BRIDGING THE DIGITAL DIVIDE IN LAST MILE COMMUNITIES USING SATELLITE TECHNOLOGY

Enhancing Internet Accessibility and Social Inclusivity in Isolated and Marginalized Communities in Mindanao

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OVERVIEW OF THE PHILIPPINES

- Archipelago of **7,641 islands** in Southeast Asia **(~300,00 sq. km.)**
- Population of **114M people** (26.5M in Mindanao)
- Natural disasters includes typhoons, earthquakes, volcanic eruptions etc.
- Terrain results to numerous isolated islands and areas.

KEY ICT STATISTICS FROM NICTHS 2019

Scarce ICT statistics available in PH

- only 1 out of 7 ICT indicators to monitor SDGs;
- women outdo men in ICT use;
- NICTHS 2019 provides an initial baseline but needs to be done again due to COVID-19 pandemic;

Digital divide remains a reality in PH society

- greater internet use in urban areas compared to rural ones;
- only 47% of Filipinos use the Internet; 75% owns a cellphone, 24% of households have a computer;
- quality of connectivity is a persistent issue; In GIDAS, any connection (no matter how bad) is always better than no connection at all.

Digital skills of Filipinos needs significant improvement

- internet is mainly used for social and leisure activities, access to information;
- minimal use for learning, access to government service and online transactions, especially in rural areas;
- most users are young adults; older adults and individuals with less schooling have low access to ICT;

Digital infrastructure remains a huge challenge

- only 36.3% of barangays have access to cell towers, 29.8% have access to fiber, and 12.2% have free-wifi;
- digital divide occurs not only between urban and rural areas, but also within urban areas;
- cost of equipment and subscription are key reasons for lack of internet access;

ICT Policy Framework needs to be reformed

- Living in the digital world using analog policies;
- EO 127 provides a short-term relief but needs to be further strengthened through legislation;
- improve digital literacy through national programs, training, and reskilling the workforce;

HOW DO WE BRIDGE THE DIGITAL DIVIDE TO PROMOTE INCLUSIVE DEVELOPMENT?

Satellite services provide a means to rapidly **connect isolated islands and barangays throughout Mindanao and the country.**

ADVANTAGES OF SATELLITE TECHNOLOGY

COVERAGE

Provides immediate connectivity in remote and isolated communities

FAST DEPLOYMENT

Does not require an extensive local infrastructure (but still require an congressional franchise/NTC license);

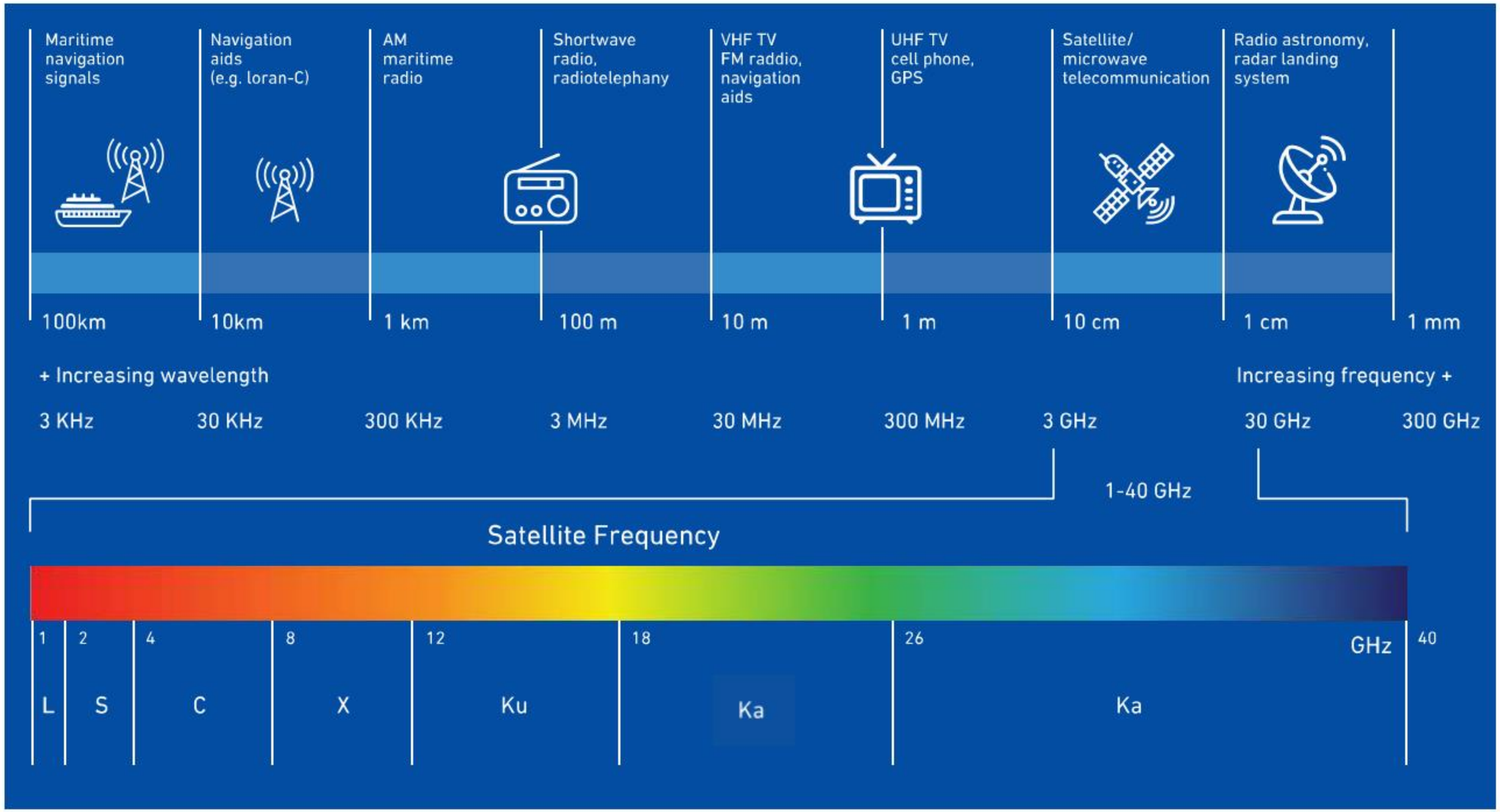
SCALABILITY

Modular and scalable depending on demand and coverage;
Flexibility and scalability of the system allows for reasonable pricing

