Possibility of Telecommunication Universal Service in the Pacific Islands; Case studies of Vanuatu, PEACESAT and USPNet

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This thesis is dedicated to Mr Yohei Sasakawa and Sir Kamisese Mara. Sir Kamisese once asked my employer, Yohei Sasakawa, to launch a satellite for the Pacific Islands region, which then supported USPNet.

I give special appreciation to my daughter Kyoka and husband Glenn, as they allowed me to keep studying and working.

Abstract

This thesis examines the meaning of telecommunication for the remote islands and rural areas of the Pacific Islands through the application and assessment of the 'Capability Approach', which was developed and used by Amartya Sen in his book, *Development as Freedom* (1999), in which he argues that development means freedom of choice and achievement. This research also makes a major contribution to the study of ICT4D (Information and Communications Technology for Development) and the development of telecommunications in the Pacific Islands, by examining the historical background of communication, and case studies of Vanuatu and PEACESAT with USPNet. In the Pacific, thousands of small islands are scattered in the ocean, which occupies a third of the surface area of the Earth. Each small island is far from the major economic centres and many have small populations. Due to their economic scale, uneven developments and Western colonization policy, many islands did not have a telecommunication service for a century after telecommunication was developed globally in the 19th century. In the 1970s, during the Cold War, many Pacific Islands had an opportunity to use a free second-hand satellite from the United States, which enabled them to provide higher education services and to manage their fisheries. In the 2000s, deregulation and competition were introduced to the Pacific Island counties (PICs) and Universal Service (which provided a telecommunication service to the whole population) was finally achieved in some PICs, such as Vanuatu. This study presents research in measuring the capability of ICT users, policymakers and providers, with interviews in Vanuatu using the 'storytelling approach' and policy document research on USPNet and PEACESAT. The results of this research (both archival and fieldwork) tell us about the dynamism of development and people using ICT to magnify their Capability. Other case studies tell us that Capability does not belong to technology but to people and what they want to do.

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Table of Contents

Abstract iii

Acknowledgement iv

Table of Contents vii

List of Figures xiv

List of Tables xv

Glossary of Acronyms xvii

Chapter 1 Introduction 1

1.1 Background: A Twenty-five year journey into telecommunications in the Pacific Islands 1

1.2 Research Questions 6

1.3 Structure of this thesis 8

Chapter 2: Theoretical framework and methodologies 15

2.1 Introduction 15

2.1.1 Why Development theory for ICT4D? 15

2.1.2 Capability Approach and Development as Freedom 18

2.1.3 Literature review of Capability Approach and ICT4D 22

2.1.4 Development theory and Capability Approach 26

2.2 Methodologies 34

2.2.1 Qualitative data analysis for Capability Approach 34

2.2.2 Rashomon effect 39

2.2.3 KJ Method 41

2.2.4 Summary of Methods 43

2.2.5 Document research 43

2.3 Ethics 45

Chapter 3: Discussion of Universal Service and ICT4D 46

3.1 Historical background of ICT4D 47

3.1.1 1950 – Space Development and Decolonization 48

3.1.2 1980 – Maitland Report 56

3.1.3 1990 – IT revolution and Digital Divide 62

3.2 Universal Service 67

3.2.1 Origin of Universal Service 67

3.2.2 Universal Service for Developed Countries 73

3.2.2.1 OECD 73

3.2.2.2 France 74

3.2.2.3 Japan 76

3.3 Summary 81

Chapter 4: Background of Pacific Islands and Telecommunication 83

4.1 Mobilizing – Historical background of the Pacific Islands 83

4.1.1 First Colonization 84

4.1.2 Austronesian Colonization 86

4.1.3. European Colonization 89

4.2 Decolonization and Current Political status of Pacific Islands 92

4.2.1 Political Status of Pacific Island Countries 92

4.2.2 Britain in the Pacific Islands 98

4.2.3 United States in the Pacific Islands 102

4.2.4 Japan in the Pacific Islands 106

4.2.5 Summary 108

4.3 Background of Telecommunication development in the Pacific 109

4.3.1 Western powers in the Pacific and communication marine cables 109

4.3.2 Summary 116

4.4 Current issues of Telecommunication – Deregulation and Competition 117

4.4.1 Kingdom of Tonga 118

4.4.2 Samoa 119

4.4.3 Papua New Guinea 120

4.4.4 Fiji 121

4.5 Digicel 122

4.6 Summary 130

Chapter 5: Case study – Vanuatu ICT and Capability 131

5.1 Background of Vanuatu 133

5.1.1 Historical Background 133

5.1.2 Tax haven 136

5.2 Melanesian Way – meaning of development for Vanuatu 139

5.2.1 Meaning of Development for Vanuatu 139

5.2.2 Melanesian Socialism 142

5.2.3 Melanesian Way 143

5.2.4 Summary 145

5.3 Path of Communication Development – colonial period 145

5.3.1 Literature on Communication Development 145

5.3.2 Independence movement and role of Radio and Bislama 147

5.3.3 'Use of Pidgin in News Media' 148

5.4 Overcoming the Digital Divide – monopoly to competition 151

5.4.1 Monopoly Telecommunication system 152

5.4.2 Court Case for Telecommunication licence 153

5.4.3 Deregulation and new regime for Telecommunication service 154

5.4.4 Summary 155

5.5 PiPP Reports on social and economic impacts of Telecommunication 156

5.5.1 Significant documentation from a survey by local institute 156

5.5.2 Aim of Survey 157

5.5.3 Findings of Survey 158

5.6 Vanuatu fieldwork 158

5.6.1 Timing 159

5.6.2 Questionnaire 160

5.6.3 Summary of interviewees 161

5.6.4 Analysis of interviews 164

5.6.5 Tourism business 168

5.6.6 Education 171

5.6.7 Seasonal workers 177

5.6.8 Facebook (Yumi Toktok Stret) 181

5.6.9 Negative issues 183

5.7 Discussion 186

Chapter 6 USPNet (Distance Education Network of the University of South Pacific) and PEACESAT (Pan-Pacific Education and Communication Experiments by Satellite) 188

