

Information and Communication Technology for Development in the Pacific

The role of information and communication technology (ICT) in fostering poverty reduction efforts and socioeconomic development in the Pacific region

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Foreword

This publication is part of the Pacific Studies Series, which aims to assist governments in policy development and provide additional inputs to the Asian Development Bank (ADB) and other assistance agencies in the design of their aid programs.

As many developed and developing countries and governments have begun to realize, information and communication technology (ICT) holds tremendous promise for improving economic growth and the quality of life. But as technology capabilities advance at lightning speed, there is concern that the small and remote island countries of the Pacific will be left further behind.

This publication illustrates the positive role ICT can have in assisting governments to reduce poverty and improve socioeconomic development in the Pacific region. It reviews how ICT can address poverty in the Pacific and how organizations and countries use ICT as a tool for development. It outlines the beginnings of ICT in the Pacific, ADB's possible role in promoting its use in the region, specific areas where ICT can be applied, and the overall strategy for utilizing ICT for development. Lastly, this booklet describes several of ADB's ICT projects in the Pacific, and lists the organizations currently engaged in ICT activities in the region.

The objective of this booklet is to raise awareness among the different stakeholders on the role ICT may play in helping to develop the Pacific region. As there is no consolidated information available on the use of ICT in the region, this publication will assist in defining strategic directions and encourage organizations to reduce poverty by improving the delivery of basic services, such as education and health, through the use of ICT.

As the Pacific countries become more familiar with this new tool, many questions will be raised, such as how they can improve the use of ICT to meet their unique needs, which government services can benefit most from this technology, and what activities and policies in

areas such as telecommunications, education, health, and employment may have to be reviewed for the countries to obtain the maximum benefit from ICT.

ICT can be a powerful integrative tool for the widely dispersed countries of the Pacific, since it can bring diverse users and governments together through better communications and the use of similar processes, and at the same time allow them to retain their individual identity.

This publication was prepared by Gabriel Accascina and Victor Gruet (ADB consultants), under the direction of Luigi Bodda, Project Economist in ADB's Pacific Department. I would like to thank the governments of ADB's developing member countries in the Pacific for the cooperation and support they provided during the preparation of this report. This study also benefited from access to information from other donor institutions and organizations involved in ICT. ADB looks forward to a continuing dialogue with these governments and institutions to explore further opportunities for using ICT to improve the lives of people in the Pacific.

Jeremy H. Hovland Director General Pacific Department

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Abbreviations	
ADB	Asian Development Bank
CHW	community health workers
GIS	geographic information system
GPS	geographic positioning system
G2G	government-to-government
G2B	government-to-business
G2C	government-to-citizens
G2D	government-to-donor
HMIS	health management information system
ICT	information and communication technology
ISP	Internet service provider
IT	information technology
kbps	kilobits per second
KMR	Kwajalein Missile Range
MDG	Millennium Development Goal
NGO	nongovernment organization
NLTB	Native Land Trust Board
NOC	network operating center
PDMC	Pacific developing member country
PEACESAT	Pan-Pacific Education and Communication Experiments by Satellite
TA	technical assistance
TV	television
UN	United Nations
UNDP	United Nations Development Programme
UNTAET	United Nations Transitional Administration in East Timor
US	United States
USP	University of the South Pacific
UUCP	Unix to Unix Copy Protocol
VSAT	very small aperture terminal

Introduction

"The most critical factor in breaking the cycle of poverty is the empowerment that comes from access to information and knowledge."

-ADB President Tadao Chino¹

Poverty Reduction: the Asian Development Bank's Overarching Objective

Close to 900 million of the world's poor (that is, people surviving on less than \$1 a day) live in the Asia and Pacific region. Nearly one in three Asians is poor. Poverty trends have worsened due to the Asian financial crisis, and population growth is adding to the absolute number of poor people.

ADB's vision is an Asia and Pacific region free of poverty. Therefore, the mission of ADB is to help its developing member countries reduce poverty and improve their living conditions and quality of life.

ADB shares the view that poverty is a deprivation of essential assets and opportunities to which every human being is entitled. Everyone should have access to basic education and primary health services. Poor households have the right to sustain themselves by their labor and be reasonably rewarded, as well as have some protection from external shocks. Beyond low incomes and lack of basic services, individuals and societies are also poor—and tend to remain so—if they are not empowered to participate in making the decisions that shape their lives. Poverty is thus best measured in terms of basic education, health care, nutrition, water, and sanitation, in addition to income, employment, and wages. Such measures must also serve as a proxy for other important intangibles, such as feelings of powerlessness and the lack of freedom to participate in the wider society.

¹ Tadao, Chino. 2003. Keynote Address. Presented at the World Summit on the Information Society, Asia Regional Conference, Tokyo, Japan, 14 January.

Millennium Development Goals

As part of ADB's regular assessment of its long-term priorities, ADB realigned its long-term strategic framework at the turn of the millennium and integrated it with the eight Millennium Development Goals² (MDGs), which provide a framework for working toward a world in which sustaining development and eliminating poverty have the highest priority. The goals, which grew out of the agreements and resolutions of world conferences organized by the United Nations (UN) over the past decade, were affirmed at the UN Millennium Summit in September 2000 and adopted by the international community.

The MDGs include eradicating extreme poverty and hunger, achieving universal primary education, improving child and maternal health, reducing disease and increasing access to safe drinking water and sanitation.

Most important for promoting ICT, the eighth MDG is to develop a global partnership for development, in cooperation with the private sector. One of the targets of this partnership aims to make available to developing member countries the benefits of new technologies, especially in information and communications.

Three Pillars of Poverty Reduction

ADB addresses these MDGs and responds to the development challenges of the region through its long-term strategic framework. The framework includes three core strategic areas of intervention, consonant with the poverty reduction strategy: (1) pro-poor sustainable economic growth, (2) inclusive social development, and (3) governance:

- 1. Pro-poor sustainable economic growth covers broad-based growth-promoting activities, including investments in both physical and social infrastructure and in an environmental program that promotes environmentally sound development.
- 2. Inclusive social development includes investments in social support programs and a policy and reform agenda that will

² The website address is: www.un.org/millenniumgoals

- promote equity and empowerment, especially for women and disadvantaged groups. This area focuses on human capital development, population policy, social capital development, gender equality, and social protection.
- 3. Governance for effective policies and institutions includes support for public-sector management at all levels; legal and judicial reform; and improved public accountability, including public participation, predictable legal frameworks, transparency, and anticorruption initiatives.



Information on market prices and buyers can reduce poverty for farmers in the Pacific

Information and Communication Technology as a Development Tool

What is ICT?