RELIABILITY

Can serve as backup connectivity in times of disasters;
Not affected by clouds or bad weather (depending on frequency);
Helps decongest the ground-based internet services;

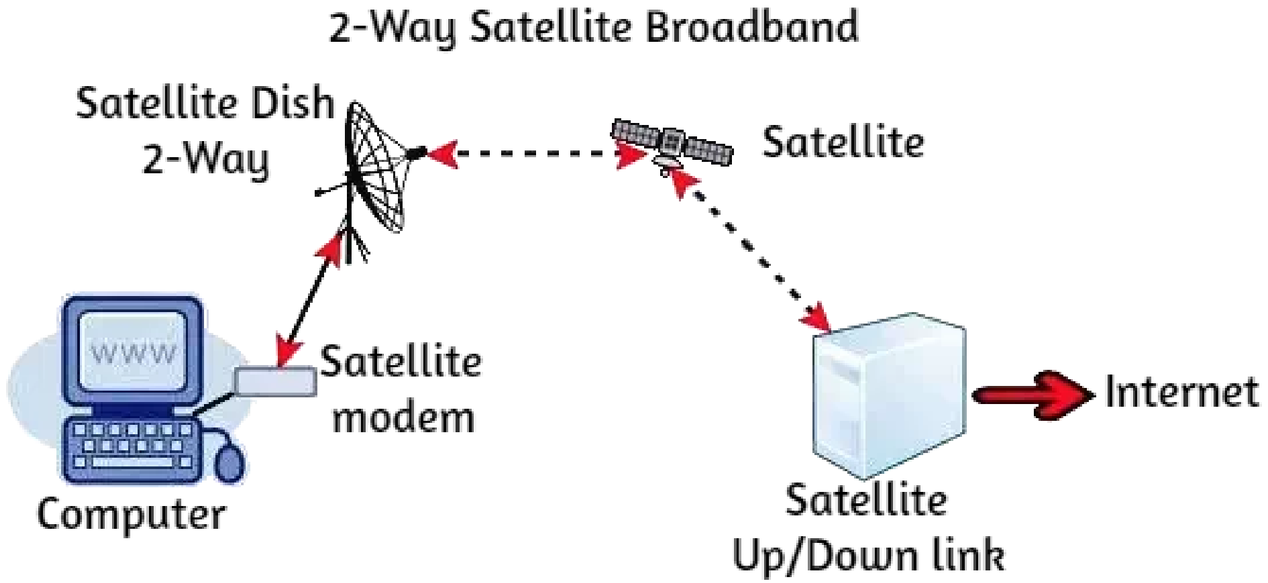
HOW COMMUNICATIONS SATELLITES WORK

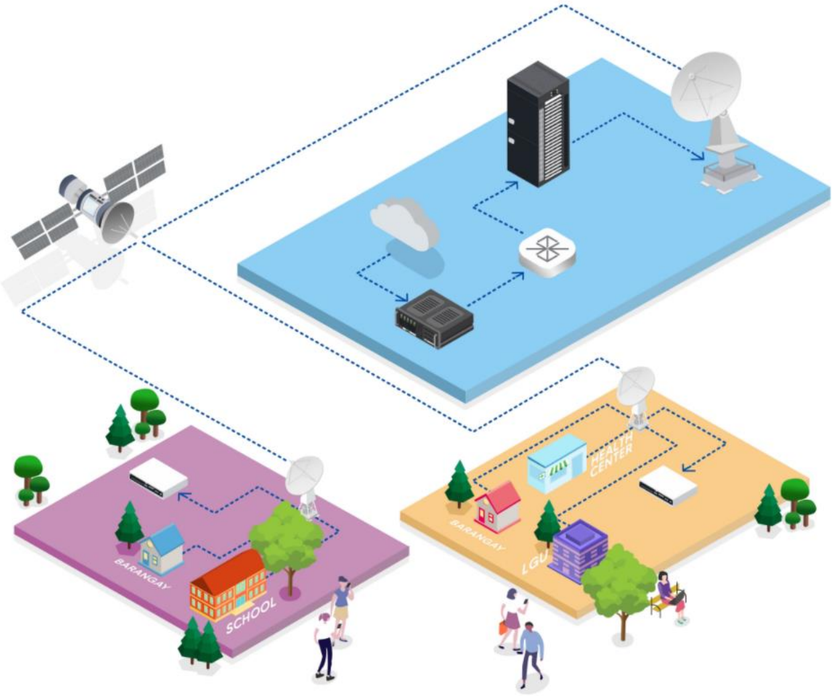


Increasing Antenna Size (larger antenna)

Increasing Bandwidth (more Mbps)

