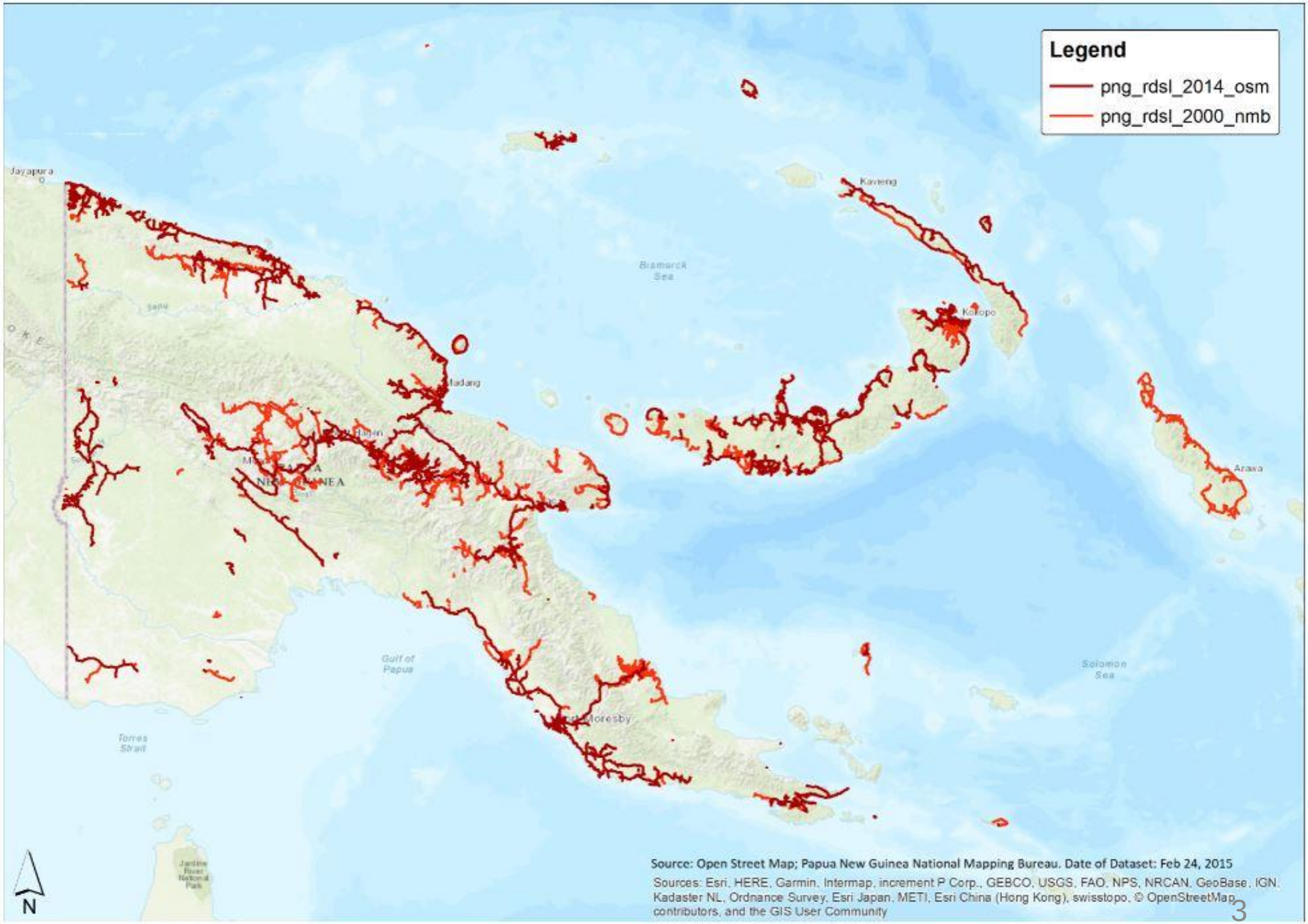
UNFPA's *MERILINK* PNG: A digital connectivity initiative towards improved maternal health in Papua New Guinea

