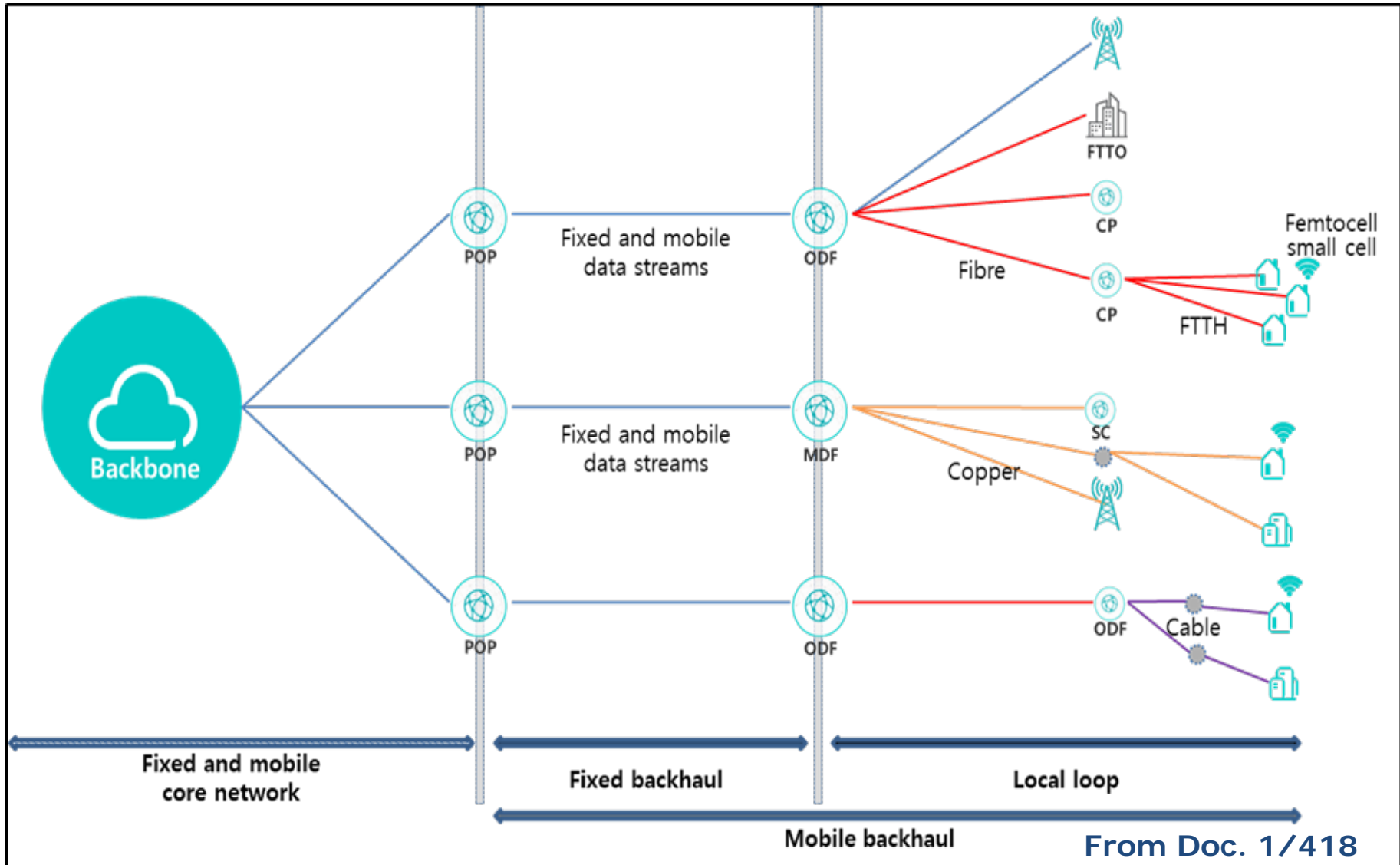


# What innovative (wireless or wired) solutions have you seen to extend connectivity to rural communities in particular?

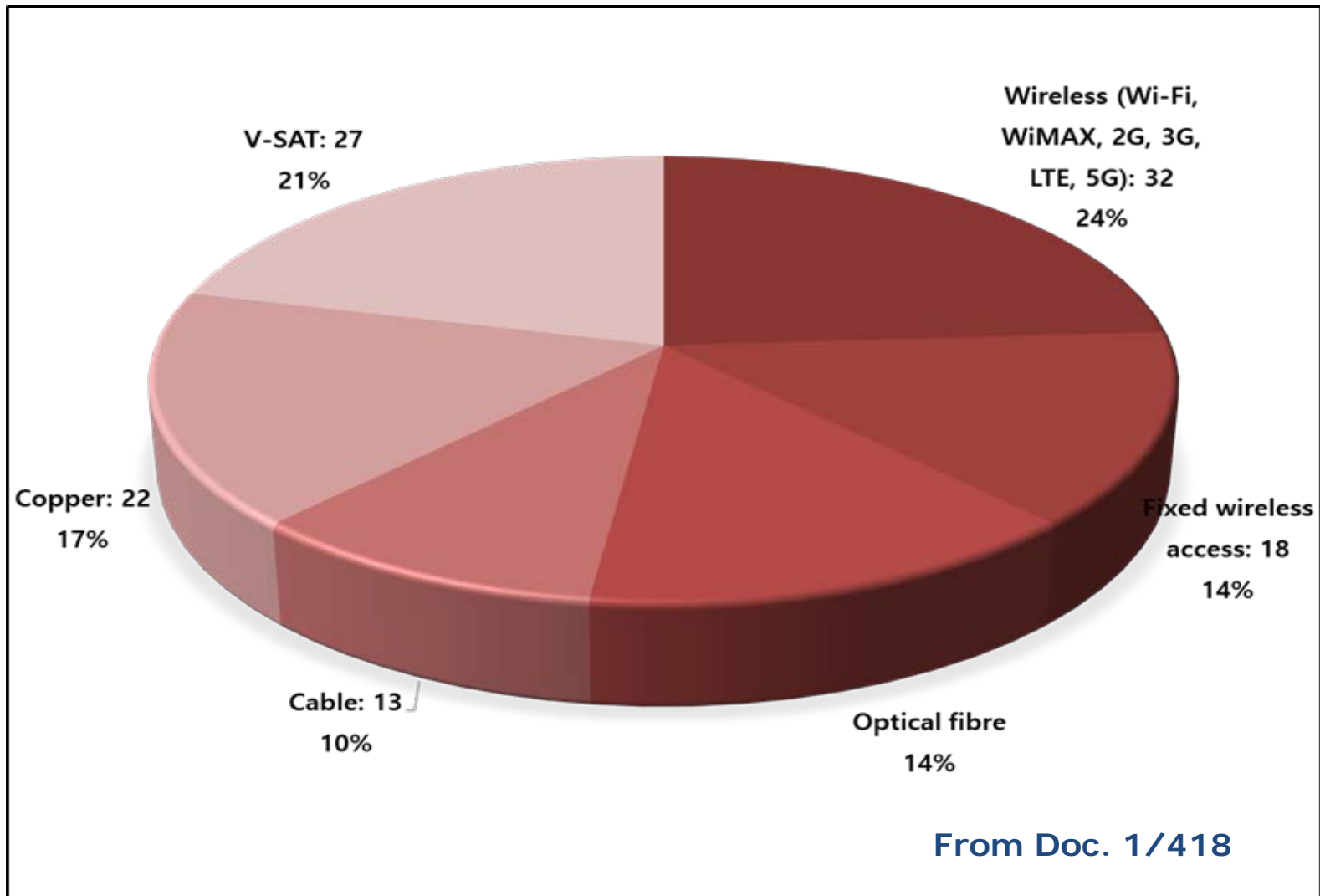
- ITU-D SG1 Rapporteur's Group's final report is available from the following URL; <https://www.itu.int/md/D18-SG01-C-0418/en>

The report is the analysis of inputs from the membership on the study question of “Telecommunications/ICTs development for rural and remote areas”. The group collected 93 case studies for 2018-20 period.