HOW COMMUNICATIONS SATELLITES WORK





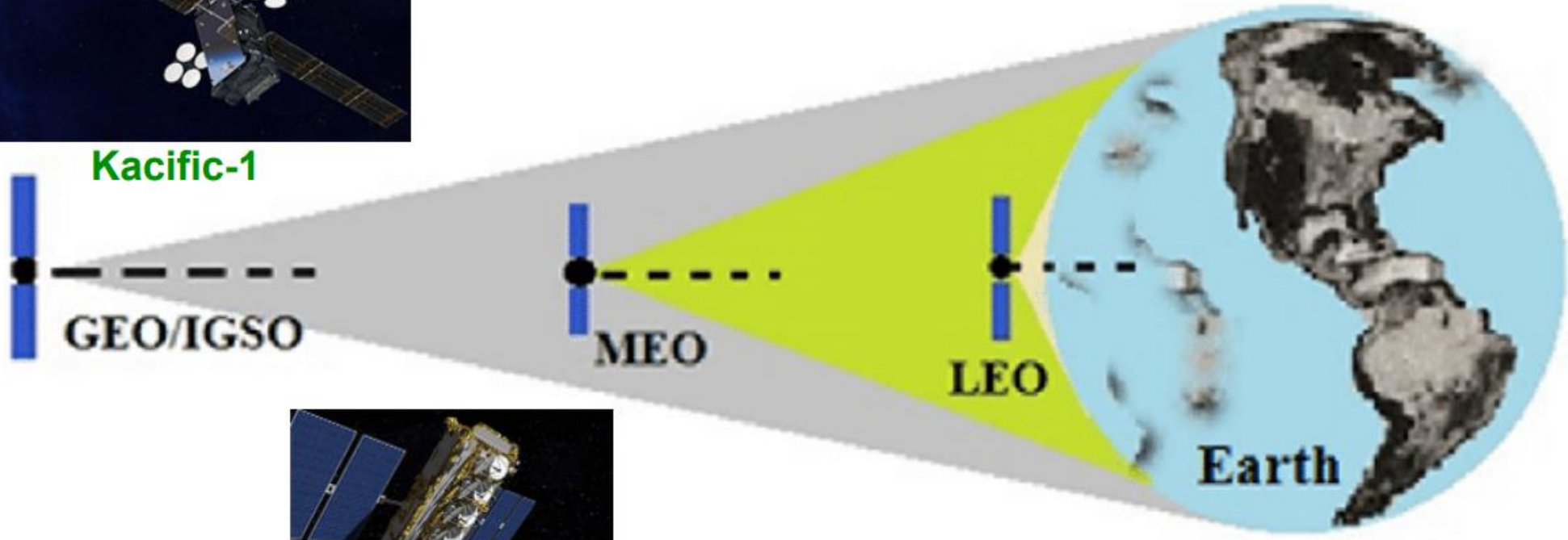
Satellites act as a two-way relay point to link area geographically isolated area to another point which has a strong connectivity to the Internet.

Currently, there are at least 15 telecommunications satellites that have footprint in the Philippines (all foreign owned).

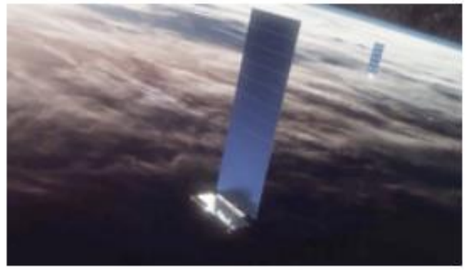
Image derived from Kacific

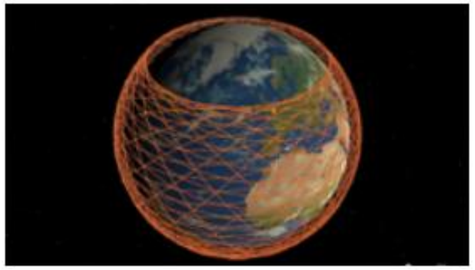
HOW COMMUNICATIONS SATELLITES WORK

Kacific-1



O3b Constellation





Starlink Constellation

ACCESS
MINDANAO

ACCESS Mindanao (**A**teneo de Davao **C**ommunity **C**onnectivity **E**mpowered by **S**atellites **S**ervices for **Mindanao**) is a research and advocacy program of Ateneo de Davao University since October 2020 that aims to improve the state of internet connectivity in remote and isolated areas of Mindanao by establishing a network of schools, hospitals, businesses and communities that are linked to the Internet using telecommunications satellites for education, health, finance, and social/ government services.

ACCESS MINDANAO PHASES

PHASE 1

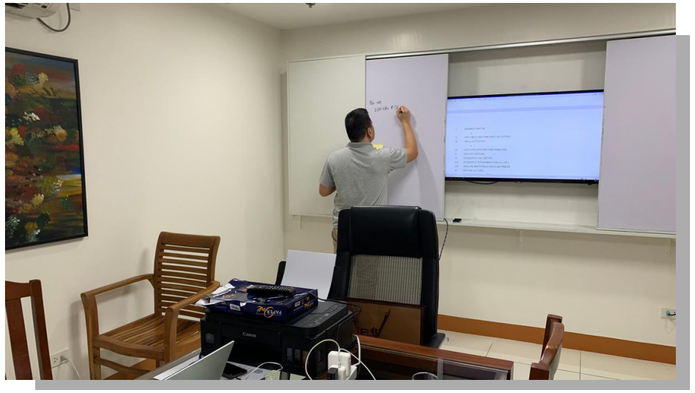
ACCESS Mindanao
Pilot Project
(October 2020 – February 2021)

PHASE 2

Expanding the
Community Satellite
Network Throughout
Mindanao
(February 2021 – present)

PHASE 3

Towards a National
Telecommunications
Satellite and Internet
Democracy
(January 2022 – present)

