Enhancing Internet Connectivity and Social Inclusivity in the New Normal Using Satellite Technology for a Better-Connected Agriculture Development in Mindanao



Dr. Rogel Mari Sese

Chair, Department of Aerospace Engineering, ADDU

Mr. Raul Vincent Lumapas

Chair, Department of Information Technology, ADDU

Current Internet Connectivity Situation

40% of Filipinos do not have Internet access.

52% of 47,013 public schools is not connected.

80% of SUCs not equipped for online classes.

BARMM has the highest percentage of barangays without internet access (~ 87.2%)

Global Average Speed		
Fixed Broadband	76.94 Mbps	41.09 Mbps
Mobile Broadband	33.71 Mbps	10.89 Mbps
PH Average Speed		
Fixed Broadband	22.31 Mbps	21.5 Mbps
Mobile Broadband	14.23 Mbps	5.61 Mbps
MLab Results	3.41Mbps	2.64Mbps
Davao Average Speed		
MLab Results	2.57 Mbps	2.45 Mbps
		AdDU, 2020)



On Improving Broadband Access

Senate Bill 471 / House Bill 4367 Bilis Konek Act

- filed by Sen. Ralph Recto and Cong. Vilma Santos-Recto
- pending in the Committee for Public Services;

Senate Bill 45 / House Bill 57 Open Access Act

- filed by Sen. Ralph Recto, Sen. Grace Poe and Cong. Victor Yap
- pending in the Committee for Science and Technology;

Free-Wifi Act

- 87.8% of barangays are still without access;

Fiber Internet

- 70.2% of barangays are still without access;

Cellsite Towers

- 63.7% of barangays are still without access;

VISION

A resilient, comfortable, and vibrant life for all, enabled by pervasive, inclusive, affordable, and trusted broadband internet access.

MISSION

Establish broadband as a basic right for all citizens, businesses and government entities

OUTCOME NO. 1 Accelerated Investment OUTCOME NO. 2 Mobilized and Engaged Public and Private Sectors

OUTCOME NO. 3 More Places Connected OUTCOME NO. 4

OVERALL STRATEGY

Provide necessary policy, regulatory and infostructural interventions, to ensure the availability, accessibility and affordability of broadband internet services to Filipinos.

Review and develop laws, policies, and regulations Harmonize broadband- related permits, fees, and processes Ensure protection of critical infrastructure assets	Establish universal access and service fund Facilitate infrastructure sharing Leverage existing government infrastructure and infostructure assets Institutionalize "Dig Once Policy" Use the existing infrastructure of utility companies	Optimize spectrum utilization Leverage the use of satellite and emerging technologies Establish the Philippine Integrated Infostructure (PhII)	 Promote new media, local content, and application development Conduct capacity building and information outreach programs Encourage communities of practice Introduce fiscal incentives to broadband users Strengthen broadband performance monitoring
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Department of Information and Communications Technology's

National Broadband Plan

Strategic Framework

National Broadband Plan

Outcome No. 3: More Places Connected

- Leverage the Use of Satellite and Emerging Technologies (section 2.3.2, page 37)
 - "Considering the archipelagic nature of the country, the use of wireless technologies, for instance satellite and TV White Space (TVWS) technologies, is seen as a feasible alternative in providing internet and broadband internet access in the countryside. Given the geographic layout of the country, it may take time for providers to lay submarine cables on almost all of its habitable islands."
- Leverage the Use of Satellite and Emerging Technologies (section 2.3.2, page 37)
 - The government will provide the following policy interventions, among others, to ensure the smooth implementation and adoption of these wireless technologies:
 - Use Satellite Technologies in Geographically-isolated Areas
 - Given the archipelagic setup of the country, the government considers the deployment of satellite receivers to cater broadband services in the countryside, where other terrestrial and submarine broadband technologies are not feasible.

Bridging the Digital Divide Through Satellites



Satellites provide a means to connect isolated islands and barangays in Mindanao with the rest of the country and the world.

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;

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;

COST-SAVINGS

Flexibility and scalability of the system allows for reasonable pricing;





How Communications Satellites Work



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

Barriers to Satellite Access

Only telecommunication entities with Congressional franchise can access satellites and provide services, by virtue of the Republic Act 7925 and Executive Order 467 (1998).