The term "ICT" describes the use of computer-based technology and the Internet to make information and communication services available to a wide range of users. The term is used broadly to address a range of technologies, including telephones. Central to these is the Internet, which provides the mechanism for transporting data in a number of formats including text, images, sound, and video. Additionally, ICT deals with the application layer, the systems that enable information to be collected and distributed, analyzed, and processed.

However, while ICT is generally adaptable to different information needs and circumstances, its effectiveness in solving development issues still depends on the content it carries. ICT does not create information and does not verify its validity, which is still a human endeavor.



Teacher training materials can be distributed to remote areas using ICT

Further, in developing countries, ICT has relevance both vertically and horizontally. Vertically, ICT constitutes a sector of its own. The acquisition of human resources and technical capacity, the procurement of equipment, the programming of software, and the installation of networks have made ICT a substantially important market in almost all countries. This market has been fueled by the growth of the Internet and the World Wide Web and by new web-enabled applications, ranging in scope from e-government to e-commerce solutions. Horizontally, ICT provides the means to support activities that benefit from prompt and reliable information. In the Pacific, the tourist industry has used the Internet to make bookings and provide online information about resorts, while telemedicine has made health care in remote areas more available and affordable.

Information, the Internet, and the Multiplier Effect

The truly revolutionary nature of the Internet breaks the barrier of traditional communication systems such as radio, TV, and the print media, which are point-to-multipoint systems, and the telephone, which is normally a point-to-point technology system. The Internet is the first widespread multipoint-to-multipoint communication technology ever used. Through the Internet, everyone can be the broadcaster, the receiver, or both. This innovation creates a multiplier effect in which, once content is created, it can be made available through e-mail, websites, distribution lists, or digital file exchange to those interested. The cost of information transport, beyond its initial creation and the cost of an individual connection to access it, becomes very low, compared to the size of the audience it can potentially reach.

The use of the Internet, hence, represents a radical departure from the traditional way that the government, media, academe, and others have controlled information. Today people are free to read alternate news sources, consumers can compare products and services, and students can do their research outside the printed media that, especially in developing countries, may be outdated or not available. To make this even more important to the evolution of modern society, people today place information on the Internet and benefit from a much more democratic tool to distribute their ideas and opinions.

Of course, abuse of this media is a reality as well, but overall the Internet has given birth to the modern concept of the "Information Society."

ICT and Poverty Reduction

Increased access to information will allow the poor, and those in isolated areas, to gain access to a wider range of options and, therefore, to play a greater role in determining their future.

At the local level (the village or the district), ICT can provide people with information about local market prices and services that can benefit them, such as sound health practices and opportunities to obtain practical skills, knowledge, and education. At the national level, more complex ICT systems carry information about job and investment opportunities, and trade of goods and services. Finally, at the broadest level, ICT systems connect to the global information and market infrastructure.

ICT can help reduce poverty through several types of interventions. The first type benefits the poor directly and usually happens at the local level. The clearest example is the farmer who benefits from technology to get daily market prices and can subsequently buy seeds at 20% less and sell produce for 20% more by eliminating brokers. Although the technology may only be available in a nearby town center, and the data carried to the village level on paper or by word of mouth, the farmer is still the direct beneficiary of the information.

The second type is indirect intervention, which occurs where the benefits of ICT are felt "upstream" from the poor, but may trickle down through the socioeconomic fabric. An example is a child who came from a very poor family but managed to go to school. She now works in the capital city, at a job that uses ICT, such as a call center, or the software development firm of a back-office transaction company and uses her salary to support relatives in the village. This example is common today in the Asia and Pacific region, and may comprise the majority of all cases of alleviating poverty through ICT.

The third type of intervention occurs when ICT is used to support poverty reduction mechanisms and development projects. Management of poverty reduction initiatives can be greatly aided by introducing technology. For example, a database might be used to organize and monitor the progress of a number of poverty reduction projects implemented by a development organization. The data may be obtained through direct polls of staff in the field, e-mail, informative websites, monitoring and evaluation systems, and others with the intent to make development activities more effective.

Box 1: Examples of ICT in Poverty Reduction

Price information: Access to commodity price information allows local farmers or fisherfolk to select sales and purchase terms and locations, rather than being forced to rely on brokers. Local fishery and agriculture cooperatives can be supported by ICT in their efforts to aggregate products, creating the needed scale to supply a larger national or global market.

Legal information: Access to information about citizens' rights or how a country's social system operates contributes to good governance. Often, poor citizens or those in rural areas are unaware of their entitlements. ICT-enabled nongovernment organizations (NGOs) and social workers can play a more effective role by acting as providers of information and linking citizens to the legal system.

Micro-lending: ICT paired to micro-lending systems open a number of avenues for access to larger markets. The development community has yet to take full advantage of opportunities to provide funds to foster revenue making activities and channels, via ICT, to market goods and services produced from those activities. Crafts and tourism, especially the growing area of ecotourism, are sectors that can benefit immediately.

ICT as a Means, Not an End

ICT is a tool; it cannot improve conditions or create jobs by itself. ICT has to be linked with efforts to improve programs and systems, whether in education, business, health, or government.

Like other systems or equipment, ICT needs a complete life cycle designed for sustainability. People should be trained to be responsible for the proper operation and maintenance of ICT systems; otherwise these systems will fail and prove costly to restore.

What works in developed countries may not necessarily work in developing countries. Like all other development tools, ICT will have to adapt and fit properly within the environment in many areas, including language, user training and capability levels, and culture, in addition to having sufficient financial support.

If the objective is to change or improve the existing environment of which ICT will become a part, then a comprehensive change management process is needed for the proposed system to have a chance to succeed.

The Pacific

Poverty in the Pacific

Poverty in the Pacific is not about lack of food. It is mainly the lack of access to basic services: basic services such as health and education that are highly information-based. Because people in the Pacific maintain close extended family ties, and because food in the form of crops and seafood is relatively available, hunger has not been a major difficulty for most of the Pacific countries. What has not occurred, though, is the provision of access to government services, especially in villages far from national capitals. Service delivery can be drastically improved by increasing people's ability to obtain information and promoting the two-way flow of information. Without information, the poor also lose out on livelihood training, jobs, and other income opportunities. This is especially true for the ADB's Pacific developing member countries (PDMCs) that are made up of many islands scattered across the Pacific. Poverty, then, can also be defined as being deprived of the information needed to participate in the "wider" society, be that at the local, national, or global level.