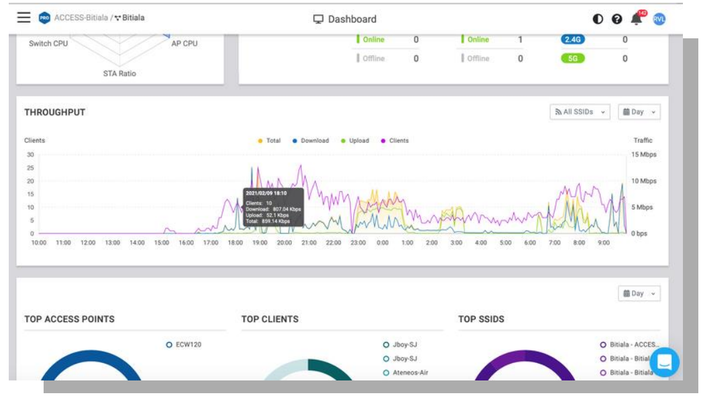


PLANNING

IMPLEMENTATION

SOCIAL PREPARATION

MAINTENANCE & MONITORING



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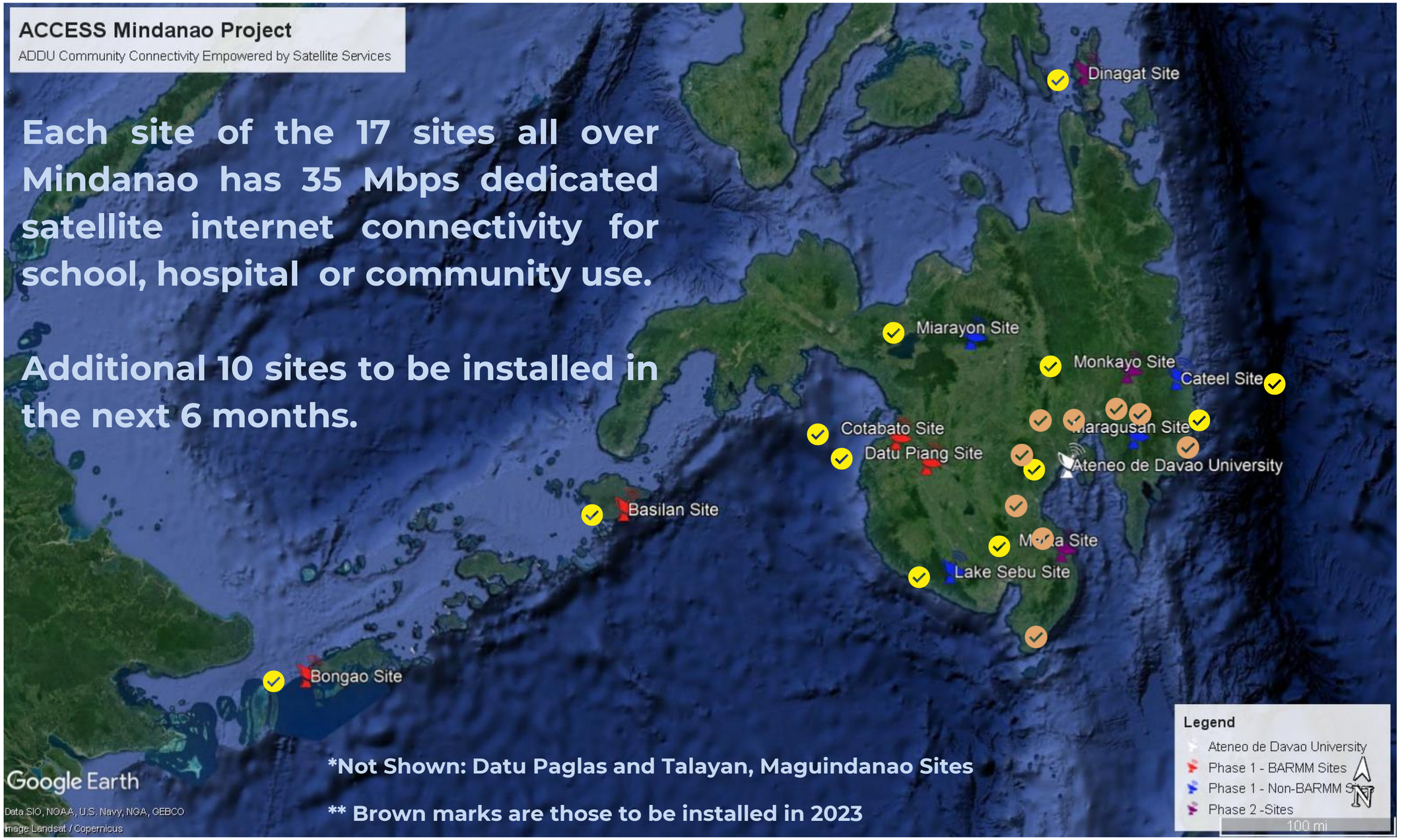
ACCESS MINDANAO PROJECT SITES