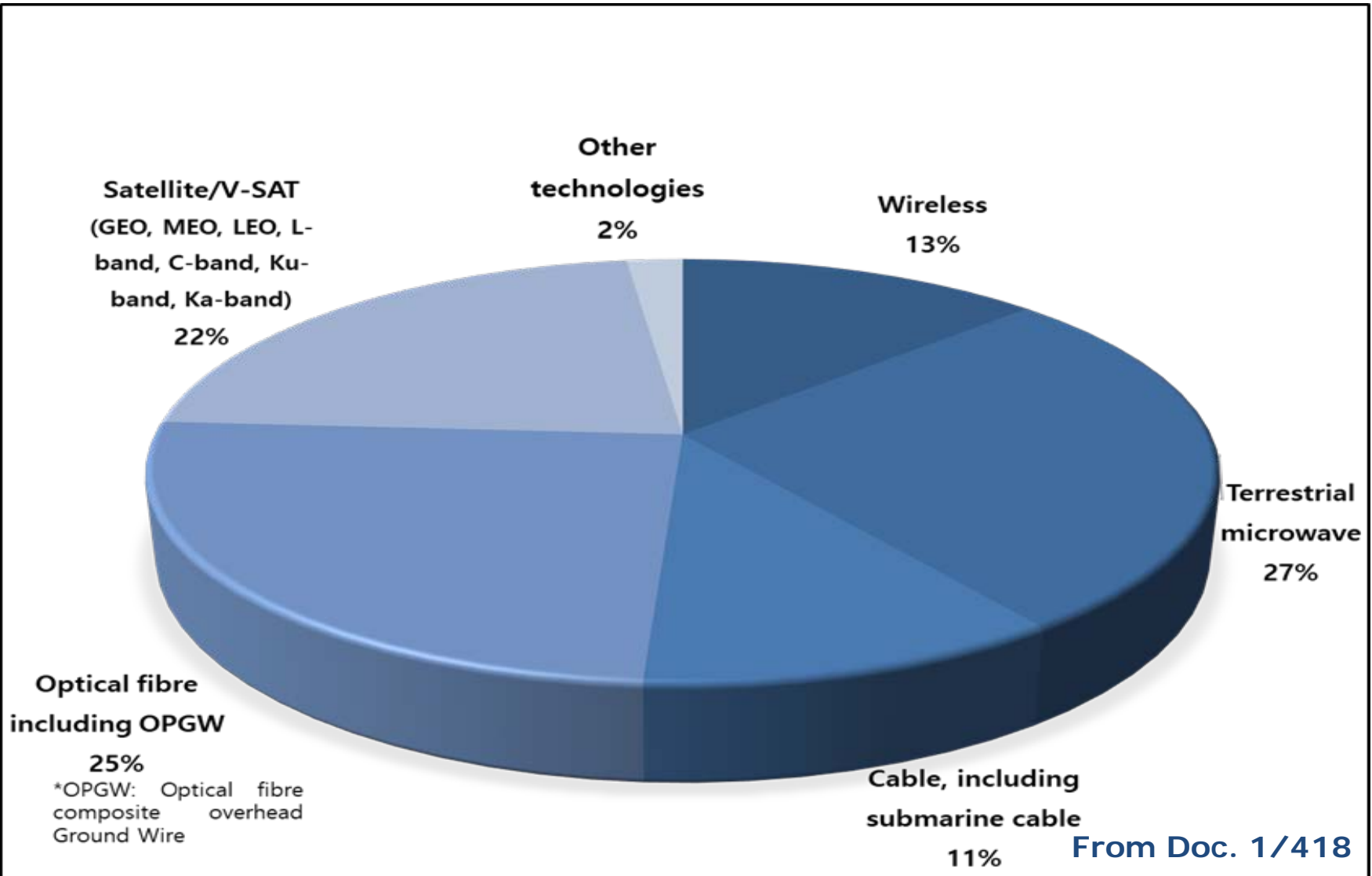
# Mobile and fixed network architecture



# Access technologies used for connecting rural and remote areas



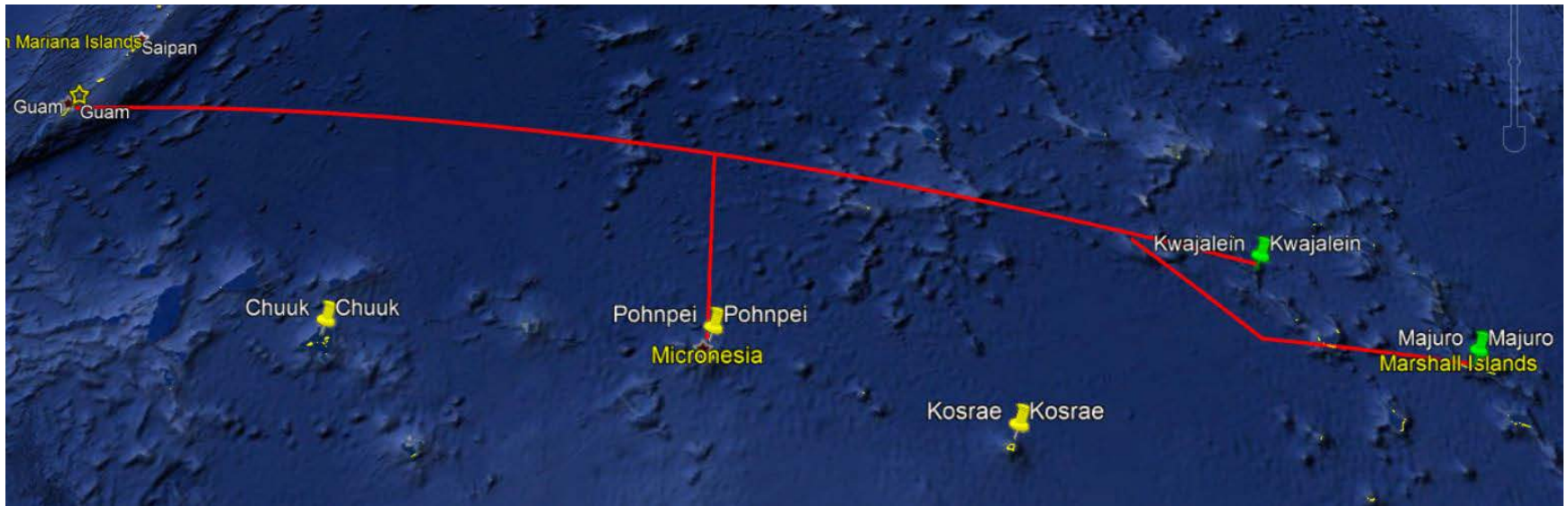
# Backhaul technologies used for connecting rural and remote areas



# **Federated States of Micronesia (SIDS) Connectivity (Doc. SG1RGQ/239-E, annex 1)**

- **FSM is located in the Western Pacific**
- **Consists of four states (Yap, Chuuk, Pohnpei, Kosrae)**
- **2850km East West separation**
- **118,000 People**
- **Prior to 2010, the only international connectivity to**
- **FSM was via Satellite.**