Dominant telcos are heavily invested in mobile cellular technology, hence negligible commercial use of satellite for broadband.

Internet service providers (ISPs) are not allowed to access satellite for broadband.

New entrants and competition in the broadband sector is hindered by outdated policy and regulations.

WE ARE LIVING IN A WORLD OF DIGITAL TECHNOLOGY BUT USING ANALOG LAWS AND REGULATIONS!!!

ADDU Pilot Testing of Using Satellites for Education



Five (5) locations will serve as pilot sites for the Mindanao Community Satellite Network Program, led by ADDU in cooperation with partner schools, DICT MC1 and MC3 and LGUs.

Centers are located in Davao Oriental, Davao de Oro, Bukidnon, Cotabato City and Tawi-Tawi.

Access will be prioritized for tele-education and telemedicine, but can be used also by the community.

Satellites in Tele-Medicine









Digital Agricultural Revolution Using Satellites



"In the agriculture and food sector, the spread of mobile technologies, remote-sensing services and distributed computing are already improving smallholders' access to information, inputs, market, finance and training."

(FAO, 2019 Briefing Paper)

Access to digital technology can offer farmers:

- links to suppliers and information;
- allowing users to tap into workforce talent;
- build strategic partnerships;
- access support services such as training, finance and legal services;
 - reach markets and customers and enable monitoring of goods.

Remote Sensing for Agriculture



Satellites, together with other technologies such as UAVs, can provide remote-sensing data for precision (or smart) agriculture to increase crop yield and conserve resources to improve farm management and overall performance.

The Need for Space Development

S. No. 1983 H. No. 8541

> Republic of the Philippines Congress of the Philippines Metro Manila

> > Seventeenth Congress

Third Regular Session

Begun and held in Metro Manila, on Monday, the twenty-third day of July, two thousand eighteen.

[REPUBLIC ACT NO. 11363]

AN ACT ESTABLISHING THE PHILIPPINE SPACE DEVELOPMENT AND UTILIZATION POLICY AND CREATING THE PHILIPPINE SPACE AGENCY, AND FOR OTHER PURPOSES

Be it enacted by the Senate and House of Representatives of the Philippines in Congress assembled:

SECTION 1. Short Title. – This Act shall be known as the "Philippine Space Act".

SEC. 2. Declaration of Policy. – It is hereby declared the policy of the State:

(a) To safeguard Philippine sovereignty, territorial integrity, Philippine interest, and the right to selfdetermination as mandated by Article II, Section 7 of the 1987 Constitution; On August 8, 2019, **Republic Act 11363** was signed into law.

National Security and Development

"The Philippines will focus on space applications that can preserve and enhance the country's national security and promote development that is beneficial to all Filipinos." Hazard Management & Climate Studies Space Research and Development Space Industry Capacity Building

Space Education and Awareness International Cooperation

Mindanao plays an important role in the long-term sustainability of the Philippine space program (e.g. telecommunications, remote sensing, rocket launch site).

Satellites can greatly contribute to economic development in Mindanao, bridging the digital divide, providing remote sensing information, increasing security, and improving lives.



SDGs: the relevance of space technology



Policy Recommendations and Way Forward

Conduct the pilot testing of using satellites for providing connectivity in selected locations throughout Mindanao with various partners.

Bridge the digital divide at the soonest time possible (using satellites) by linking remote and isolated communities, enhance tele-education, tele-medicine and and e-governance services; this include providing education and training for farmers and farming communities;

Increase the number of communications satellite users in Mindanao to further reduce cost for everyone and establish a large community of users.

Provide alternative adult education and employment for local residents, farmers, fishermen, and agricultural communities.

Establish cooperation among various stakeholders to make the satellite centre a shared resource to minimize cost.

Policy Recommendations and Way Forward Advocate for better internet connectivity for everyone.

Revision of Executive Order 467 s. 1998 to allow faster deployment of satellite communication and increase the number of operators to drive down cost.

Push for establishing minimum standards (e.g. internet speed) through legislation.

Increase government funding and investment for satellite infrastructure in Mindanao under the National Broadband Plan.

Advocate for launching a national telecommunications satellite, owned and operated by the Philippines, to provide distance education, social services, communications services, and connectivity to Filipinos.



DAGHANG SALAMAT!