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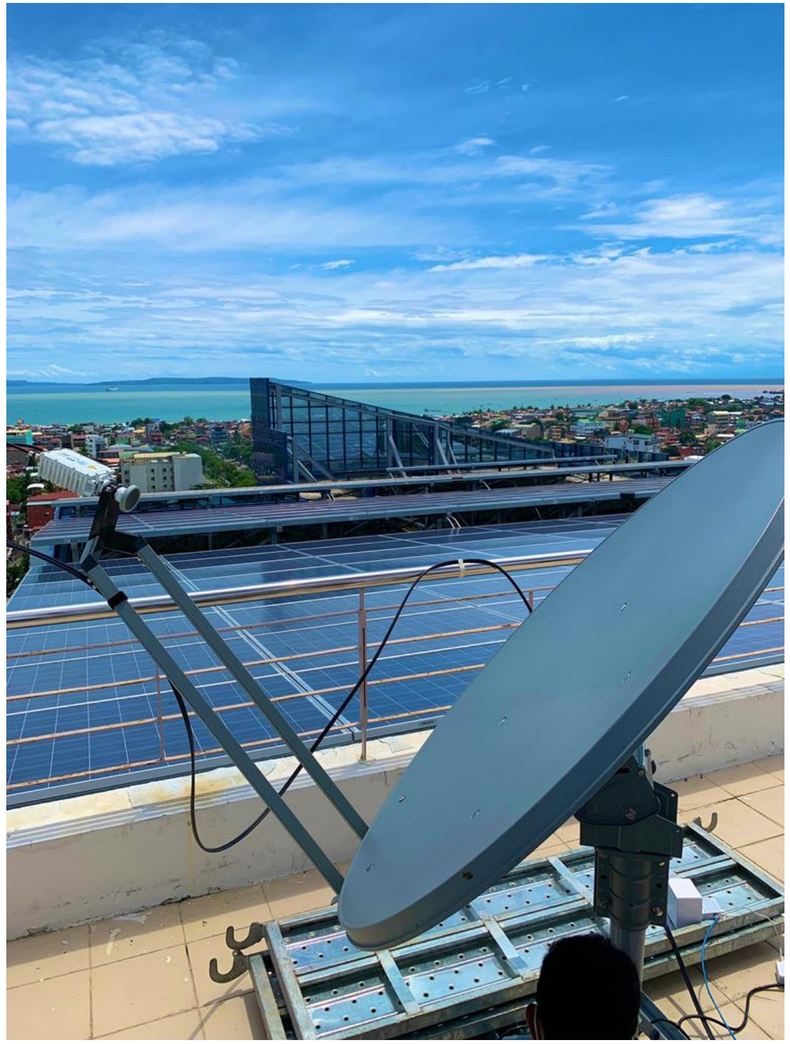
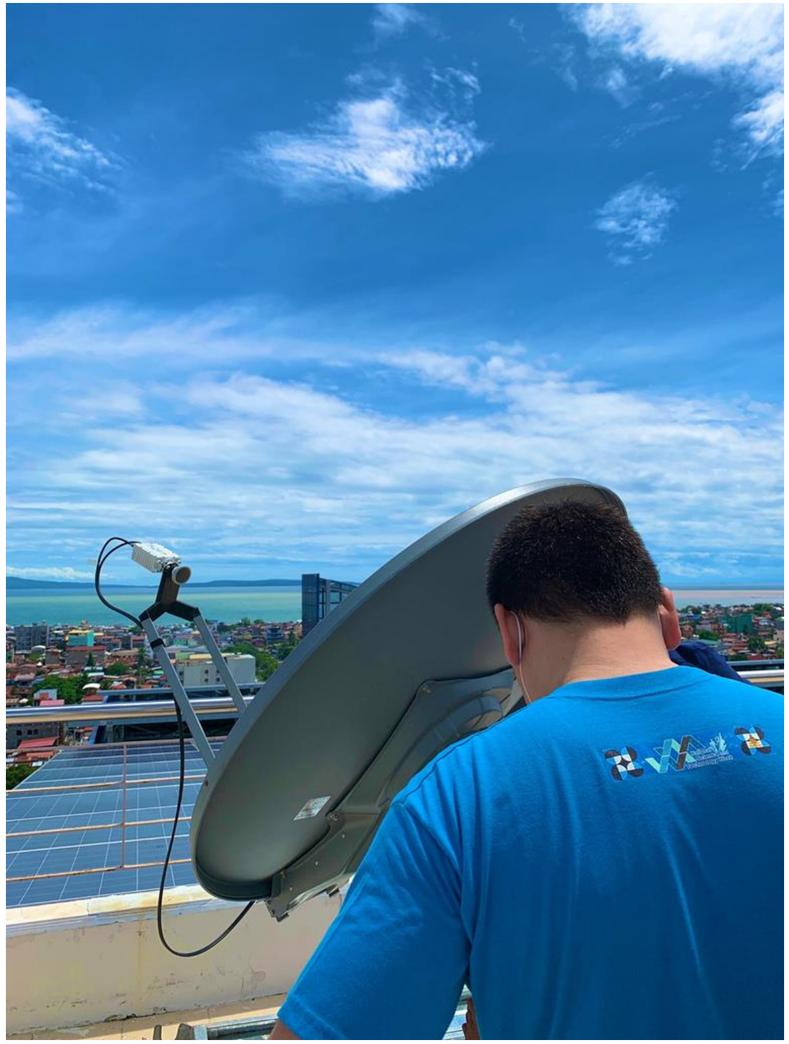
Ateneo de Davao University





ACCESS MINDANAO PROJECT SITES

Tboli Senior High School - Lake Sebu

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Markaz Al-Huzaim Inc. - Datu Piang

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St. Vincent's Academy of Maragusan

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St. Therese School of Miarayon

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Jam-Iyyatu Tuburan Attaqaddumiya Al-Islamiya Ajul, Hadji Mohamad Ajul, Basilan

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Maryknoll Academy of Cateel, Davao de Oro

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Bitiala Center - Cotabato City

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MATAMIS - Malita, Davao Occidental

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Assumption Academy of Monkayo

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Marilog District, Davao City

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Jose Abad Santos, Davao Occidental

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Panglima Damsik - Bongao, Tawi-tawi