# 2010 Hantru Cable System



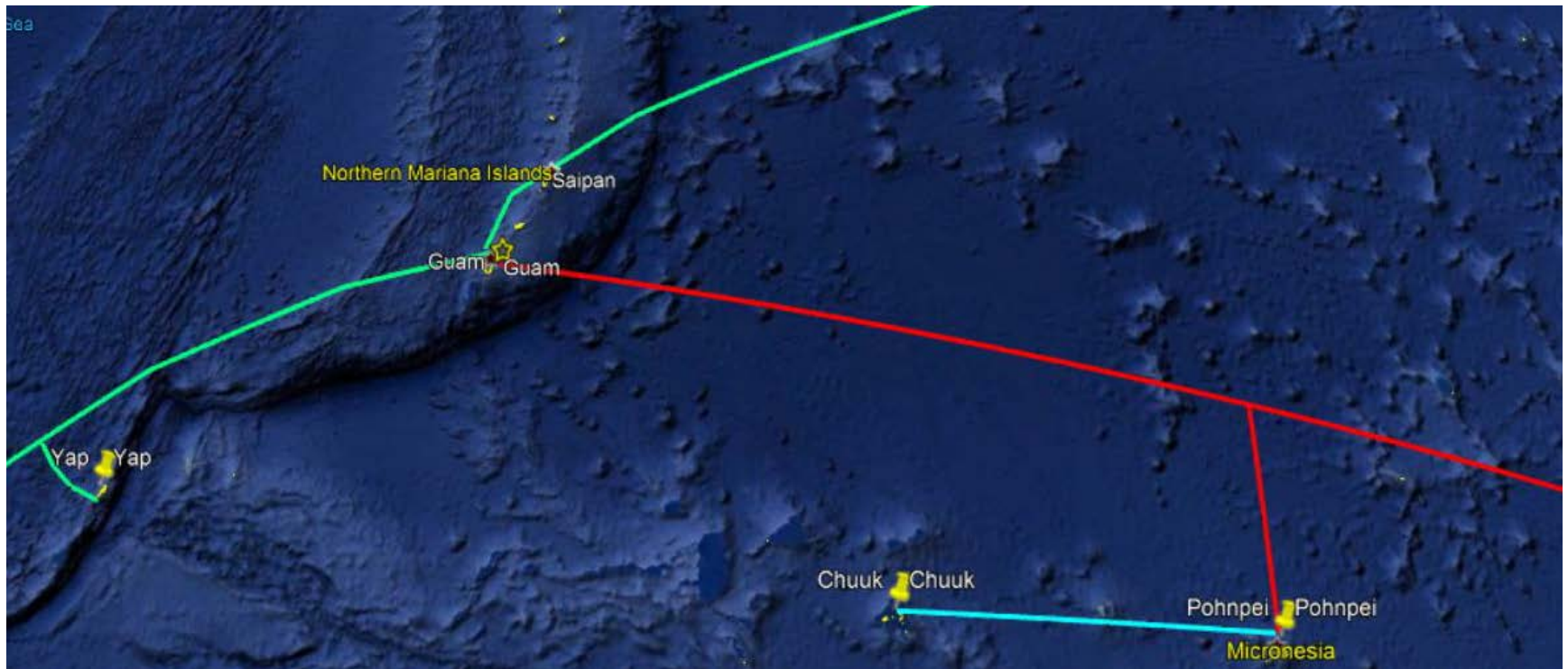
**Primary Connectivity between Kwajalein , Marshall Islands and Guam. Privately Owned with IRU to US Government.  
Branches and 2 nd Fiber Pair shared by Marshall Islands and Federated States of Micronesia.  
Majuro, Marshall Islands and Pohnpei, FSM Connectivity to Guam  
Pohnpei-Guam Capacity; Design Capacity 4x 10Gbps,  
Provisioned Capacity 1x 10Gbps, 4x 2.5Gbps  
Funded by United States Rural Utility Service (RUS) Loan**

# 2018-Yap Spur Cable System



**Branch into the SEA US Cable System (Philippines and Indonesia to Guam to Los Angeles)**  
**–5x 100Gbps Wavelength IRUs from Telin Branching Unit to Guam : Initial Provisioning 10Gpbs with Domestic Traffic forwarding over Hantru to Pohnpei, FSM**  
**Branch via GTA Backhaul across Guam to Hantru Cable Landing Station. Funded by World Bank Grant to FSM**

