"Providing e-health, e-education and e-applications to meet the needs of SIDS in the South Pacific Region"

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1. General

There are 16 small island developing states listed in the Pacific Island Forum in the South Pacific Region. Their total population is about 8.4 million (See table 1). The number of inhabited islands is estimated about twenty thousand. Their major islands are connected by satellites and submarine cables however the most of remote and isolated islands of the South Pacific are unconnected by modern telecommunication means but HF for emergency communication purposes. Transportation is depending on monthly or bi-monthly boat coming to islands to carry islanders, visitors and daily necessary commodity goods, etc. Some islands which have short runway are connected with its nation's capital weekly or bi-weekly by small planes of commercial airline. Development and deployment of modern communication means, fixed and mobile services and various e-applications for those remote and isolated islands of SIDS in the South Pacific is strongly expected. Affordable Telecommunications/ICTs services will surely contribute to the quality of life of islanders. The services on the remote and isolated islands will be commercially unviable, which will depend on the subsidy to compensate the unprofitability. This paper will discuss the tproblems and solutions to be settled from many years of experiences of rural projects by the author.

Author visited the HF station center at the University of Guam watching the emergency signal for rescue from the isolated remote islands for necessary support.

Table 1: List of SIDs in the South Pacific Region (Members of Pacific Island Forum) as of 2024 (MOFA Japan)		
Name of the country	Area(km2)	Population
1. Papua New Guinea	462.000	6,187,000
2. Solomon Islands	534,000	29,785
3. The Republic of Vanuatu	12,189	221,417
4. Republic of Fiji	18,333	827,900
5. Tuvalu	25.9	9,652
6. Samoa	2,935	185,000
7. Kingdom of Tonga	687	99,298
8. Niue	259	1,591
9. The Cook Islands	237	13,572
10. Palau	488	19,907
11. Fedrated States of Micronesia	701	108,000
12. Republic of the Marshall Islands	181	52,700
13. The Republic of Nauru	21.1	10,131
14. The Republic of Kiribati	720	92,428
15. French Polynesia	4,167	278,786
16. New Caledonia	18,575	275,355
Total	1,055,519	8,412,522

2. Study of e-health, e-education and other e-applications and development of telecommunications/ICTs for rural and remote areas by the ITU Development Sector (ITU-D)

ITU Development Sector studied the questions of e-health, e-education and e-applications and development of telecommunications/ICTs by study group's rapporteur groups since 1998. The present TOR of study group's rapporteur groups for 2022-2025 were set by the WTDC 2022 (Kigali, Rwanda).

2.1 TOR of rapporteur group on the study of e-health, e-education and e-applications under the Question 2/2 (Enabling technologies for e-services and applications, including e-health and e-education)

They are collecting inputs from members about their country's case studies/reports and issue analysis reports to provide guidelines and recommendations for membership at the end of four year's study cycle. Subjects of the study are;

i)   ways to promote the development and deployment of e-services and m-services to developing countries,

ii)   new e-health technologies including combating pandemics,

iii)   sharing e-health standardization with developing countries,

iv)   Methods of development and deployment of m-services related to e-commerce, e-finance and e-governance, including money transfer, m-banking and m-commerce.

v)   others

2.2 TOR of rapporteur group on telecommunications/ICTs for rural and remote areas under the question 5/1 (Telecommunications/ICTs for rural and remote areas)

The working methods are same as the rapporteur group of Question 2/2 to issue analysis reports on the inputs from the membership at the end of study cycle to provide guidelines and recommendations. The subjects of studies are;

i)   up-to-date technologies designed to lower infrastructure capital and operating costs

ii)   building broadband digital infrastructure in rural and remote areas.

iii)   business models for sustainable deployment of networks and services in rural and remote areas

iv)   financing mechanisms, including Universal Service Funds

v)   promotion of internet applications such as rural e-commerce, online education and telemedicine,

vi)   others

https://www.itu.int/en/ITU-D/Study-Groups/2022-2025/Pages/reference/Questions-under-study.aspx

3. Needs of infrastructure development and deployment for South Pacific island countries
    Now infrastructure for SIDS of South Pacific is gradually provided by submarine cables and satellite with the international aid, however the many remote and isolated islands are left behind because of geographical, financial and other difficulties.