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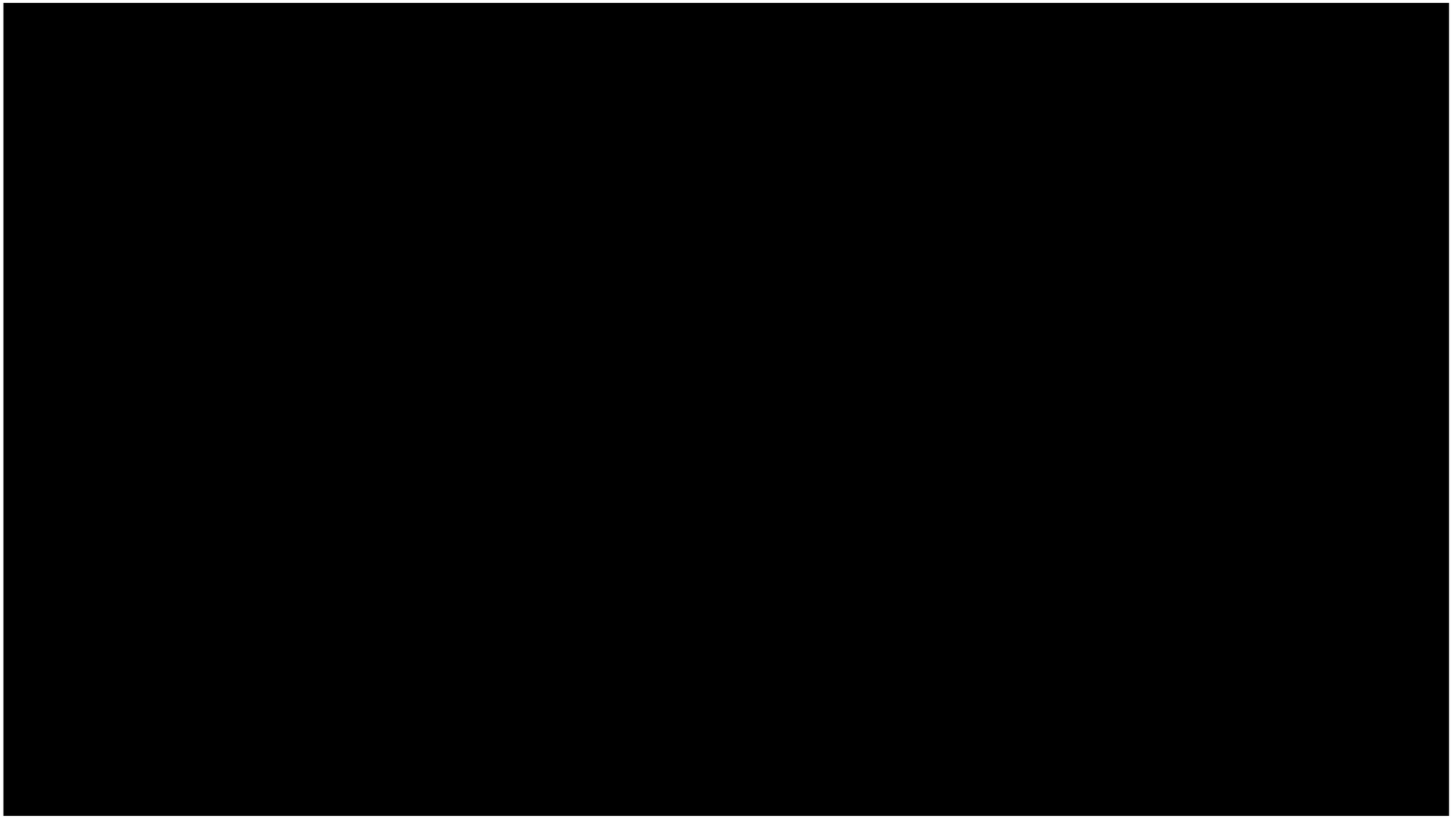
Panglima Damsik - Bongao, Tawi-tawi