6.1 USPNet 188

6.1.1 How USP and USPNet started 188

6.1.2 How the current USPNet was developed 196

6.1.3 Why the Japanese government has supported USPNet 200

6.1.4 The Japanese government agenda 202

6.2 PEACESAT – its political and historical background 205

6.3 Fisheries resource management and PEACESAT 210

6.4 Discussion 217

Chapter 7 Conclusion 220

7.1 Universal Service is possible for the remote islands 220

7.2 Meaning of development and Capability Approach 224

7.3 Telecommunications Policy for the Pacific Island Countries 227

Bibliography 231

Appendices 260

Appendix A: Transcript, Discussion on Post, Communication and Telecommunication from Proceedings of the New Hebrides Advisory Council 260

Appendix B: Letter, Government of the Republic of Vanuatu, Prime Minister's Office, Office of the Government Chief Information Officer 277

Appendix C: Letter, Otago University Ethics Committee 278

Appendix D: Letter, Ngai Tahu Research Consultation Committee 280

Appendix E: Information sheet 282

Appendix F: Questionnaire 285

Appendix G: Grouping key words by KJ method 289

Appendix H: Statement on Plutonium and radioactive shipment in the Forum Communiqué from 1992 to 2006 292

List of Figures

Figure 3.1 Map from Okinawa Times 81

Figure 4.1 Map of Sahul and Sunda 85

Figure 4.2 Map showing the spread of Austronesian speaking peoples 86

Figure 4.3 From George Johnson – 'The All Red Line: The Annals and Aims of the Pacific Cable Project' 110

Figure 4.4 Distribution of Cables around the World in 1892, 1908 and 1923 (Data from Headrick 1991) 113

Figure 4.5 Ceremony to annex Mokumanamana (Necker Island) for the Provisional Government of Hawaii 114

Figure 4.6 Map of Samoa and Tonga. Adapted from TE ARA, Encyclopaedia of New Zealand. 120

Figure 4.7 Coverage of Digicel 125-8

Figure 5.1 Map of Vanuatu. Courtesy of Dr Stuart Bedford. 134

Figure 5.2 Location of Vanuatu 135

Figure 5.3 What you can do with ICT – Subject 166

Figure 5.4 What you can do with ICT – Activities 166

Figure 5.5 What you can do with ICT – Objects 167

Figure 5.6 Number of Visitors to Vanuatu. Data from Vanuatu National Statistics Office 170

Figure 5.7 School enrolment, primary (% gross). Gross enrolment ratio 174

Figure 5.8 Personal remittances, received (current US$) Data from World Bank 179

Figure 5.9 Number of Seasonal workers. Data from Bailey 2014 180

Figure 5.10 Mobile cellular subscriptions (per 100 people) 185

List of Tables

Table 2.1 Transition of the Development Economics 29

Table 3.1 Chronicle of Space Development, Decolonization and ICT4D Compiled by author 57

Table 3.2 Ten points as examples in the ‘Agenda for Cooperation: Global Information Infrastructure’ 64

Table 4.1 Pacific Island Economies and Political Affiliations 93

Table 4.2 Population and Population Growth of Pacific Island Nations, Adapted from (Hezel 2012, 5) 94

Table 4.3 Size of main Pacific ethnic groups in New Zealand and estimated resident population in home country 96

Table 4.4 Remittances as a percentage of current GDP for selected PICs 101

Table 4.5 Aid to GNI across the Pacific 102

Table 4.6 EEZ of United States territories in the Pacific 103

Table 4.7 Top 3 Donor Countries of Pacific Island Countries 108

Table 4.8 Distribution of Cables around the World in 1892, 1908 and 1923 112

Table 4.9 Digicel operation and Telecommunication Deregulation 122

Table 5.1 Gender of Interviewees 161

Table 5.2 Age of Interviewees 162

Table 5.3 Location of Interviewees 162

Table 5.4 Home Islands, Country of Interviewee 163

Table 6.1 PEACESAT terminals at FFA sites 214

Table 6.2 PEACESAT activities in 2000s 216

Glossary of Acronyms

ACP	African, Caribbean and Pacific
ADB	Asian Development Bank
APEC	Asia-Pacific Economic Cooperation
ARF	ASEAN Regional Forum
ARPANET	Advanced Research Projects Agency Network
AT&T	The American Telephone & Telegraph Company
ATS-1	Applications Technology Satellite 1
BN	Basic Needs
BHN	Basic Human Needs
CA	Capability Approach
CIO	Chief Information Officer
CLICC	Computer Lab and Community Centre
COMSAT	Communication Satellite Corporation
CTD	Centre for Telecommunication Development
C&W	Cable & Wireless
DFID	Department for International Development
EEZ	Exclusive Economic Zones
EU	European Union
FB	Facebook
FEPC	Federation of Electric Power Companies of Japan
FFA	Forum Fisheries Agency
GDP	Gross Domestic Product
GII	Global Information Infrastructure