# 2019-Chuuk to Pohnpei Cable System



**Cable System between Chuuk Pohnpei**

**Design Capacity: 10 Tbps / Initial Capacity: 10 Gbps**

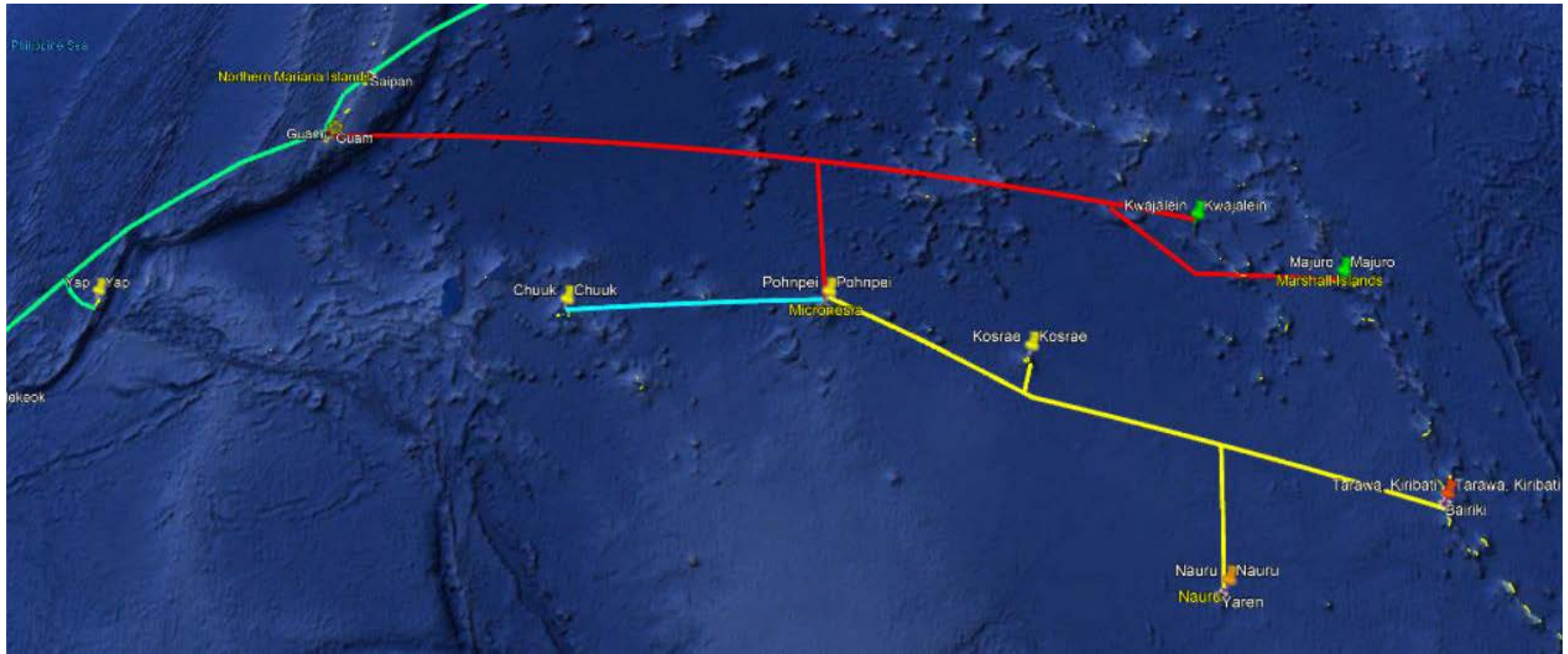
**Domestic distribution via Pohnpei**

**International Traffic Forwarding via HANTRU Cable System to Guam**

**Funded by World Bank Grant to FSM**



# 2021 –East Micronesia Cable System



**Regional Cable System–Kiribati Nauru Kosrae, FSM  
Pohnpei, FSM**