History of ICT in the Pacific

Although computers have been used for years by many institutions in the Pacific, the history of ICT and the Internet in the Pacific goes back to the early 1990s, when the University of the South Pacific (USP) used a dial-up store-and-forward e-mail system³ and made this service available to faculty and graduate students on campus. Later, USP established the first Internet connection through Australia by leasing a low-speed 2.4 kilobit per second dedicated line to connect to its Internet service provider, the Australian Academic and Research Network.

Store and forward, and Unix to Unix Copy Protocol (UUCP) allowed computers to send bulk batches of mail or files from one computer to the next.

In addition, the University of Hawaii has operated the Pan-Pacific Education and Communication Experiments by Satellite⁴ program (PEACESAT), using a retired NASA ATS-15 satellite. PEACESAT operates on an experimental license and is strictly non-commercial. The PEACESAT system is connected to a number of earth stations in all Pacific countries and Hawaii, and is used mainly for educational purposes.

As early as 1994, the Tripler Army Medical Center in Honolulu, Hawaii developed a telemedicine program to support hospital services at Kwajalein Missile Range (KMR) Hospital in the Marshall Islands.⁶ This program allowed high-resolution color images with simultaneous voice transmissions to be sent to Hawaii for diagnosis. It has had a significant impact on the number of medical referrals by the KMR Hospital, saving time and money. The center is collaborating with the Pacific Basin Medical Officers Training Program in Pohnpei, Federated States of Micronesia, and PEACESAT to expand ICT-based medical services in the region. These experiments have shown that telemedicine has the potential to save not only lives but also a considerable amount of money and time in transporting patients from often-remote islands to central hospitals.

Also in 1994, the South Pacific Commission started a United Nations Development Programme (UNDP)-funded project, the Pacific Sustainable Development Network (P-SDN). The P-SDN uses a low-cost e-mail package called Pactok. This e-mail service works on the storeand-forward principle. An additional service that P-SDN offers is electronic conferences on the subject of sustainable development. P-SDN is operated on a non-commercial basis.

Internet connectivity started to take hold in the Pacific in 1995 when the Forum Secretariat (a regional organization of Pacific island

⁴ The mission of PEACESAT is to (1) facilitate "development" or "public service" telecommunications and information technology; (2) undertake telecommunications applications and technical experiments using satellites in the Pacific island region; and (3) operate a public service satellite network in the Pacific island region. The main focus of PEACESAT has been in the areas of education, health, and medical emergencies, emergency management, and technology transfer. See www.peacesat.hawaii.edu

⁵ Applications Technology Satellite 1 was launched in 1966 and was designed for testing new concepts in spacecraft design, propulsion, and stabilization; cloud cover and meteorological data; and testing improved communications systems.

See www.peacesat.hawaii.edu/info/papers/telemed4.htm

countries based in Suva, Fiji Islands) convinced New Zealand Telecom to install a free 64 kilobit per second (kbps) circuit and used it to demonstrate the first fast Internet connection during an IT conference. This created a substantial amount of interest, which led Fiji Telecom to establish the first Internet service provider (ISP) and it rapidly caught on in other Pacific countries.



A customer at the Fiji International Telecom's Internet business office

Present Situation

Today, all Pacific island countries' main islands and capitals are connected to the Internet either via oceanic cables or satellite. This does not, however, extend to smaller outer islands, which use radio and telephone for voice communication. Data infrastructure in the Pacific is still not developed because the distance and low population density of many areas is often unable to offset the cost of setting up and maintaining data communication infrastructure.

Many organizations have been playing a role in expanding Internet access. In each country, the national telecom agency (e.g., Solomon Telekom Company in Solomon Islands) is an ISP, and the local and/or long-distance provider (e.g., Telecom Services Kiribati Ltd.) provides international gateway services. In some countries, downstream ISPs sell services to end-users, often as a non-profit endeavor or for educational purposes. Active organizations in this respect are the Forum Secretariat, USP, and South Pacific Applied Geoscience Commission (SOPAC). (See "Useful References," and "Pacific Organizations Engaged in ICT Activities" at the end of this booklet for a list of these organizations.)

Government

Pacific island governments are also adopting ICT applications. Apart from standard financial packages adopted by ministries of finance for treasury, taxation, payroll, and asset management, governments are working toward e-services. This includes a number of specialized government websites to promote commerce, tourism, and trade, which are now common to almost all countries.

Table 1: A Sample of Pacific Governments on the Web

Country	Address
Cook Islands	http://www.cook-islands.gov.ck
Federated States of Micronesia	http://www.fsmgov.org
Fiji Islands	http://www.fiji.gov.fj
Papua New Guinea	http://www.pngonline.gov.pg
Solomon Islands	http://www.commerce.gov.sb
Timor-Leste	http://www.gov.east-timor.org
Tonga	http://www.pmo.gov.to
Vanuatu	http://www.vanuatugovernment.gov.vu

Other initiatives include the use of the Internet and websites to assist in managing aid and fostering transparency by accounting for funds received for development initiatives. When properly implemented, aid management systems give both government departments and donors a chance to obtain instant reporting on the sectors that have benefited from international aid and reduce duplication and irregularities in the management of these funds.

Business

Many businesses in the Pacific use ICT and the Internet intensively. The site http://www.southpacificbusiness.com is a good portal for business opportunities in the region, since it carries information about investment, employment, real estate, and shopping. The site also hosts business-related technical forums. The Fiji Islands is particularly advanced in business and ICT, and the new submarine fiber optic cable Southern Cross is expected to open up new business opportunities including offshore data processing centers.

Tourism's use of ICT originated in the mid-1990s when the Tourism Council of the South Pacific launched its first site, still regularly updated today at http://www.tcsp.com. This site promotes tourism in the Pacific and links to national portals, travel agents, and other useful information.



An Internet cafe in Suva, Fiji Islands

Education

USP has been at the forefront of the use of ICT in education. USP has used the PEACESAT system for voice-based distance education for years. USP's Internet-based network connects campuses in the Fiji Islands, Samoa, and Vanuatu. ADB is studying the possibility of expanding the system to allow more students to connect to USP's network through remote dial-up connections.

Lessons Learned in E-Government

While the application of ICT to government operations (e-government) is being used in many countries to replace outdated manual processes, a number of lessons have been learned that emphasize the importance of the following:

- 1. Business process reengineering—It is critical to assess existing manual procedures and understand if and how they can evolve into digital processes. Often it is found that the application of technology necessitates a "reengineering" of these processes and the transformation of entire practice areas:
- 2. Skill retooling—When processes change and become assisted by ICT, new skills are required. It is important to identify the type of human resources necessary to implement e-government services and existing staff retraining needs;
- 3. Decision support systems—The information decision makers need to do their jobs more effectively can be assembled from a variety of sources, making it easily accessible. However, policies, applications, and infrastructure must be in place to allow data to move from its source to its destination; and
- 4. Effective interdepartmental computer networking—This is a precondition to exchanging digital data between government ministries and departments, and with external entities.