#YumiPNG

Some situational statistics

- Total population – 12.3 million (2023); 87% is rural; 56% below 25 years of age
- MMR 171 per 100,000 LB; TFR 3.7, Wanted Fertility Rate is 3.0
- Skilled Birth Attendance – 56% (33% in lowest income quintile); Antenatal care 49%; Institutional deliveries 54%; Anaemia in women of reproductive age 36%
- HIV prevalence at 1%
- 56% women have experienced GBV in their lifetime, and 70% think it is justified under certain circumstances
- Sorcery Accusation Related Violence (SARV) – estimated 150 deaths per year, majority are women
- Only 1 in 5 secondary-school aged children are enrolled in school
- 18.5% of households have access to safe drinking water, 7.6% use safely managed sanitation services
- 36% of households have internet, mostly urban; 71% have a mobile phone
- Sources of lighting Solar 44% Battery Lanterns 22.7% Electricity 15%
- Only 3 out of 111 parliamentarians are women

*National Statistics Office, Papua New Guinea & UNFPA, Socio-demographic and Economic Survey, SDES 2022
* UNFPA Take Action Maternal Mortality Briefing, accessed 26 Feb 2024 https://png.unfpa.org/sites/default/files/pub-pdf/png-briefing-mch_14dec2020_2.pdf


Legend
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Jayapura
Kavieng
Bismarck Sea
Kokopo
Madang
Arawa
Gulf of Papua
Solomon Sea
Torres Strait
Port Moresby
N
Source: Open Street Map; Papua New Guinea National Mapping Bureau. Date of Dataset: Feb 24, 2015
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community

Twin Strategies for Ending Preventable Maternal Deaths

1. Starlink Connectivity

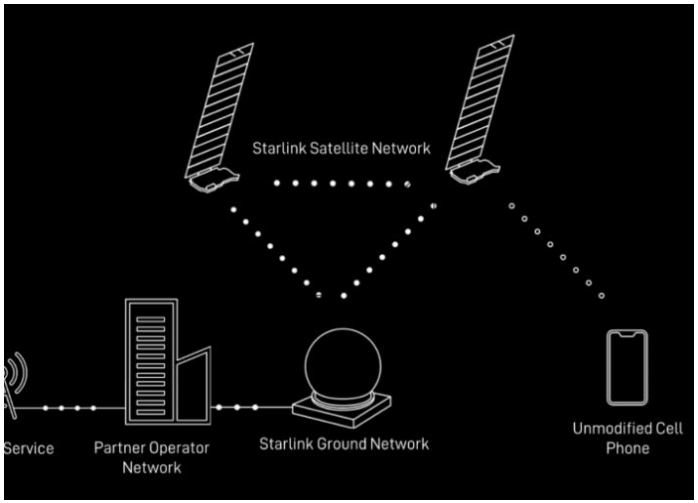
- Basic telehealth support for field midwives by staff at major hospitals
- Early identification of complications in pregnancies
- Increased efficiency in coordinating medical evacuations
- Improved communications on the re-supply of reproductive health commodities
- Broad benefits across the health system

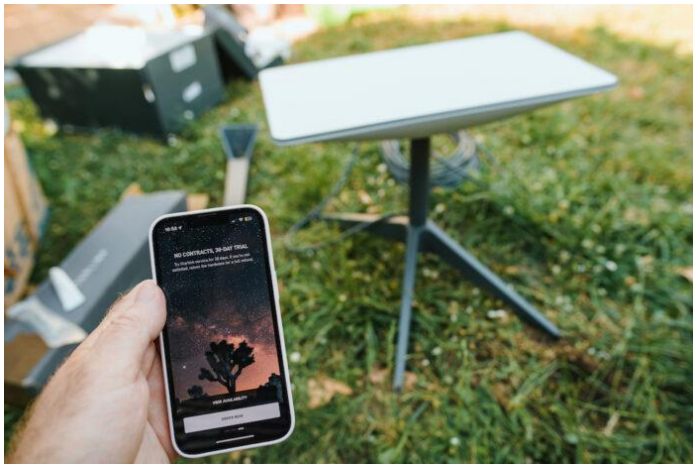
2. Drones for Life-saving Medical Commodities