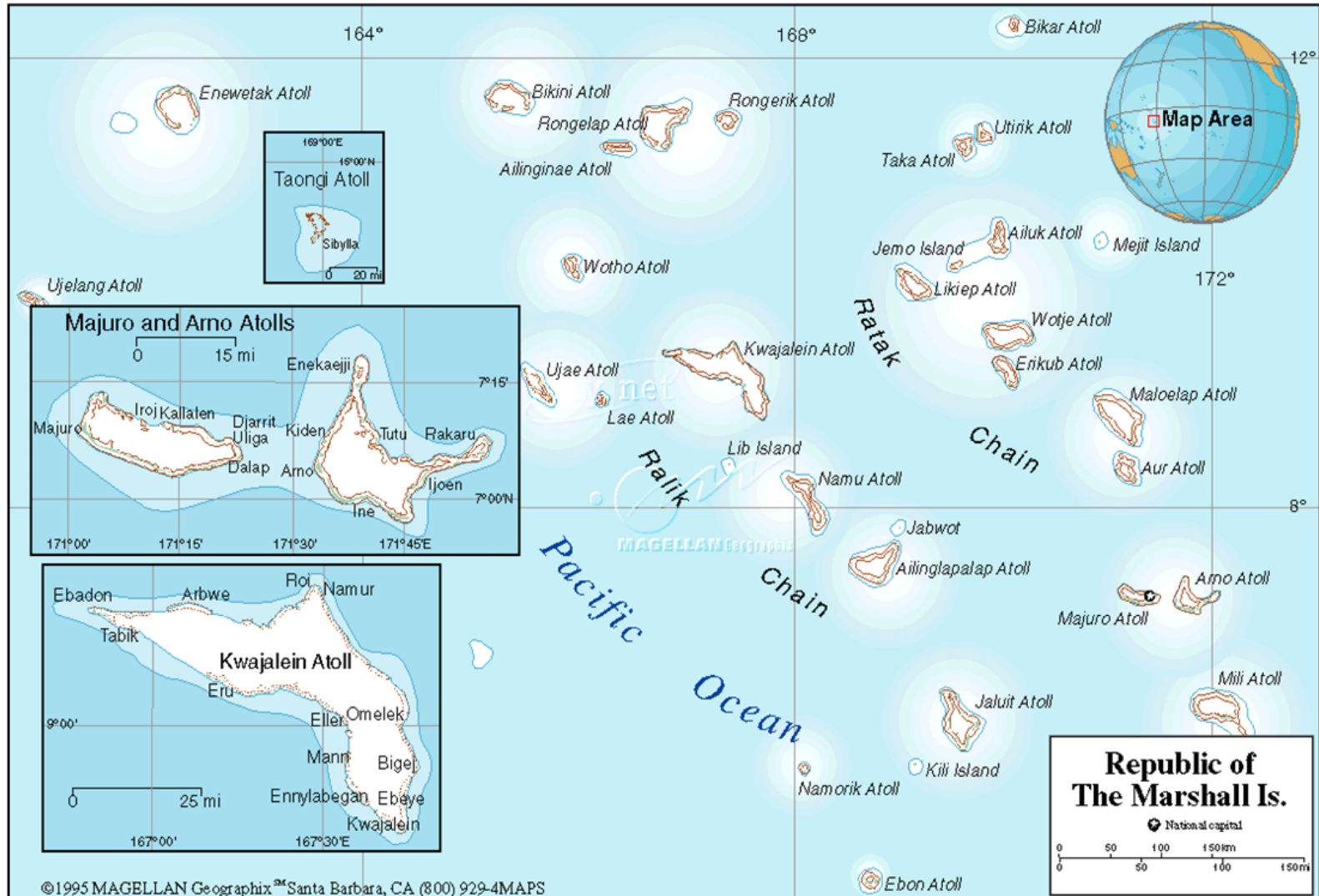
**Funded by a combination of World Bank Grants (FSM  
and Kiribati) and Asia Development Bank Loans  
(Nauru)**

# Critical Issues

- **During System Implementation**
  - Local Contractor Resources for Construction
  - Local Technical Expertise / Capacity
  - Private Property and Right of Way Issues
- **During Operations**
  - Local Technical Expertise for O&M
  - O&M Costs
  - Marine Maintenance
  - Training