GLOBE	Global Learning and Observation to Benefit the Environment
GNP	Gross National Product
GNI	Gross National Income
GSM	Global System for Mobile Communications
GOES	Geostationary Operational Environmental Satellite
G8	Group of Eight
HF	High Frequency
ICT4D	Information and Communication Technologies for Development
IFC	International Finance Corporation
ILO	International Labour Organization
IMF	International Monetary Fund
INTELSAT	International Telecommunications Satellite Organization
INTERSPUTNIK	Intersputnik International Organization of Space Communications
IPUG	International PEACESAT User Group
IT	Information Technology
ITU	International Telecommunication Union
KJ	Kawakita Jiro
MIRAB	Migration, Remittances, Aid and Bureaucracy
NAM	Non-Aligned Movement
NASA	National Aeronautics and Space Administration
NBV	National Bank of Vanuatu
NGO	Non-Governmental Organizations
NII	National Information Infrastructure
NOAA	National Oceanic and Atmospheric Administration
NWICO	New World Information and Communication Order

NZ	New Zealand
ODA	Official Development Assistance
OECD	Organisation for Economic Co-operation and Development
OGCIO	Office of the Government CIO
PARTNERS	Pan-Pacific Regional Telecommunications Network Experiment and Research Satellite project
PDS	Pacific Data Solution
PEACESAT	Pan-Pacific Education and Communication Experiments by Satellite
PED	People, Entertainment, Design
PIF	Pacific Islands Forum
PFIP	Pacific Financial Inclusion Programme
PICISOC	Pacific Islands Chapter of the Internet Society
PICs	Pacific Island Countries
PIPP	Pacific Institute of Public Policy
PNG	Papua New Guinea
PREL	Pacific Regional Education Laboratory
PSTN	Public Switched Telephone Network
RNZAF	Royal New Zealand Air Force
RSE	Recognised Seasonal Employer
SFU	Simon Fraser University
SIDS	Small Island Developing States
SPC	South Pacific Commission (now known as the Pacific Community)
SPEC	South Pacific Bureau for Economic Cooperation
SPF	South Pacific Forum
TAB	Totalisator Agency Board
TCC	Tonga Communication Corporations
TED	Technology, Entertainment, Design

TRR	Telecommunications and Radiocommunications Regulator
TVL	Telecom Vanuatu Limited
UA	Universal Access
UAP	Universal Access Policy
UH	University of Hawai'i
UK	United Kingdom
UNCDF	United Nations Capital Development Fund
UNCLOS	United Nations Convention on the Law of the Sea
UNDP	United Nations Development Programme
UNCTAD	United Nations Conference on Trade and Development
UNESCO	United Nations Educational, Scientific and Cultural Organization
USAID	United States Agency for International Development
USP	The University of the South Pacific
UUCP	Unix to Unix CoPy
VANITEL	Vanuatu International Telecommunications Ltd
VBTC	Television Blong Vanuatu
VDP	Vanuatu Daily Post
VNPF	Vanuatu National Provident Fund
WCPO	Western Central Pacific Ocean
WINDS	Wideband InterNetworking engineering test and Demonstration Satellite
WSIS	World Summit on the Information Society
WTO	World Trade Organization
WWI and II	World War One and World War Two
YTS	Yumi Toktok Stret

Chapter 1 Introduction

1.1 Background: A Twenty-five year journey into telecommunications in the Pacific Islands

Before outlining my research, I would briefly like to explain my twenty-five year journey into telecommunications in the Pacific Islands, which represents the origin of my research question. My twenty-five year journey into telecommunications in the Pacific Islands began in April 1991 when I joined the Sasakawa Peace Foundation (a non-profit organzation in Japan) and was put in charge of the Sasakawa Pacific Island Nations Fund. My predecessor had left the foundation a few weeks before I arrived, and there were many ongoing projects. One of these was the 'USPNet upgrade proposal' (University of the South Pacific). USPNet is the distance education network of USP, covering 12 member countries from around the Pacific (to be discussed in detail in Chapter 6). A few months later, we received another proposal from the University of Hawaii for a 'Policy Conference of PEACESAT' (Pan-Pacific Education and Communication Experiments by Satellite – see Chapter 6).

My journey into telecommunications in the Pacific Islands began with a study on both USPNet and PEACESAT, but at that time I only had a Masters Degree in Education, with no background in telecommunications.

In 1992, I recommended to the committee Board of the Sasakawa Pacific Island Nations Fund that they provide a grant of a quarter of one million US dollars for a PEACESAT conference, as requested by the University of Hawaii. The Japanese government wanted to join this conference, because at that time they had a satellite experiment project plan, called 'PARTNERS'. The Ministry of Posts, who were in charge of national satellite and space

research, also funded the conference at almost the same amount as the grant provided by the Sasakawa Pacific Island Nations Fund. Thus, with a budget of almost half a million US dollars, nearly 300 Pacific Island educators and leaders gathered at Sendai, Tohoku, Japan (25-29 February, 1992) to discuss the policy of PEACESAT, which had just resumed using a second hand but free satellite from the National Oceanic and Atmospheric Administration (NOAA). It was my first experience, and a challenging one, of witnessing the desperate need for telecommunication services in the Pacific Islands.

In 1993, after I had studied both USPNet and PEACESAT for about one year, and understood more about the complex policies, politics, technologies, culture, history, social science, budgets, and substance of developing a distance education project, I launched the Distance Education Development Study for the Pacific Region within the Sasakawa Peace Foundation, bringing together experts from Japan to evaluate and support the improvement of the USPNet proposal. After this study, and under the direction of Mr Yohei Sasakawa, then Chair of the Board of the Sasakawa Pacific Island Nations Fund, I successfully developed the USPNet proposal as a Japanese ODA project. This project became a focus of discussion at the first Pacific Islands Leaders Summit, hosted by the Japanese Government in 1997 (See Chapter 6). I also launched a project to publish a book, which was authored by key personnel from USPNet and PEACESAT. 'Distance Education in the South Pacific: Nets and Voyages' was published by USP in 2000 (Guy, Kosuge and Hayakawa 2000).