ADB's Pacific Department and ICT

Current Strategy

"ADB will work with the Pacific developing member countries to utilize information and communication technologies to overcome constraints associated with smallness and isolation, and to realize potential gains offered by links to a global market "7"

Demand-Supply Assessment

ADB financed a technical assistance (TA) project to assess ICT readiness in the PDMCs. The project identified and discussed several possible e-government assistance projects at national and regional levels.⁸ It also emphasized the opportunity to plan and implement a subregional e-government project, with easy maintenance and replicability in the Pacific countries, that could dramatically move the countries' e-government standing from stage 1 or 2 (3 in a few cases) to stage 5 or even 6 (see Box 2). Such a project would assist in addressing poverty and improving the quality of life in the Pacific through, for example, enhanced government decentralization, financial control, project control and monitoring, community engagement, disaster mitigation, and improved provision of health and education services.

ICT applications may be used to closely manage and monitor funds for projects in the Pacific to improve performance. The respective executing agencies and the other stakeholders (including ADB) could monitor the overall progress of the work being done, whether it is bid out or executed directly; track the project status and reporting by contractors; and obtain feedback and interact with local governments, NGOs, and

⁷ ADB. 2000. A Pacific Strategy for the New Millennium. Page 39.

Examples are e-procurement, school networking, distance learning, and the disaster mitigation network. See the "Summary of ADB's ICT Projects" on page 20.

Box 2: Six Stages of E-Government

Clay Wescott, in his paper *E-Government in the Asia-Pacific Region*, wrote that governments may be classified as going through six stages in the road to e-government.

Stage 1: Setting up an e-mail system and internal network

Governments will normally start with the usual payroll and financial systems as stand-alone systems, but in a short time these will move on to networked systems, enterprise resource planning systems, and then on to e-mail and access by government employees to the Internet.

Stage 2: Enabling inter-organizational and public access to information

Once the basic government office systems are interconnected via local and wide area networks, the natural progression is to automate workflow or processing systems across these offices, especially those that handle transactions with the public. The public will also now be able to access or download government information, and submit data for processing.

Stage 3: Allowing 2-way communication

The next stage allows 2-way communication between the government and the public using ICT, initially prompted by telephone, fax, and other contact information published on the website. This stage involves the citizens and government offices in a direct communication path that improves government services to its citizens.

Stage 4: Allowing exchange of value

In this stage, ICT supports the development of more flexible and convenient ways for citizens to conduct business with the government. Examples are procurement of office supplies, cultural products, databases for information on suppliers, pre-qualification, contractor performance records, license renewals, and tax payments. Online systems allow fast and secure transmission of payment details, reduce payment reconciliation times, reduce costs, and improve quality.

Stage 5: Empowering society: digital democracy

ICT applications empower civil society organizations by allowing citizens to gather information and make it available to a wider audience than is usually possible, allowing new forms of businesses to be established from the grassroots, creating a venue for fundraising, increasing awareness of government corruption, allowing voting using ICT-enabled websites, and disseminating voter information.

⁹ Wescott, C. 2001. E-Government in the Asia-Pacific Region. Asian Journal of Political Science, 9 (2). Available: http://www.adb.org/Documents/ Papers /E_Government/default.asp.

Stage 6: Simplifying government transactions: joined-up government A web portal or smart card integrates information and services from various government agencies to help citizens and other stakeholders get seamless service without needing to know which government agencies are responsible. This greatly simplifies the filing of transactions, as there is no need to remember or determine exactly where to go to complete a sequence of transactions.

the citizenry, as desired. These monitoring activities may happen as the project is proceeding, not months later, as is currently often the case. For example, by using interactive monitoring systems, the project increases its chance for success and incurs fewer downside risks, and simultaneously reduces negative impacts. Instead of project evaluation happening only at the end of the project, an ICT platform could make it possible to monitor or "audit" the project as it happens, at a desired level of intervention, depending on the overall design of the system.

Projects

ADB is already assisting Pacific countries with a regional ICT project to facilitate regional cooperation as well as government-to-government (G2G) and government-to-donor (G2D) communications. ¹⁰ It is also assisting, through lending and non-lending products, individual governments in the government-to-citizen (G2C) and government-to-business (G2B) areas, while increasing governments' service delivery, accountability, and transparency. ¹¹

Summary of ADB's ICT Projects

The following is a summary of ADB's recently concluded, ongoing, and proposed projects involving ICT in the Pacific.

ADB. 2001. Regional Technical Assistance for ICT Assessment in the Pacific. Manila.

¹¹ For a comprehensive analysis of ADB assistance, see Knapman, B., and C. Saldanha. 1999. *Reforms in the Pacific.* Manila: ADB; and Knapman, B., and E. Zhukov, from an original contribution by M. Bond. 2001. *Financial Sector Development in Pacific Island Economies*. Manila: ADB.

G2G	Government-to-Government	
G2B	Government-to-Business	
G2C	Government-to-Citizen	
G2D	Government-to-Donor	

Table 2: E-Government Nomenclature

USP - Expanding the Reach of Distance Learning in the Pacific

To serve its member countries, USP provides distance education services using very small aperture terminal (VSAT) satellite communications. From its campuses and centers, students and teachers can access course materials and submit assignments, search the web for information, and even attend distance learning courses from other institutions. In addition, students and teachers may also access the system from their homes and Internet cafes anywhere through limited dial-up facilities in the Laucala Campus in the Fiji Islands.

To expand the reach of its distance learning systems, USP needs to acquire and install additional dial-up facilities and enhanced networking technology equipment. This will allow a larger number of students to take advantage of the distance learning courses already available in the major campuses. To derive further benefits from the system, USP also needs to review the present hardware and software systems.

Subregional E-Government Project in the Pacific

The objectives of this project include assisting PDMCs in the following areas: (i) assessment of e-government demand and supply; (ii) enhancement of e-government implementation capacity; (iii) review of best practices and lessons learned; (iv) preparation of a feasibility study for a subregional e-government project for external financing; and (v) recommendations for making the project sustainable and beneficial to the poor.

Fiji Islands - ICT Strategy

The project will produce a strategy paper on interventions for ICT development and support public debate of this strategy paper to



A satellite dish in Suva, Fiji Islands

formalize it into a document that can be used by the Government in its planning exercises.