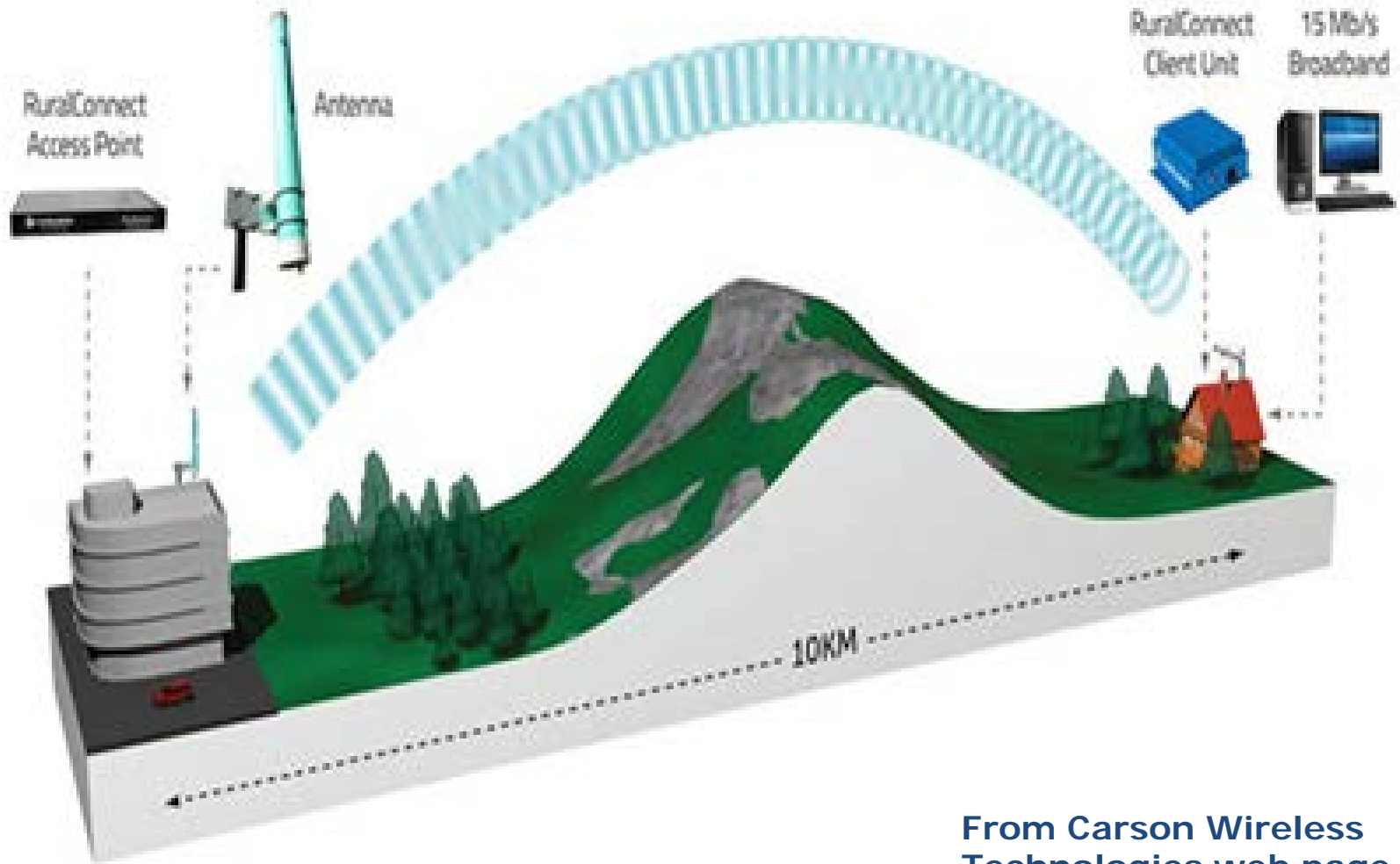
**Cable System Capacities greatly exceed the requirements of small island communities, even future requirements.**

# Republic of Marshall Island (29 atolls and islands connected by satellite, APT J3 project rpt.)



# NLOS link for Rural Connectivity

## Using TV white space spectrum in Nepal, etc.



From Carson Wireless Technologies web page