The first seven years of studying and supporting both USPNet and PEACESAT enabled me to obtain a great deal of information about vast areas of the Pacific Islands, on such subjects as politics under the Cold War, satellite technologies, colonial powers and policies, independence movements, current political tension between the North and South Pacific, and so on. At that time, there were no papers on the politics and policies for developing telecommunications and distance education projects, but a wide range of papers discussed

satellite technologies and possible content for distance education networks. From my discussions with stakeholders in the Pacific Islands, Australia, United States and Japan, I already had enough confidence and understood that politics and policies, rather than technology, budget or other elements, are the key to telecommunication development. For example, as noted in Chapter 6, USP is a British oriented institution, while PEACESAT is based in the United States. Their attitudes, language and cultures are slightly different from my own Japanese perspective. However, these small differences seemed to mean a lot. Higher education, in particular University management, can be viewed as political in addition to economic power. For example, USP was attempting to hire local people to management positions in the 1990s. However, it still employed many white expatriates, mainly from British-allied countries, such as New Zealand and Australia. There was some tension between local staff and white expatriates, as well as with those from other developed countries. The final example looks at the attitude of incumbent telecommunication companies towards USP and PEACESAT. The incumbent telecommunication companies in the Pacific Islands were initially guaranteed an exclusive monopoly licence for public telecommunication services. USP and PEACESAT were providing, or wished to provide, a separate telecommunication service from these incumbent telecommunication companies. In Japan, universities create their own telecommunication networks, and companies do not complain, because they have enough of a market with other users not to be affected. The Pacific Islands, on the other hand, have a much smaller market and any University with its own network would place pressure on any incumbent telecommunication companies operating with a monopoly in the Pacific.

After the USPNet upgrade proposal became an international ODA project of the Japanese, New Zealand and Australian governments, I wanted to summarise the process and history of the project in order to take the next step. I therefore took up International Relations (Political Science) to gain an academic perspective.

In 1997, I began a second Masters degree at Aoyama Gakuin University under the supervision of Professor Akio Watanabe. In my thesis, I argued that politics and policies are heavily entangling telecommunication development. This includes not only local, but also international politics, such as the Cold War background of satellite development and international relations. My Masters thesis attempted to focus on such political discussions. In 1999, my completed thesis included a recommendation in favour of Japan-United States cooperation for the development of telecommunications in the Micronesian region, in areas not covered by the University of the South Pacific, that is, areas where the people of Micronesia did not have access to higher education in their home countries.

In 2000, Japan hosted two events: the second Pacific Island Leaders Summit in April, and the G8 summit in July, both in Kyushu-Okinawa. Mr Sasakawa was asked by the late Prime Minister Keizo Obuchi to provide some advice for the second Pacific Islands Leader Summit, which was linked to the G8. One of the outcomes of the G8 summit was the IT Support Scheme, with a budget of 15 billion USD (Okinawa Charter on Global Information Society 2000). The Pacific Islands Leader Summit also agreed to implement the Pacific IT Promotion Projects (Pacific Common Frontiers Initiative Miyazaki Initiative 2000).

The Sasakawa Peace Foundation attempted to support a proposal to the Japanese Government for the Distance Education in Micronesia Project, which was developed by three Micronesian countries: the Republic of Palau, Federated States of Micronesia and the Republic of Marshall Islands. Unfortunately, the Japanese government declined this proposal. I found that the government of Japan, and more specifically the Ministry of Foreign Affairs, could not understand the needs of Micronesia, especially concerning the policies and political issues of telecommunication development. Therefore, in 2002, I launched a study group, the ‘Pacific Islands Digital Opportunity Committee’, under supervision of the Sasakawa Pacific Island Nations Fund Board. This committee studied ICT for development (ICT4D) taking a broad

perspective, with a focus on policy issues. It also tried to support policy reform, particularly in Micronesia. This resulted in several policy initiatives, such as discussion papers from the Republic of Palau at the instigation of Hon. Sandra Perantozzi, the first female Vice President of the Republic of Palau (2001-2004). The Federated States of Micronesia finally announced their ICT policy in 2014, on the initiative of Hon. Francis Itimai, Secretary for Transportation, Communications, and Infrastructure, and passed their telecommunication deregulation bill in the same year.

Recently, towards the end of my writing process, the Republic of Palau needed to deregulate their telecommunication bill, in order to get access to a loan from the Asian Development Bank for its project to connect an international undersea telecommunications cable. Based on my thesis research, and at the request of the Palauan policy makers (including politicians, business people and media), I provided intellectual advice on specific areas, such as deregulation and the meaning of Universal Service. As a result, the Palau government approved the new telecommunication bill, which introduced deregulation and competition in their telecommunication service regime, on the 21st September 2015.

The ICT project was only one of hundreds of projects I was involved in during my twenty-fivce year journey. I have also managed various projects, including: development of history texts, cultural heritage management, journalist exchange, establishing a Pacific Youth Council, developing a Japanese language course, and a scholarship scheme for instance,. and I have written a large number of draft program guidelines for the fund, plus draft policy recommendations for the Japanese government during this time. I travelled to the Pacific Islands for an average total of almost 100 days each year.