The implementation of this project will be in two stages: Phase I will identify the country's strategic directions based on the Strategic Development Plan and, discussions with the Government, and determine how and where ICT can help make a difference. This first phase will also include a review of procedures and complementary ICT systems that may help Fiji Islands officials tasked with monitoring medium-term plans and projects at their level. Phase II will identify and scope the above ICT application areas, then study and identify areas where the Government may gain additional benefits by integrating or consolidating some or all of them.

Federated States of Micronesia - National and State Legislation on the Web

This project assisted the national and state governments to improve the efficiency and responsiveness of the legal system by making existing and future laws more available to the public and by advancing public understanding of the system. The TA created a legal information system as well as a program of community education on basic aspects of the legal system. The project created an electronic database containing sources and statements of law such as statutes, regulations, court rules and forms, court decisions, and attorney general opinions. The database will be located on an Internet website to facilitate widespread access and frequent updating. It will permit entire chapters or cases to be downloaded at a time, browsing that follows the structural framework of the codes, and key word searching.

Kiribati - Outer Islands ICT Network Project

The overall objective is to improve access to basic information in the outer islands of Kiribati by improving connectivity and—through it—



A public phone in Kiribati

education, governance, social inclusion, health, access to the Internet, and disaster mitigation and control.

The project will assist the Government in defining needs and possible markets in the outer islands. It will develop several scenarios, including the involvement of villagers as customers and as service providers, to improve sustainability. Part of the project will include experimenting with different uses of ICT commensurate with the users' capacity to pay for such activities, and where it may provide business opportunities in the outer islands, by going beyond the usual or established business models. The project will train local staff in technology applications, economics of telecommunications, and policy and regulatory processes. The main outputs of the project will be: identification of communication needs, design and installation of the system, and capacity building and monitoring.

Papua New Guinea - Human Resources Development in the Health Sector

The project will establish a human resources development system for the health sector that will ensure that adequate quality and quantity of human resources are available to respond to the health needs of the population. The project will also improve the quality of the performance of community health workers (CHWs) through an integrated approach to their pre-service training, in-service training, and supervision. At the national level, support will be provided for key aspects of human resources development planning, production and management. At the regional level, capacity will be developed to support provincial in-service training and supervision. Each province will be provided support to establish and operate an integrated in-service training and supervision function. This support will be directed mainly towards the CHWs who provide care to the largest proportion of the community.

The proposed project will have equity, institutional, and economic benefits. The direct beneficiaries of the project will be approximately 3,000 practicing CHWs and approximately 1,000 CHWs who will be trained during the life of the project. Indirect beneficiaries of the project will be the rural population of approximately 3 million, who will benefit from the improved productivity and quality of CHW performance.



Satellite tracking ship

Samoa SchoolNet

The objective of the project is to improve the quality of education and teacher support by interconnecting local schools and creating community access facilities. This will assist the Government in reducing poverty in the rural areas by improving connectivity and—through it—education, social inclusion, and health.

The project would initially provide connectivity, software, and appliances for up to five schools, supported by members of a stakeholder group (e.g., women) and leaders within each local community. Following intensive and specialized teacher training in the use of ICT in the classroom, and the development and use of multimedia learning materials, the teachers in each school will become comfortable and competent in a computerized environment over a 6 to 8 month period.

East Timor - Rehabilitation of the Telecommunications Sector¹²

The objective of Phase 1 was to develop strategy and planning recommendations for rehabilitation and management of the telecommunications sector in East Timor during the transitional period of UN

¹² After independence in May 2002, East Timor changed its name to Timor-Leste.

administration, taking into account longer-term requirements. The TA examined and made recommendations on the viability of private sector operation of telecommunications in East Timor, the appropriate role for government, and mechanisms to address physical reconstruction and funding requirements.

The objective of Phase 2 is to focus on the preparation, structuring, and implementation of an international bidding process for the equipment and/or operation of the telecommunications sector in Timor-Leste. Phase 2, based on the findings of Phase 1, will also provide guidance to the United Nations Transitional Administration in East Timor (UNTAET) on the setting up of a legal and regulatory framework for the telecommunications sector in which the public and/or private sector will operate.

Papua New Guinea - Financial Management System

The general objective of the project is to establish a strong financial management infrastructure, that will provide an effective basis for broader economic, governance, and public sector reform. The specific objectives are to: improve planning, budgeting, and monitoring to enable better prioritization of Government efforts and improve fiscal control; improve accounting and funds control to enhance transparency, reduce waste, and improve efficiency; and to improve financial procedures to enable more timely and efficient implementation of donor programs.

Marshall Islands - Reviewing the Health Management Information System (HMIS)

The HMIS was developed to support the goals of the Health and Population Project, particularly the expanded role of primary health care. However, the system failed to achieve its potential due to system problems in areas such as flexibility, data collection, program modification, and difficulty of use. The proposed project will review the existing system, identify improvements in matching user requirements, improve user friendliness, and assist the Ministry of Health and Environment in developing an overall action plan for a more comprehensive and user-friendly information gathering and management system that it can sustain.

Fiji Islands - Capacity Building of the Native Land Trust Board in Preparing Land Maps and Establishing Land Boundaries

The Native Land Trust Board is required to keep the Native Land Management System (NLMS) updated to respond to the need for better-defined boundaries and thereby address the concerns of landowners and tenants. To speed up data updates and regularly update the data at a reduced cost, NLMS employs new technologies in land management: global positioning system (GPS) tools and technologies, geographic information system (GIS), and data from satellite imagery. The improved information will reduce business uncertainty and improve the general investment climate to positively influence projects, including hotel and tourism complexes.

Sustainability

Ensuring the sustainability of ICT initiatives beyond external financial intervention is critical. To be successful, projects at any level must be justified by a clear model demonstrating the benefits of establishing an information system and basing its operating costs on either potential revenue generating activities within the community or the country, or on an increase in efficiency, service-delivery, and cost-effectiveness within governments or organizations. ADB strives to include sustainability mechanisms from the early project formulation stage to ensure continuity beyond the initial financial support.

ADB's Comparative Advantages

ADB, with more than 30 years of experience in the region, draws on strengths that uniquely equip it for the task of reducing poverty in the Pacific. These include an exclusive focus on Asia and the Pacific, a presence in the region, and majority shareholding by regional members (and hence, greater ownership by them of ADB's strategic orientation). At the same time, the participation of non-regional members ensures

that global perspectives are brought to bear on regional development issues. ADB undertakes grant-financed technical assistance, public sector lending, and private-sector operations under a single roof, and takes advantage of the synergies that result. ADB's well-defined policy on governance issues and its success in promoting subregional cooperation are of growing relevance in the fight against poverty. In addition, ADB mostly offers loans, which require, at the outset, a sense of ownership by the borrowers.