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New Leyte, Davao de Oro

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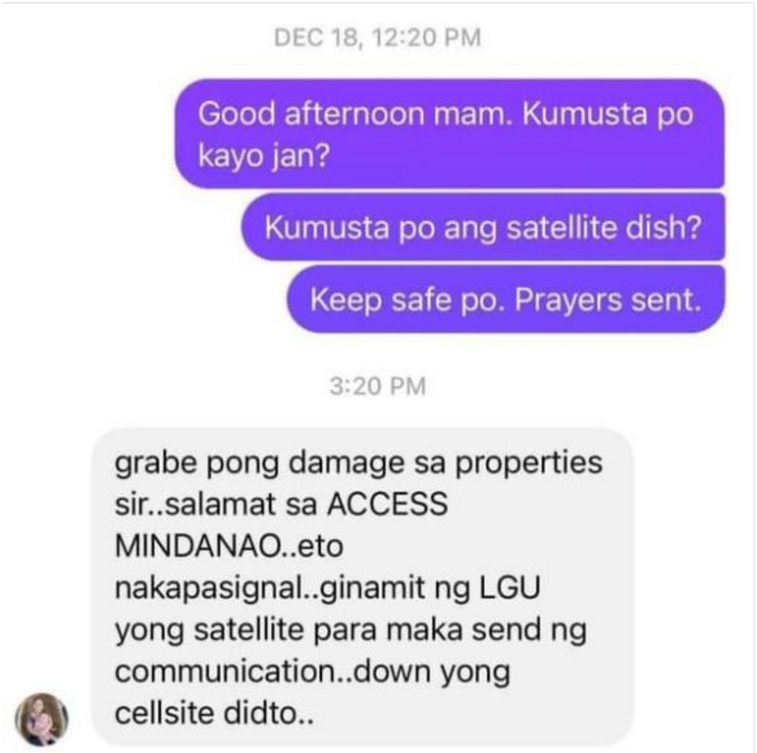
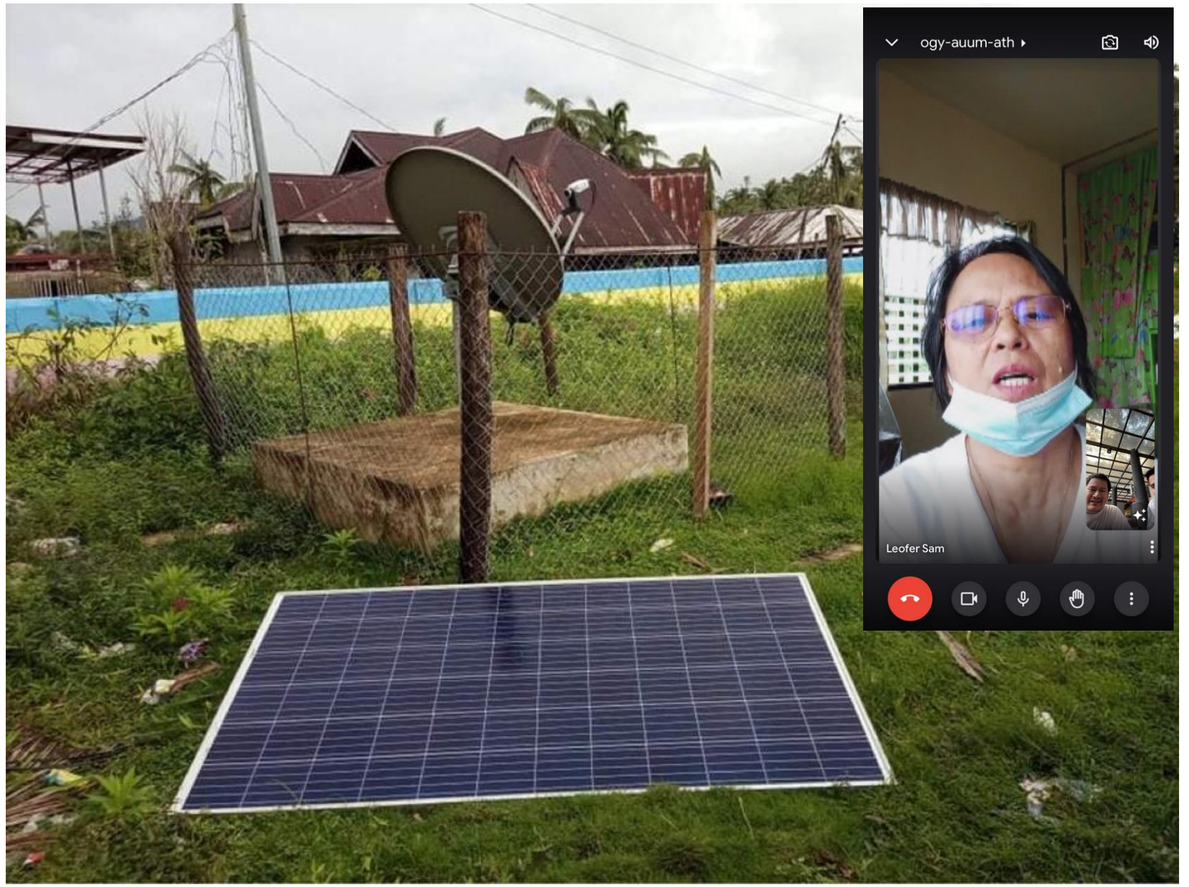
Tubajon, Dinagat Islands