When I started my PhD in 2008, the Sasakawa Peace Foundation had a new Chairman and the Pacific Island Nations Fund had changed its focus from ICT to maritime security projects.

Telecommunication has always been a key component of security, so I kept in touch with ICT issues in the Pacific within my capacity as a Project Officer within the Sasakawa Peace Foundation. This study represents an excellent opportunity to continue current discussions and progress on the subject of developing telecommunications in the Pacific Islands.

1.2 Research Question

On the subject of telecommunication development in the Pacific, my main themes of interests have always been politics and policy, rather than any discussion of the technology or contents of communication. In this thesis, however, I have chosen to focus on telecommunications policy in the context of development theory.

Because of the cost and effectiveness, it was, until recently, thought to be unaffordable to develop any telecommunication service equal to that of capital cities or developed countries in the remote and economically small-scale Pacific Islands. For example, until recently, no one could have imagined that Universal Service was possible in a country like Papua New Guinea, with a population of nearly 8 million people and almost 800 different languages spoken in isolated, mountainous valleys, or small, remote islands. Now, Universal Service has become possible with wireless technology and a deregulated telecommunication regime. In some Pacific Island countries, most small and remote islands and villages are connected with a mobile phone service, using Wi-Fi under a competitive market. Although mobile phone access is available in the remote islands with wireless technology, broadband Internet service has not yet reached many of the remoter areas.

This thesis examines the important issue of whether the Universal Service of telecommunication or broadband services (or something else yet to be developed) is necessary

in the remote islands and rural villages of the Pacific. As will be argued in Chapter 3, Universal Service is simply a means to provide telecommunication service to an entire country. The focus of this argument is on ICT4D, using development theory, specifically the idea of Amartya Sen's Capability Approach (Sen 1999). By examining the dynamism of history and development of human movement in the Pacific, I will also argue that robust information and communication flow does not fully depend on current information technology. Focusing on specific case studies, including fieldwork in Vanuatu and extensive research on satellite communication projects within the Pacific, I will argue that Pacific Island people develop, choose and use ICT simply as a tool to magnify their own Capability as Freedom of choice and achievements. Following Sen, I assert that expansion of freedom is both the primary end and the principal means of development.

This research will also contribute to understanding of the development of ICT4D in four areas. First, I examine the possibility of evaluating Capability and Development as Freedom with new methods. Second, by exploring the history of ICT4D, decolonization and satellite development, my research provides new insights into ICT4D scholarship. Third, examining Pacific history within the framework of human mobility and information flow again provides a new perspective on development, information and communication.

Fourth (and finally), this study also provides new data on current telecommunications policy in the Pacific Islands. In these island nations, consensus based decision-making on telecommunications policy by a national government is quite a recent phenomenon. This is because the governments of these newly independent countries did not previously control their policies for telecommunication management, but instead, relied heavily on those incumbent Cable and Wireless providers, which were the legacy of former colonial nations.

For example, most papers on telecommunications policy produced by Pacific Islands governments over the past decade claim that ICT supports the needs and welfare of the economy, such as the need for education. These assumptions were not always true, however. In small, remote islands, economic development is difficult because of the scale and distance from the main market, even with available mobile phone services and broadband Internet. The availability of mobile phones also allows overseas workers (such as seasonal workers in New Zealand) to send money back home, and indeed, as seen in Chapter 5, this promotes overseas travel for those who are hesitant to leave their families. ICT does not always directly support development, but it is an important tool for processing various dimensions of development activities. ICT does not promote development, but people promote development using ICT as a tool.

1.3 Structure of this thesis

This thesis consists of seven chapters, including this Introduction, which provides a background to the author and outlines the research questions. Chapter 2 discusses the theoretical framework and methodology of the research. Chapter 3 discusses the historical background of ICT4D and Universal Service. Chapter 4 provides a background to mobility and telecommunication development in the Pacific Islands, including current deregulation. Chapters 5 and 6 present two case studies, first relating to Vanuatu and then to PEACESAT and USPNet. Chapter 7 gives a conclusion to these discussions.

Hereafter, I will give a brief outline of each chapter.

Chapter 2 discusses the theoretical framework through which ICT4D has been examined in various papers, and to identify what is missing. I examine arguments from Richard Heeks and

David Souter, who pointed out that there is a lack of discussion on the development theory of ICT. From this, I then argue for the possibility of using the Capability Approach argument of Amartya Sen. Sen explored the meaning of development in his book, *Development as Freedom* (Sen 1999) and his Capability Approach is one of the key perspectives by which to evaluate development. In this Chapter, I also outline the discipline of development study, which emerged after the Second World War, and how Sen's argument followed from this.

In this Chapter, I introduce the two case studies that provided the bulk of my data. One is based on fieldwork in Vanuatu, and the other comes from research into PEACESAT and USPNet. I use different methodologies for each case study. For the first study, I undertook detailed field work in Vanuatu and conducted interviews with a sample of people from the perspective of the Capability Approach. This chapter outlines questions and methodologies used in the analysis of data through a 'story telling approach', and introduces the KJ method. Regarding the case study of PEACESAT and USPNet, I outline the document survey, which is integrated into my own extensive experience in working with both projects.

In Chapter 3, I discuss the historical background of ICT4D. In order to understand the issues facing ICT4D today, knowledge of its origins is vital. Although ICT4D has only been actively discussed since the 1990s, I would suggest that such a debate was initiated much earlier, in the 1950s. Issues such as decolonization and satellite development, including the dispute over outer space, came to the fore after the Second World War. Chapter 3 outlines two paths of ICT4D. The first relates to satellite development and the corresponding territorial competition for outer space between the United States and Soviet Union. The second movement concerns the unequal flow of information between developed and developing countries, which has been extensively discussed by UNESCO and the World Bank. In the 1980s, the International Telecommunication Union (ITU) launched their special committee to discuss the *The Missing Link*, and in the 1990s, developed countries, particularly the United States, introduced Global

Information Infrastructures (GII) with new telecommunication regimes, that is, competition with new technologies, such as Internet.