While the primary responsibility for poverty reduction rests with the PDMCs themselves, ADB can be a powerful ally of borrowing members in their efforts.

ADB is preparing an ICT project for the Pacific region to facilitate regional cooperation as well as G2G and G2D communications. ¹³ It is also assisting, through lending and non-lending products, individual governments in G2C and G2B communication while improving government service delivery, accountability, and transparency. ¹⁴

¹³ ADB. 2001. Regional Technical Assistance for ICT Assessment in the Pacific. Manila.

¹⁴ For a comprehensive analysis of ADB assistance, see Knapman, B. and C. Saldanha. 1999. *Reforms in the Pacific.* Manila: ADB, and Knapman, B. and E. Zhukov, from an original contribution by M. Bond. 2001. *Financial Sector Development in Pacific Island Economies*. Manila:

Blueprint for the Future

The Pacific is Ideal for ICT

While in many developed countries ICT is providing additional information services over an already well-established communications infrastructure, in the Pacific the use of ICT has the potential to drastically reduce the negative effects of two fundamental issues: small geographic size and distance. Small islands, far from each other and the mainland or capital city, can use ICT, and especially the Internet, to connect and exchange data and information. ICT

- brings people together and increases the reach of development activities,
- can virtually aggregate production so that cooperatives (e.g., in fishing and agriculture) can access larger markets,
- can bring even very small enterprises (e.g., micro-tourism resorts or agro-tourism) to the attention of a global audience, and
- often pays for itself as it increases market reach and effectiveness.

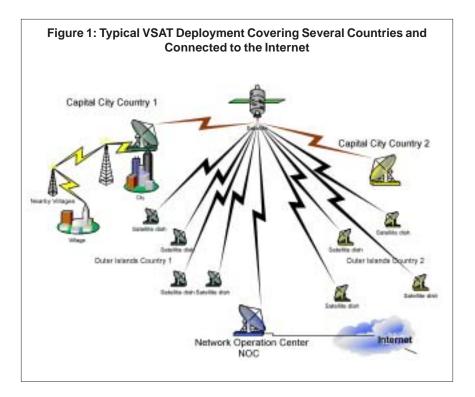
The Pacific is hence ideal for taking advantage of what ICT has to offer. The technology solutions that can be used in the Pacific may be found today in developed countries' markets, but have not been adopted yet in the Pacific.

One of the most prominent technologies that could make a significant difference in communication capacity, especially in outer islands, is the use of multiple-access VSAT¹⁵ technology. This allows Internet data to be beamed down to a multitude of places under the footprint of a given satellite. Users could be located anywhere in the Pacific and use this technology for anything from e-mail communication to local

¹⁵ Very small aperture terminal (VSAT) satellite communications system.

administration exchanges with the central government, to tourism and other applications.

Once this or a similar wide-area system is established, it is easier to see how the Pacific could capitalize on its vast human and natural resources more effectively. Strong communication capacity gives a cluster of countries in a given area many more chances to become an integrated region and to thrive on economies of scale, something that the Pacific has not yet been able to do. In trade, this is important in the area of procurement, exports, aggregation of national production, and other areas. In governance, such a system could improve local administration communication, human resource deployment, budgeting information, and more. Finally, in social areas, a wide-area communication network can positively improve hospital procurement, disaster management, health alerts, school research, trade, and other activities. In short, effective, inexpensive, and sustainable ICT opens development doors that have impeded progress in a number of sectors.



ICT for Achieving the Millennium Development Goals

Today, the limited capacity of the governments in the Pacific to provide basic social services and social protection is perceived as the main cause of poverty and hardship. ¹⁶ ADB and these governments can turn to ICT as a tool in education and health, and as communication infrastructure for the improved dissemination of information and provisioning of basic services in working towards the MDGs. Among the benefits are the following:

Improved effectiveness of government processes. Egovernment is the use of ICT to promote more efficient and cost-effective government, facilitate more convenient government services, allow greater public access to information, increase social inclusion, and make government more transparent and accountable. ICT can increase speed, volume, quality, and transparency of transactions through faster access to, and distribution of, information. ICT also makes possible entirely new procedures, interaction among people, information, and communications, which were previously impossible because of high cost or unmanageability. E-government practices may be particularly beneficial in the PDMCs, given their highly dispersed geography, because ICT minimizes the negative effects of distance and time.

ICT can enhance processes and communications within government (G2G) while strengthening institutional reforms already underway. Office procedures can be shortened and still maintain adequate controls. Access to information can be shared and data made available in real time, 24 hours a day, and transactions may be made asynchronously (that is, occurring even when counterparts are not at their desks). Financial transactions may be produced as a by-product of the primary transaction, without dealing with the separate processes, therefore speeding up the consolidation of financial reports at the end of each day or other designated period.¹⁸

¹⁶ ADB. 2001. Regional Technical Assistance for Consultation Workshops for Poverty Reduction Strategies in Selected PDMCs. Manila: ADB.

¹⁷ Examples of these are discussion groups, audio and video teleconferencing, 24-hour operations, online payment, online authorization, one-stop shop processing, and overall transaction process monitoring and prompting for more effective transaction management.

¹⁸ This would be ideal for monitoring budgets and recording payments, by improving management control across many government offices.

ICT can enhance the two-way flow of G2C communication and vice versa better communication and service delivery between government and its citizens. ICT expands the capacity of the government to talk to citizens, which supports accountability, and ICT also expands the capacity of the government to listen to citizens, which supports democracy. This paves the way for e-government. In this process, the government can facilitate empowerment and social inclusion, improve performance, and cut costs. Especially in the Pacific, highly distributed and cost-effective networks can enhance the flow of communication between local administration in the outer islands and the central government, creating an enabling environment for growth and poverty reduction. E-government also offers an opportunity for governments to reinvent themselves and allows the transition from passive information access to active citizen participation.

Improved services for business. ICT can allow an expansion of G2B exchange of information and commodities. In particular, efficient government purchasing through e-procurement allows more transparent dissemination of information from government, and transparent receipt of information from business. G2B transactions also occur when a business remits funds to the government as part of taxes, licenses, or fees that may accompany a regular transaction. After some of the government functions are computerized, e-government can allow businesses to complete transactions using a one-stop processing approach. Businesses need not know how to connect to other offices even when there are transactions to different government offices involved. Businesses only need to contact one website.¹⁹

Improved regional cooperation. ICT reduces the negative effects of distance and time. It allows PDMC governments to communicate with their neighbors even if they are thousands of miles apart in the Pacific Ocean. It also allows improved communications between governments, assistance agencies, and the donor community (G2D). E-government makes new ways of doing things possible, such as actively involving government officials and other stakeholders (includ-

¹⁹ E-government transforms limited communications from just a one- or two-way link between one entity and another, as in G2C, to multi-entity targets at practically no incremental cost. An example would be government broadcasts to certain groups of citizens and businesses (G2C-B).

ing citizens) in regularly monitoring and reporting project status, not only to the local government, the executing agency, and the ministry of finance, but also to assistance and funding institutions. From a regional perspective, e-government makes it easier for several countries to cooperatively monitor and manage systems and share related costs and revenues.