MABINI, TUBAJON - DINAGAT ISLANDS

DURING SUPERTYPHOON ODETTE





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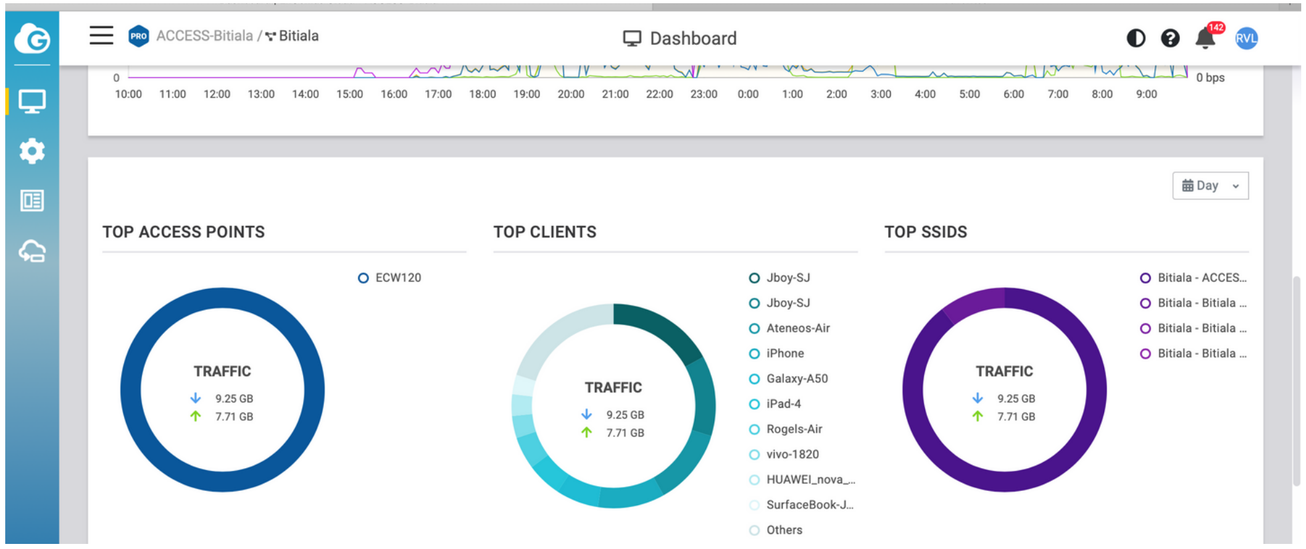
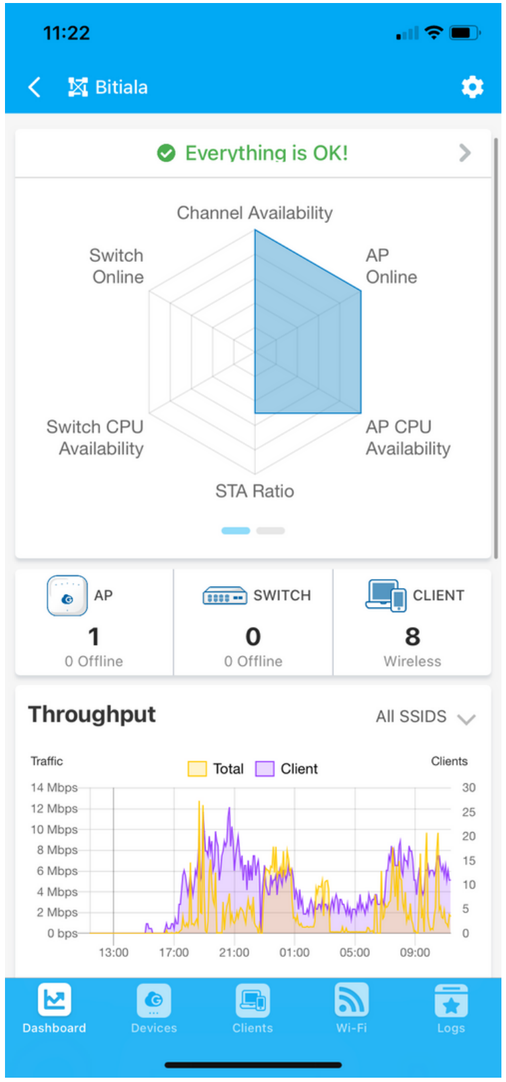
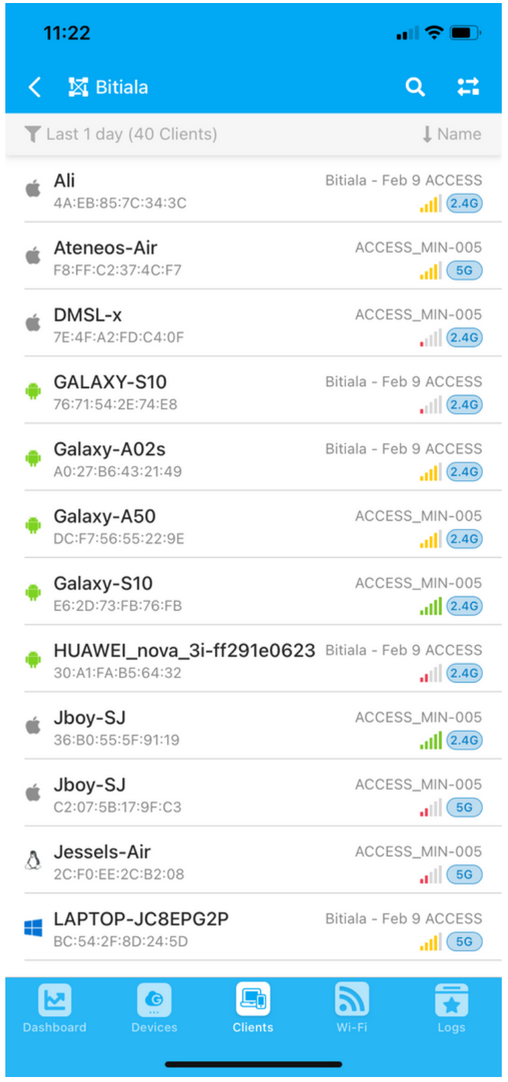
MAINTENANCE AND MONITORING







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PARTNERSHIPS

Collaborations and Linkages

Department of Information and Communication Technology

Mindanao Cluster 1

Mindanao Cluster 2

Mindanao Cluster 3

PEACE 911
City Government of Davao

Department of Science and Technology

Region XI

Diocese of Mati
Mati City, Davao Oriental

Ateneo de Davao Academy of Life-Long Learning

Madaris Volunteer Program

Diocese of Tagum
Tagum City, Davao del Sur

JESUIT REFUGEE SERVICE
Rome, Italy

Catholic Educational Association of the Philippines

DAVAO MEDICAL SCHOOL FOUNDATION
Davao City

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TECH4ED PARTNERSHIP WITH DICT

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TECH4ED PARTNERSHIP WITH DICT

ENHANCING SATELLITE SERVICES

The Need for a Philippine Telecom Satellite

- The Philippines is the only major SEA country that does not have its own national telecommunications satellite;

- Address the lack of connectivity in >60% of barangays nationwide, especially in last mile areas (GIDAS); **utilize technologies such as satellites to immediately bridge the digital divide**;

- **Connectivity as a catalyst for inclusive and sustainable socio-economic development**;

- Providing connectivity in GIDAS can open up opportunities in education, health, social services, commerce and economic activities;

- **Integrating digital literacy programs in infrastructure development projects to drive economic activity**;

- **Maximize the connectivity for tele-education, tele-medicine, e-commerce and e-governance**, not just for leisure and entertainment;

- **Push for policy reforms to further open up the communications sector** and strengthen government, academe and industry partnerships;

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LEARNINGS AND EXPERIENCES

Each site averages around 100-150 GB of data usage per month. Each site has its own unique situation and challenges.

Most applications used area web browsers and social media apps (Facebook, Youtube, Tiktok).

Usage are mainly for submitting administrative reports, attending teacher training programs, student research, and communicating with relatives/friends.

In some areas, communities upload their activities to promote their culture and link with international audience.

Rare cases of signal loss due to hardware issues (e.g. dish misalignment, attempted hacking).

In underserved areas, latency issue is not a priority/important.

Proper social preparation and strong partnerships are key to project success and sustainability.

WAYS FORWARD IN DIGITAL CONNECTIVITY

- **Improve the quality and quantity of digital infrastructure nationwide, including regular assessment and monitoring**;

- Address the lack of connectivity in >60% of barangays nationwide, especially in last mile areas (GIDAS); **utilize technologies such as satellites to immediately bridge the digital divide**;

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CONTACT DETAILS

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