The latter half of Chapter 3 addresses the question, 'What is the Universal Service?' It first outlines the origin of Universal Service close to 100 years ago in the US, by introducing the perspectives of three scholars: Mueller, John and Hayashi. Second, three case studies of Universal Service will be presented on those developed countries and organizations that were major donors to developing Pacific countries: OECD, France and Japan. Their experiences with and philosophies on Universal Service are important for developing Pacific countries, which could not develop their own telecommunication systems without this outside support.

From studies of ICT4D and Universal Service, it is clear that Universal Service has a quite complex social background, arising from issues such as the tensions of the Cold War, decolonization, monopoly or liberalization, public-service ethos, the process of nation building, historical administration systems and border disputes. However, due to user demand and a public service ethos, the principal themes of Universal Service have not yet been adequately discussed. These missing points will be examined in Chapters 5 and 6, in which I will analyse the case studies.

Chapter 4 focuses on the Pacific Islands. First, I discuss mobility and diversity within the Pacific from a historical perspective. People appeared in the western Pacific some 50,000 years ago and this long history has cultivated a diverse range of languages and cultures. 3000 years ago, Austronesian peoples from the South East coast of Asia colonized areas of the Pacific using their seafaring technologies. Without currently available technology, those who moved throughout the Pacific kept a robust traditional communication network and shared information across vast oceans. European colonization began as recently as 500 years ago and has continued until the recent independence of Pacific Island countries. Although small

islands obtained their independence, they maintained close political and economic ties with their former colonizers.

In the final section of Chapter 4, I discuss the development of telecommunications in the Pacific and outline how the first communication cable was launched during the era of Western expansion. High Frequency radio was developed for domestic communication, but only for the Western colonizers. Even after the Pacific Island countries gained independence, the situation remained the same until very recently. Towards the end of this Chapter, I make use of Ofa (2012) to discuss current deregulation and competition in the Pacific Islands. Except in the nation of Tonga, there is only one mobile phone company, Digicel, which has played a critical role in the deregulation and the provision of Universal Service. Tonga deregulated their telecommunication regime, based on the initiative of Tupou V, without any pro-deregulation pressure from outside.

In Chapters 5 and 6, I present and draw findings from detailed case studies.

Chapter 5 is focused on the island of Vanuatu. It describes the fieldwork I conducted in July and August of 2014. This research was undertaken according to the Capability Approach. Before elaborating on the details of my field work, I examine the historical background of Vanuatu, in particular, its independence movement. Knowing the history, tensions, and perspective of Vanuatu is crucial in understanding what development means for that country. I examine the role of radio and the local language of Bislama as communication tools for Vanuatu's independence, development and cultivation of national identity. This is followed by a detailed review of current deregulation and the introduction of competition, focusing on court cases between the incumbent telecommunication company and the government of Vanuatu. At this point, I will argue that the aforementioned court cases demonstrate the

willingness of the ni-Vanuatu and their government to deregulate their telecommunication regime in order to improve overall service to the 'Public'.

Later in Chapter 5, I present the results of the interviews and analyse these transcripts using the 'KJ-method', a new type of conceptual tool to formulate and analyze qualitative data during field research. As expected, the results show a clear trend in the potential uses of ICT for the people of Vanuatu. ICT clearly gives people greater capacity to manage their business and personal lives. It has facilitated communication between families and friends in remote islands and overseas. The results show that ICT is not used as an opportunity to make money, but to create opportunities, that is, to strengthen Capability. By incorporating these results with other data on such things as tourism, education, seasonal workers and social networking services like Facebook, I was able to determine that ICT has extended people's freedom of choice, and increased their capabilities.

Chapter 6 explores the case study of PEACESAT and USPNet. The purpose of this chapter is to demonstrate that technology itself is not the ultimate purpose of development. In other words, Capability belongs to people, not to technologies. Prior to the introduction of Universal Service in the Pacific, use of ICT for development had been attempted since the 1970s. PEACESAT ceased to operate after 40 years, but the use of USPNet continues to grow. Knowing their history and origins gives us greater understanding of the meaning of development and ICT. This discussion is based on two presentations I gave at international conferences (See page 14).

Chapter 6 outlines the circumstances wherein the University of the South Pacific was launched, with a clear purpose of providing higher education to eleven countries in the Pacific Islands (a twelfth member, the Marshall Islands, joined at a later date). Initially, USP connected its networks using postal mail. I will relate the means by which USP obtained

support from the Japanese government to have its own satellite network and improve communication. It will be argued that this arose from the needs and political will of the Pacific Island countries. USP recognised a firm demand for higher education of local people as a basis for its core mission, within the framework of regional cooperation. It will be argued that satellite use and ICT are useful tools to enable the university to achieve its goals.

This chapter will also demonstrate that, in contrast, PEACESAT was not set up purely for the purpose of education, but was launched as an experiment with the aim of using the satellite as an educational tool. Again, their aim was not to promote education as their mission. It will be demonstrated that, from its inception, there was much confusion and conflict about the aims and policies of PEACESAT. This is the definitive difference with USPNet. USP had a clear mission from the beginning, but the direction of PEACESAT was always vague. PEACESAT survived for 40 years in the Pacific Islands because of users like USP and FFA, with clear mission statements. This case study tells us that projects can only continue to develop when people or groups have a clear mission to follow. Capability means both freedom of choice and freedom of achievement. Even had they the freedom to do so, PEACESAT could neither choose nor achieve.