- Delivering medications that delay bleeding-out of women
- Delivering blood products for emergency blood transfusions
- Delivering life-saving commodities that can prevent/manage complications of pregnancy
- Increased efficiency of medical commodities distribution and reduction of stock-outs

Starlink

- Licensing of Starlink is pending, hopefully will be achieved soon.
- Residential kits, for use by rural CHW/midwives at Level 2-4 health facilities, are USD 826 one-off hardware cost, monthly recurring cost of USD 135 for 1 terabyte (1000 GB) of data.
- Business kits (for hospitals) are USD 2970 one-off cost, USD 771 monthly recurring for 1 TB of data, for Level 5-6 health facilities.
- Test-run by PNG Institute of Medical Research in Madang in December 2023 showed 500 people could log onto the residential kit, at speeds of 170 mbps, while their fiber optic cable was tracking at 100 mbps only. Starlink's average data download speeds of 250 mbps.
- Connection is via satellite dish, or direct to unmodified phone options, available in PNG by 3rd quarter 2024, though this is double the price for 5% of the data provided by a residential kit.





Starlink – Total Project Budget USD $3 million (fully funded)

Phase 1: December 2024 – March 2025

- Each province to receive one Starlink business kit for the provincial tertiary hospital as the main communication node, and two Starlink residential kits for two primary health centres (PHC), which have water, electricity, and a midwife/nurse/community health worker in service.
- By the end of Phase 1, 22 provincial hospitals and 44 primary health centres would have been reached, or 66 facilities in total.

Phase 2: March 2025 – July 2025

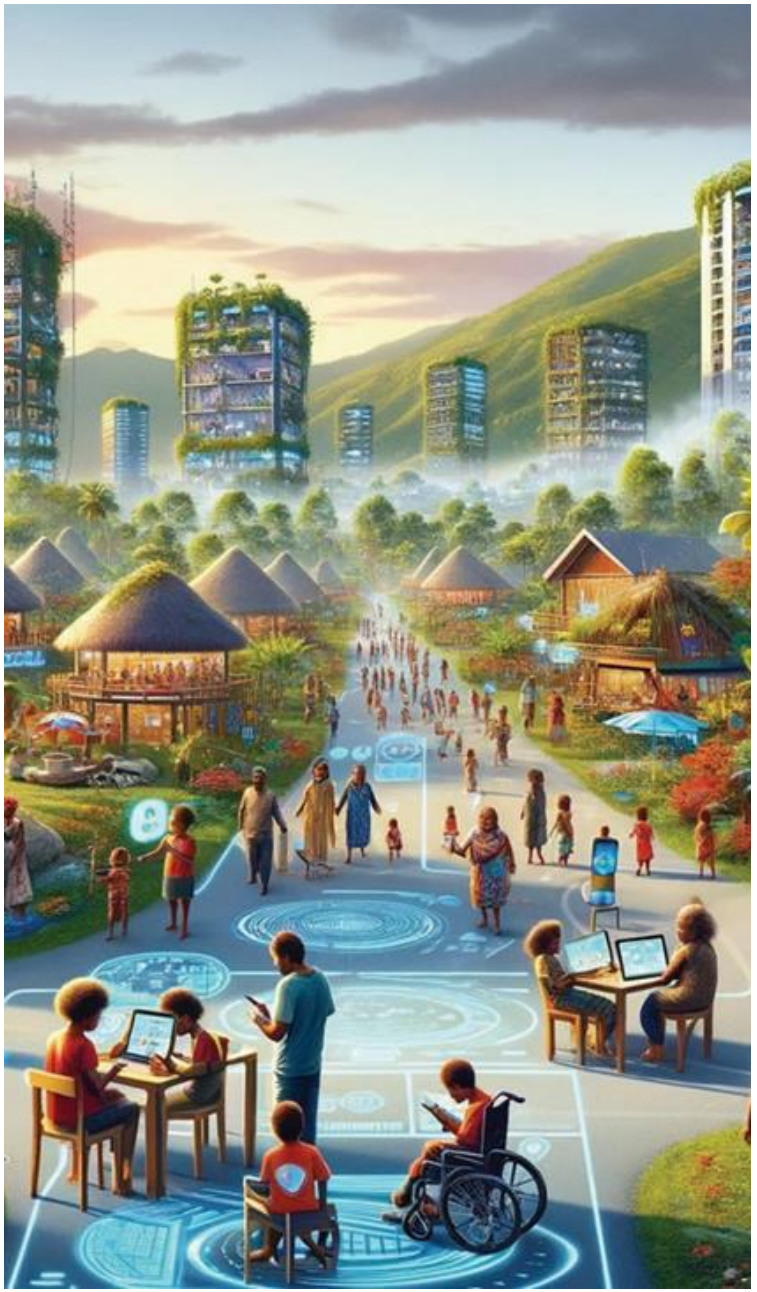
- Starlink to be deployed in all twenty-one secondary hospitals in Papua New Guinea to be covered, as well as an additional 4 primary health centres in each province to be included, from areas that may potentially be without water or electricity, but which have an active midwife/nurse/community health worker in service. [21 secondary hospitals and 88 primary health centres would be reached in total for this Phase 2].
- This would mean that by end of Phase 2 in 2024, all tertiary (22) and secondary (21) hospitals in PNG will be covered, as well as 6 primary health care centres in each province. Cumulatively, Phases 1 and 2 would reach 132 primary health centres in total, out of a total 780 PHCs in PNG; 21 secondary health centres and 22 tertiary health centres – a total of 175 health facilities.