Forthcoming Strategy

It is beneficial, in the Pacific as in any other region, if a strategic approach is taken in the implementation of ICT. ADB recognizes this critical concept and understands that initiatives in ICT must consider

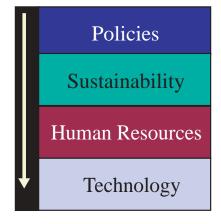


Figure 2: Strategic Framework

four different levels to ensure a holistic approach in the development of an information society. ADB's strategy includes each of these levels:

- 1. The policy layer guarantees the support of an accepted practice framework, being at the government or organizational level:
- 2. Financial considerations are vital to ensure that the system will be sustainable in time;

- 3. Human resources training is vital to ensure that people can reasonably maintain the systems and,
- 4. Technology must be appropriate to the place, culture, and needs of each country.

ADB's ICT efforts in the Pacific will be vital to the development of the region. In addition, the crosscutting nature of ICT often affects several sectors at once and necessitates a heightened awareness of the local, national, and global implications of each project.

There is no doubt that even simple ICT tools such as e-mail have changed the way many live and communicate today. As highlighted here, the Pacific region stands to benefit tremendously from ICT, given its particular geographic and demographic situation. ADB puts at the service of its PDMCs this new "development toolbox" that can address important causes of poverty: the lack of access to basic services, such as health and education, and lack of important information that can create opportunities for socio-economic development.

Useful References

Pacific Organizations Engaged in ICT Activities

Asia-Pacific Development Information Program (APDIP)

APDIP was launched in 1997 by UNDP to provide and establish information technology throughout the Asia Pacific region. It is funded by a \$3.5 million grant from UNDP and is based in Kuala Lumpur. It provides advice to nations formulating national policies, and offers hands on technical assistance. Its main objectives are capacity building, technical assistance, and research and development. Among other activities, APDIP has launched a partnership with CISCO Systems to promote the Network Academy Program. This initiative teaches students to design, build, and maintain computer networks. Academies currently operate in some 83 countries, including PNG, Fiji Islands, American Samoa, and Guam and one has recently been installed at the National University of Samoa. Website: http://www.apdip.net.

The East-West Center (EWC)

The Center for Cultural and Technical Interchange between East and West Inc., is located on the campus of the University of Hawaii. The East-West Center, in cooperation with University of Hawaii Community Colleges, is organizing a technical training program for technology managers from the Pacific Islands. The Asia Pacific Leadership Program, funded by the Freeman Foundation, provides potential leaders from the Pacific Islands with an excellent opportunity to join with others from the Asia Pacific region and the US for 6 to 9 months of study and network building. Website: http://www.eastwestcenter.org/edu-sp.asp.

The Pacific Basin Medical Association (PBMA)

The PBMA was formed in 1995 to support and strengthen the redevelopment of the indigenous physician workforce among the US-associated Pacific islands. The PBMA mission is to provide a network for medical practitioners to promote high standards of medical care, encourage continuing medical education (CME) activities, and support the formation of local medical associations. To this end, the PBMA has conducted three regional conferences, sponsored CME workshops in conjunction with the Office of Pacific Health and Human Services, Region IX, Pacific Health Services, and established the Western Pacific HealthNet, a functional Internet/e-mail-based network to improve health-related communications to the isolated health workforce in the Western Pacific. Website: http://www.PEACESAT.hawaii.edu/pbma/ pbmainfo.htm.

Pacific Center for Advanced Training and Technology (PCATT)

The PCATT is based at Honolulu Community College and includes a consortium of community colleges in Hawaii dedicated to developing and providing training in advanced technology applications in Hawaii and the Pacific Rim. Honolulu Community College also is the center in the region for the Cisco Networking Academy Program, and has working links with a number of academies in the region. See sections on Cisco and the East West Center. Website: http://www.hcc.hawaii.edu/ pcatt/index.html.

Pacific Disaster Center (PDC)

PDC is an information applications center that provides practical solutions to emergency managers and planners throughout the Asia Pacific region. The PDC offers core competencies in disaster applications research and development and applies advanced digital technologies, including remote sensing and geographic information systems, to risk and vulnerability assessments. It uses web-based distribution

and collaboration technologies. PDC applies state of the art hazard and risk-modeling tools in support of exercise, scenario, and planning analyses. Website: http://www.pdc.org.

Pacific Islands Development Program (PIDP)

The PIDP is a program of the East-West Center that conducts research and training activities in Pacific island countries. It serves as the Secretariat for the Pacific Islands Conference of Leaders. Research priorities give some emphasis to the role of culture and tradition in development, as well as to expanding trade and investment in the region. The PIDP website is a major source of up-to-date information on the countries of the region. Website: http://www.pidp.ewc.hawaii.edu.

Pacific Islands Forum Secretariat (PIFS)

The PIFS was founded in 1972 and is located in Suva, Fiji Islands. It represents the heads of government of the 16 independent and self-governing Pacific island countries including Australia, New Zealand, and PNG. It promotes regional cooperation among its member states through divisions of trade, investment, economic development and political and international affairs. The PIFS chairs the ICT meetings of CROP. Website: http://www.forumsec.org.fj.

Pacific Islands Network (PIN)

PIN is a program of the United Nations Association of the USA, Hawaii Division that promotes links between pre-university schools in Hawaii and Pacific island countries via the Internet. The program has been in operation for more than a year and a number of links have been established. As the program evolves, it hopes to establish a regional group or mechanism that will coordinate and monitor the links, and to ex-

pand the program to also cover links related to public health. Website: http://www.unahawaii.org.

Pacific Islands Telecommunications Association (PITA)

PITA links more than 20 of the small island states for the purpose of improving, promoting, enhancing, facilitating, and providing telecommunications services in the Pacific basin. It has an office in the Fiji Islands, and meets at least twice annually, once in conjunction with the January meeting of the Pacific Telecommunications Council in Honolulu. Some members of PITA are actively supporting the use of the Internet in schools. For example, Telecom Vanuatu provides free connection and free online time to participating schools. Website: http://www.pita.org.fj.