In Chapter 7, I conclude by answering the research question of whether a universal telecommunication service is possible for the remote islands, and if so, why? I argue that Universal Service is possible, not because of technology, but because of the political will and demands of the public and decisions of Pacific Island governments. I also conclude with a review of the meaning of development and Universal Service with the Capability Approach. Telecommunication is only a tool by which to magnify people's freedom of choice and achievement. Lastly, I give some suggestions for enhancing telecommunication policy in Pacific Island countries.

In the course of my PhD study, I have had the opportunity to write chapters for a number of anthologies and international conference papers, some of which is included below:

Chapters 3 and 4 are also based on my chapter, ‘Politics, economics and regional cooperation of Pacific Islands’, in *Latin America, Oceania* (Hayakawa 2012), which was published as a textbook for undergraduate students.

It should also be noted that Chapters 3, 5 and 6 are based on my chapter, ‘Self-determination for the Communication Policy in the Pacific Islands’, in *Self-determinable Development of Small Islands*, which was edited by Ishihara, Hoshino and Fujita and published in June 2016 (Hayakawa 2016).

Chapter 6 is based on two further presentations at the Pacific Science Inter-Congress in 2013 and a Public Symposium on Islands and Oceans at the Ryukyus University in 2013 (Hayakawa, July 2013a and Hayakawa, October 2013b).

Chapter 2: Theoretical framework and methodologies

2.1. Introduction

In this chapter, I will discuss the theoretical framework and methodologies of this thesis. First, I examine how development theory is discussed in the ICT4D, followed by the Capability Approach, as identified by Sen (1999). Second, I discuss the methodologies used in examining the limits and advantages of qualitative data analysis for interviews.

I would like to apply Development Theory as the main foundation for this thesis, which asks whether a Universal Service of telecommunications is necessary in the remote islands and rural villages of the Pacific. Hereafter, I will explain: first, why Development Theory is important for ICT4D; second, the nature of the Capability Approach and the concept of Development as Freedom; and third, how the Capability Approach emerged from Development Theory.

2.1.1 Why Development theory for ICT4D?

Scholarly discussion on ICT and development only began in the late 1990s, as a result of the IT revolution (Unwin 2009, Souter 2005), emergence of the Internet and deregulation of the telecommunication regime. One example of change was the demolition of INTELSAT, the monopoly regime of Satellite business, which was privatized in the 1990s. This was a time when governments and politicians were promoting Telecommunication and ICT businesses for their national economic growth. For example, the National Information Infrastructure

(NII) was announced by US Vice President Al Gore (Kumon 1995: 17). Subsequently, the 'digital divide' between developed and developing countries became an issue in the international arena and aid for ICT4D was accelerated. One particular example was the announcement of 15 billion USD in financial aid by the Japanese government to narrow the digital divide. This was introduced as a result of the 2000 G8 summit. The issues arising from this background have led to a focus on ICT4D (ICT for Development) in developing countries, resulting in many studies and research papers.

However, as indicated by Sahay and Walsham (1995) and Heeks (2006), most of these early papers are wholly descriptive and lack any theoretical analysis.

Heeks notes that:

> ICT for development has followed Marx's dictum: "The philosophers have only interpreted the world differently; the point is, to change it." Most of ICT4D research being produced is therefore descriptive not analytical (Heeks 2006: 1).

Heeks also points out that Information, Communication and Technologies (ICT) have been subject to many theories:

> there were existing and ongoing research foundations for ICT4D work, which we can find particularly in various factions of 'informatics'; The I of ICT4D – work drawing from library and information sciences. The C of ICT4D – work drawing from communication studies. The T of ICT4D – work drawing from information systems (Heeks 2006: 1).

Heeks makes the point that "Very little work to date has drawn from the D of ICT4D – linking concepts in development studies to this research domain" (Heeks 2006: 1). Similarly, Souter also argues that discussions on ICT4D have focused too heavily on technologies:

> Much of the current ICT4D literature similarly understands ICTs primarily as technologies – the 'T' in 'ICTs' – rather than as media for the transmission of information and communication (Souter 2005: 13).

Souter then turns his discussion to the meaning of information and communication for people centred approaches:

> Again, however, there are important questions to be asked here. People do not communicate because technology enables them to do so; they communicate because they have a need to share information, experience or social solidarity. Similarly, people do not seek information for its own sake, but because they can use it to protect themselves against vulnerability or to seize opportunities for advantage (Souter 2005: 13).

He even suggests the use of the term without the T (technologies), 'ICD', rather than 'ICT4D'. Like Heeks, he emphasizes the poor quality of research and publication on ICT4D:

> Strategic priorities for ICTs are still poorly interlinked with those for poverty reduction and other developmental targets. Little research has been done into the impact of ICTs on development, especially whole communities, and the quality of much that has been published is poor (Souter 2005: 17).

Kentaro Toyama echoes the points made by Souter in his speech, 'The Myth of Scale', at TED (Technology, Entertainment, Design) in 2010. In this, he comments that "Technology only magnifies human intent and capacity. It can't substitute for them" (Toyama 2010).

Toyama worked for the computing giant, Microsoft, as a researcher, and was based at a laboratory in India, which was part of Microsoft's efforts to promote technology for socio-economic development and alleviating poverty. After this experience in India, he became aware that technology did not solve poverty, lack of education and other similar issues. I was glad to confirm this, especially from a technology 'geek' (his most current book was titled

Geek Heresy (2015)), because the ‘sputniks’ (fellow travelers, in Russian) on my ICT4D journey in the Pacific Islands wanted to promote technology for development.