Phase 3: August 2025 – July 2026

Extension of the programme to an additional 648 primary health centres, out of the total 780 primary health centres in the country. At the end of Phase 3 in December 2025, all 22 tertiary, 21 secondary and 780 primary health centres would have been reached. This would be a cumulative total of 823 health facilities in the country, or 100% of all primary, secondary and tertiary facilities in Papua New Guinea.

Starlink: Management Arrangements

- Within two years (2024-2025), all tertiary, secondary and primary health centres (823 sites) will be equipped with a Starlink connection. Intended procurement is through the UN's Global Agreement with Starlink, with on-going negotiations to lift the data cap.
- NDOH and the Provincial Health Authorities to be involved as implementing partners for roll-out and identification of sites
- This initiative aligns with NDOH's national ICT strategy for the health system, and supports NICTA's Digital Government Plan 2023-2027, and the PNG Department of ICT will assist with an implementation agreement with UNFPA.
- UNFPA will have coordination, monitoring & evaluation, implementation research and other roll-out costs. Bilateral donor support will be raised, as part of a collaborative approach for quality assurance of the Starlink-enabled telehealth backbone.



Starlink for Reliable Internet Access

High-Performance Connectivity

Starlink's low-latency, high-speed internet service provides reliable connectivity, even in remote areas.

Global Coverage

Starlink's satellite network ensures access to the internet across the globe, making it ideal for remote operations.