Pacific Islands Telecommucations Council (PTC)

PTC is an international nonprofit NGO with a mission to promote development of telecommunications and related industries in the Pacific region, with emphasis on developing countries. The PTC, which is located in Honolulu, organizes an annual regional conference there each January dealing with telecom-related developments and issues in the region. It has information on the situation in each country, and contacts with each country's telecom providers, all of which are members of the PTC. The January 2002 meeting in Honolulu provided an opportunity to discuss school links and other ICT issues with the authorities and representatives of participating countries. Website: http://www.ptc.org.

PanPacific Education and Communication Experiment by Satellite (PEACESAT)

PEACESAT is a public service satellite telecommunications network linking the Pacific islands. Administered by the Telecommunication Information Policy Group of the Social Science Research Institute of the

University of Hawaii, PEACESAT conducts surveys and research on telecommunications policy in the region and organizes related training. One goal is to improve the quality and access to telecommunications at affordable costs, with some emphasis on health and education. PEACESAT has access to the GOES-7 satellite and has satellite stations in most countries of the region. Website: http://www.PEACESAT.hawaii.edu.

Secretariat of the Pacific Community (SPC)

SPC is located in Noumea, New Caledonia, and was formerly the South Pacific Commission, which was founded in 1947. All 22 of the Pacific island countries and territories are full members of the SPC. It provides technical advice, training, and research services designed to develop the technical, professional, scientific, research, planning, and management capability of the Pacific island people. SPC has an Information Technology and Communication Unit. Website: http://www.spc.int.

South Pacific Applied Geoscience Commission (SOPAC)

SOPAC is located in Suva, Fiji Islands. It was founded by ESCAP in 1972, but now is an independent, inter-governmental, regional body dedicated to improving the well being of the people of the Pacific islands through the application of geosciences to the management and sustainable development of non-living resources. It has 16 member states including Australia and New Zealand, two associate members (French Polynesia and New Caledonia) and several supporting countries including Canada, Japan, and the US. SOPAC is assisting Pacific countries in gathering and sharing affordable information and communication technologies as they apply to fresh water, access to energy, hazards assessment, and disaster management. Website: http://www.sopac.org.fj.

South Pacific Regional Environmental Program (SPREP)

SPREP was established in 1982 to advise on managing the environment of the South Pacific region. It became an autonomous regional body

in 1992 with headquarters in Apia, Samoa. All 22 countries and territories of the region are members, along with Australia, France, New Zealand, and the US. Projects include biodiversity and natural resources conservation, climate change, coastal management, environmental information education, and training. Website: www.sprep.org.ws.

United Nations Development Programme (UNDP)

UNDP promotes information technology on a number of levels, including working with Cisco Systems in the establishment of the Cisco Networking Academy at the National University of Samoa and the Samoa Polytechnic Institute. The United Nations Information Technology Service (UNITeS) makes use of UN volunteers to train groups in developing countries in the uses and opportunities of IT. The Sustainable Development Networking Program (SDNE) also has an important IT component. UNDP funds are available for IT projects in each country program where this is a priority. See also the Asia Pacific Development Information Program (APDIP). Website: http://www.undp.org.fj. Current assistance includes the following:

- Telecommunications Sector Governance in Pacific Island i. Countries
- People First Network: The Solomon Islands' Rural E-mail ii. Network for Peace and Development, and Distance Learning Application of the Solomon Islands People First Network
- Small Island Development Network, UNDP's SIDSnet, has iii. contributed to raising awareness of ICT issues since 1994.

United Nations Educational, Scientific and Cultural Organization (UNESCO)

UNESCO has an office in Samoa that links and serves the Pacific islands in its areas of competence. The staff includes a regional adviser on communications. UNESCO sponsors the Pacific Youth Forum, which brings together youth from 14 countries to work in areas of common interest. Consideration is being given to develop Internet links with Forum members as a preliminary step in linking schools in the region. UNESCO operates the Associated Schools program linking schools throughout the world. This has a growing Internet component. Website: http://www.unesco.org.

University of the South Pacific (USP)

USP has its main campus in Suva, Fiji Islands with branches in Samoa and Vanuatu and university centers in each of the 12 member countries. It offers undergraduate and postgraduate degree programs in the major fields of interest in the region. It is a Center of Excellence for all aspects of life in the Pacific basin countries, with emphasis on the social and cultural needs and interests of the region. It has an extensive distance education program and about half of the students use the satellite communications network (USPNet). USP is in a position to play an important role in development of ICT potential in the region. USP and the College of Micronesia are running distancelearning activities with their branches in the Pacific. Website: http:// www.usp.ac.fj.

Others

Several bilateral assistance (national) agencies are assisting ICT development in the Pacific. Among them, assistance provided by Japan, Australia, and New Zealand in the South Pacific, and by the United States in the North Pacific, is notable. Finally, professional associations are promoting the use of ICT to improve e-government service delivery, such as the Western Pacific Health Net initiated by the Pacific Basin Medical Association (see reference above).

- 1. PIN http://www.unahawaii.org/2002/pin/pingroups.doc
- 2. PDC documents

ICT Donors

Table 3 lists some of the donor institutions that have a presence in the Pacific. In their development programs, they consider ICT an important ingredients in improving living conditions in the region.

Table 3: ICT Donors

Acronym	Organization/Location	Website Address
ADB	Asian Development Bank, Manila, Philippines	http://www.adb.org
AusAid	Australian Agency for International Development, Canberra, Australia	http://www.ausaid.gov.au
COL	Commonwealth of Learning, Vancouver, Canada	http://www.col.org
DfID	Department for International Development, London, United Kingdom	http://www.dfid.gov.uk
EWC	The East-West Center, Hawaii, US	http://www.eastwestcenter.org
EU	European Union	http://www.europa.eu.int
ITU	International Telecommunication Union, Geneva, Switzerland	http://www.itu.int
JFICT	Japan Fund for ICT, Tokyo,	http://www.mof.go.jp
JICA	Japan International Cooperation Agency, Tokyo, Japan	http://www.jica.go.jp
NZODA/NZAID	Now called NZAID, New Zealand Aid, Wellington, New Zealand	http://www.nzaid.govt.nz
SPINF	Sasakawa Pacific Island Nations Fund, Tokyo, Japan	http://www.spf.org/spinf

Cont. Table 3: ICT Donors

Acronym	Organization/Location	Website Address
UNESCAP	UN Economic and Social Commission for Asia and the Pacific, Bangkok, Thailand	http://www.unescap.org
UNESCO	UN Education, Scientific and Cultural Organization, Paris, France	http://www.unesco.org
USAID	United States Agency for International Development, Washington, DC, US	http://www.usaid.gov
World Bank	Washington, DC, US	http://www.worldbank.org