New technologies such as low earth orbit satellite will make it possible to provide accessibility for population of the remote and isolated islands, however still remain the problem of funding projects and affordability of services for islanders. Projects of construction of optical submarine cables to connect South Pacific island countries with Australia, Fiji and United States are now launched for promoting socio-economic development, security/safety preparedness and disaster mitigation, etc. for the island countries. Needs are high for the life of islanders but the barriers to be overcome. Investment for development and deployment of national infrastructure of each SIDS are also much needed for domestic fiber networks and the penetration of FTTH, broadband mobile services and public WiFi hot spots, etc.

Donation of fusion splicer for optical fiber and training given by KDDI experts at MINTA premise of Majuro, RMI as APT's project

4. Needs of e-health and other e-applications services for South Pacific island. countries

It is described in the communiqué of recent Pacific Island Forum (53rd PIF) the needs of e-health services in the Pacific island countries are high. To combat non-communicable diseases (such as diabetes and obesity, etc.), e-health services are highly needed. Declaration of Pacific Island Leaders Meeting (PALM10) which took place in Tokyo last July says to reinforce their efforts for a well-connected region that ensures inclusive, affordable and accessible air, sea and land transport

and Information and Communication Technology (ICT) infrastructure. E-education services are also in vital needs for the youth of remote and isolated islanders. There are elementary schools on the islands but teachers are not resident but visiting periodically. If the island is connected by any means e-education can be applied for young islanders. Power supply by the renewable energy is the key issue of the islands to be taken into consideration.

Dispensary on Mejit island of RMI now connected with Majuro by satellite

Left: Photo: local dispensary, Pohnpei, Right Photo: High school students, Kosrae, FSM

5. Accessibility to the e-application services and m-services
Services of e-applications such as e-health, e-education, e-commerce, e-government, e-agriculture, etc. in the small island countries will be made

available over the broadband satellite or fixed/mobile networks extended to islands. Information to be provided by internet website will be useful for the life of islanders and other e-services if provided by affordable cost will make the life of islanders more healthy, wealthy and happy. Intelsat recently reported that Intelsat partnered with the Marshall Islands National Telecommunications Authority (MINTA) to develop a multi-phase approach, utilizing small cell technology to establish a 2G network and provide voice communications to the remote islands. Intelsat and MINTA successfully deployed 60 small-cell bay stations, a satellite hub, and other equipment across the islands. Thanks to this partnership voice connectivity was offered to 100 percent of the country, transforming the lives, and opening new opportunities for communication, and economic growth. It also says the upcoming phases will bring 3G and 4G data connectivity to enhance education and healthcare services. Satellite technology will have the potential to provide connectivity to remote and isolated islands and the accessibility to ICT services for islanders with affordable cost. KDDI team implemented the satellite network extension to Mejit island of Republic of Marshall Islands and made it possible to provide the 2G mobile services connected with MINTA's national networks by GSM cellphones deploying femto-cell technologies. The project was funded by APT.

Photos: MINNTA and KDDI team on Mejit islands celebrated the building satellite station powered by solar panel.

Photo: Presentation of satellite connectivity project and the services for Mejit islanders.

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6. Financial resources for the development

Development and deployment of infrastructure and penetration of various ICT services for small island countries in the South Pacific needed much more financial resources. In most of countries Universal Service Fund (USF) funding mechanism is introduced for investing the development of infrastructure of rural and remote areas. In the majority of cases, the operator contributions are in the form of a levy based on a percentage of annual operating revenues. There are frequently other sources of funds including, but not limited to, licensing fees, full or partial proceeds from spectrum auctions, direct contributions from government budgets, contributions from international agencies such as the World Bank, regional development banks, etc. Additionally, international aid institutes and international organizations (for example: ITU and Asia-Pacific Telecommunity) are providing fund for projects for ICTs development on application basis. Public Private Partnership (PPP) is the other option for funding the project.

7. Conclusion

According to the International Telecommunication Union's (ITU) ICT development index, one-third of the global population (2.3 billion), remain offline as of 2024. Population of number of remote and isolated islands of South Pacific is almost offline and left behind the benefit of information age. Accessibility to the islands by air, sea and land transport is their challenge. Incestuous marriage among islanders because of geographical isolation may result in genetic diseases and probable population of disabilities. Social welfare system is prepared in each

country to save disabilities. Development and deployment of communication infrastructure, fixed/mobile networks, internet connectivity and e-application services will ease the life of all of islanders. PTC community may extend any form of assistance to South Pacific island countries for improvement of the life of isolated islanders.

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