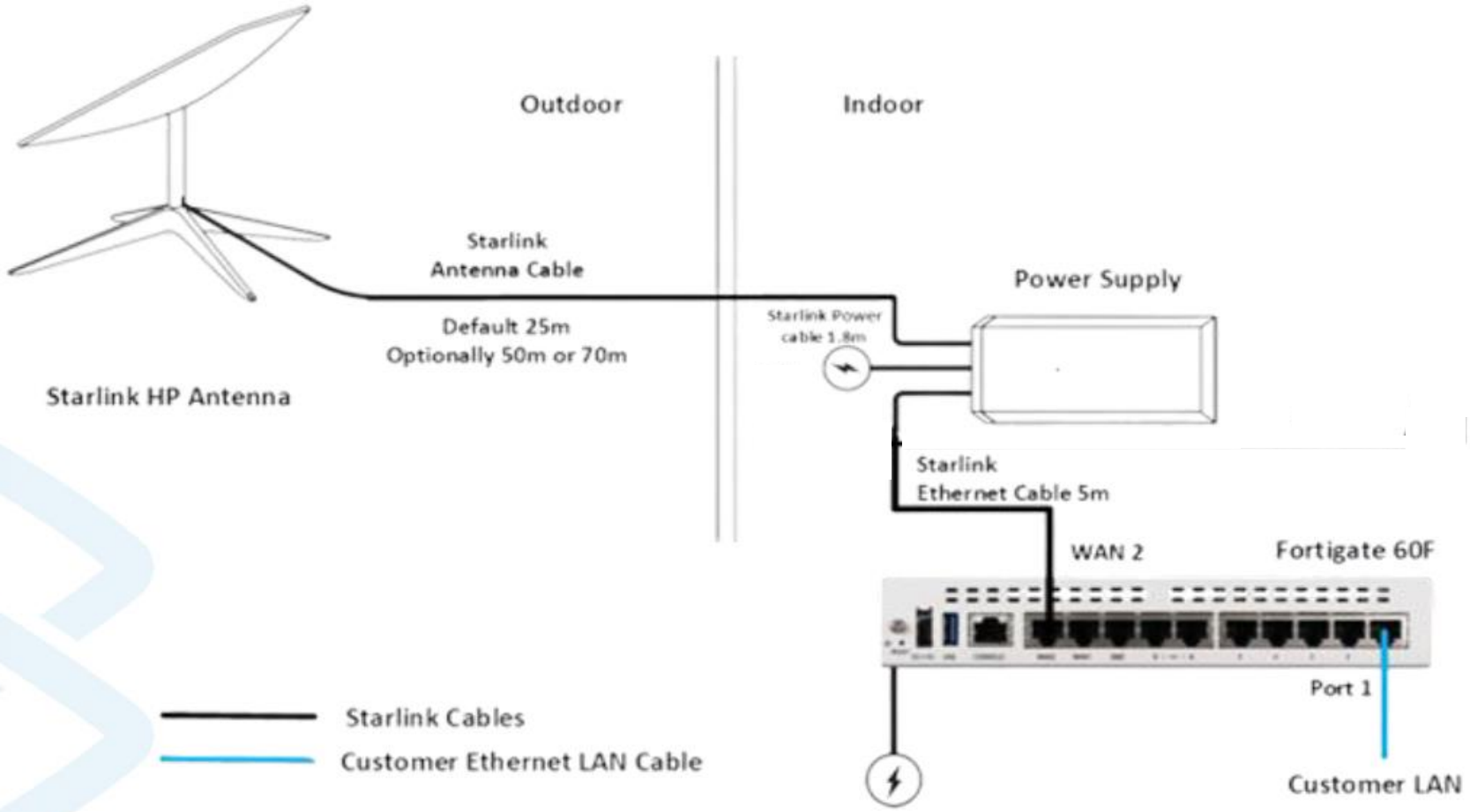
Dedicated Solar Power

The deployed Starlink devices will be powered by dedicated solar panels, ensuring uninterrupted service in areas with limited access to power.

Fortigate Firewall for Secure Network Management

1. ## Comprehensive Security
   The Fortigate firewall provides robust security features to protect your network from cyber threats.
2. ## Network Access Control
   Fortigate's advanced access control ensures only authorized devices can connect to your network.
3. ## Bandwidth Management
   The firewall's bandwidth management capabilities optimize network performance and prioritize critical applications.
4. ## Centralized Management
   Fortigate's intuitive management console simplifies network administration and monitoring.

Starlink
remote architecture (PSU indoor)



Drones for Delivery

- Case study of Rwanda where Zipline supported the delivery of medical commodities and blood transfusion products, claiming to have achieved a 51% reduction in maternal deaths related to post-partum hemorrhage (bleeding).
- Paves the way for deploying air taxies (two-person drones) to be rolled-out in Singapore and Dubai in 2025. This will be a breakthrough for emergency care in PNG, and the Civil Aviation and Safety Authority (CASA) of PNG intends to use this pilot to inform the current efforts to establish policy for person-drones in PNG.
- There are companies already prototyping 40-person drone buses, to be approved 2024. For example, LIFT's HEXA Drone (US) has also been tested and is expected to be available for services in 2025.
- This project is not only about immediate results but putting the systems in place towards a drone-enabled transportation future for Papua New Guinea, on a parallel trajectory with physical road infrastructure.
- It will potentially change the way we organize the health system and the distribution of medical commodities, improving efficiency and effectiveness, as has been the case for Rwanda.