However, I have always suspected that the real expectations and intentions of these geeks were more about technology than about development. Toyama makes a similar point and even humorously suggests that TED consider changing its name to PED, with P for People. (Available from: https://www.youtube.com/watch?v=cxutDM2r534 Accessed 10 October 2015.)

In order to address this insufficient use of development-based knowledge in connection with ICT4D and to fill this important gap in our understanding, I would like to apply the Capability Approach (CA), which is seen by Amartya Sen as ‘development as freedom’. Such an approach is important to my research question, ‘why do remote islands need ICT?’ This could be answered with reference to the meaning of development, on which Sen discussed his views in *Development as Freedom* (1999).

So, how can the Capability Approach be applied to ICT4D? In the past decade, the Capability Approach, which is based on the theory of Development as Freedom (Sen 1999), has been prominent in the scholarly discourse on ICT and development. In the next section, I shall further expand on the above by examining the meanings of the Capability Approach and Development as Freedom.

2.1.2 Capability Approach and Development as Freedom

As most books and articles on Amartya Sen describe his childhood background, it is important to note that he was born in India in 1933 and was a witness to the 1943 famine in Bengal, which killed between 1.5 and 4 million people. This background may partially

explain Sen's involvement in and commitment to the study of poverty, inequality and development.

Sen was educated in Oxford, where he became a Professor of Economics, and was awarded the Nobel Prize in 1998. According to Meghnad Desai, Sen has been writing about development since the mid-1950s as a young scholar (Desai 2001). Later, in the 1970s, he focused on inequality and poverty. In the 1980s, he focused on poverty and deprivation, which led to a more humanitarian concern in his study of development. In the 1990s, the concept of freedom emerged as Sen's main concern on the subject of development. In 1999, soon after he received the Nobel Prize, Sen published *Development as Freedom*.

His book, *Development as Freedom*, starts with a story on the meaning of money for a married couple living in the eighth century B.C. Sen discussed the nature of the human predicament and the limitations of the material world, which have continuously been cited in Indian religious philosophy. He points out that the same argument can be seen in the *Nicomachean Ethics* of Aristotle: "The life of money-making is one undertaken under compulsion, and wealth is evidently not the good we are seeking; for it is merely useful and for the sake of something else" (Aristotle 350 B.C.E, quoted in Sen 1999).

Sen then turns his discussion to the meaning of Development as Freedom and the relativity of wealth, such as money and freedom. In his book, Sen analyzes the development and freedom of individuals, with particular attention to human 'capabilities'. He also argues that these capabilities can be enhanced by public policy, and public policy can, in turn, be influenced by the participatory capabilities of the public. This means that, although the Capability Approach focuses on individual freedom, it still reflects society. However, the Capability Approach presents a different perspective from other development theories, such as the Basic Human Needs and Neoclassic approaches, which focus on utilities, such as money, materials and

services to individual quality of life and well-being. Sen argues that the concept of 'Capability' is significantly more meaningful than 'Utility', on which the Neoclassic school based their approach. It is argued that 'Utility' cannot deal with human psychological reactions, such as:

> The destitute thrown into beggary, the vulnerable landless labourer precariously surviving at the edge of subsistence, the overworked domestic servant working around the clock, the subdued and subjugated housewife reconciled to her role and her fate, all tend to come to terms with their respective predicaments. The deprivations are suppressed and muffled in the scale of utilities by the necessity of endurance in uneventful survival. (Sen 1985: 14-15)

What does freedom mean, and what is Capability? Sen argues that the important element of freedom is ‘choice’:

> One reason why freedom may be important is that ‘choosing’ may itself be an important function. Indeed, Aristotle had seen the ability to choose as one of the distinguishing features that makes human beings different from lower animals, whose acts done can be described as voluntary, but not chosen (Sen 1987: 32).

Sen argues not only for freedom of choice, but also for the freedom of achievement as a matter of human functioning:

> The capability of a person reflects the alternative combinations of functionings the person can achieve, and from which he or she can choose one collection (Sen 2008: 271).

Thus, Sen’s argument on Development as Freedom has a high degree of dynamism, for example, with the freedom of choice and freedom to achieve. In other words, it is an ‘expansion of freedom’. This argument could be suitable for ICT4D, because the argument for ICT seems to be the same as that for using money by Aristotle and the Indian religious philosophy. ICT is merely useful and for the sake of something else. The provision of

telecommunication and ICT Universal Service to the remote islands and rural villages is not the ultimate purpose, but we have to examine the reason for using ICT. Sen's discussion of Development as Freedom and using the Capability Approach may provide an answer to my research questions. As Souter has argued, people do not communicate just because technology enables them to do so, but to share and obtain information for their own purposes. Even the 1985 *Maitland Report* from the ITU (International Telecommunication Union), which I will discuss in Chapter 3, noted that, although telecommunication is an essential component in the 'process' of development, it is not the ultimate goal. This means that the application of ICT does not lead to any instantly visible quantitative results. In this sense, Sen's Capability Approach is a reasonable theory for the ICT4D discussions, which do not pre-define measurements.

Critique of Sen's Approach

Sen's idea has been discussed and reviewed by many scholars, at times negatively. In his paper, 'The Capability Approach: Its Development, Critiques and Recent Advances', David Clark (2005) summarises Sen's Capability Approach (CA) as follows:

> Over the last decade Amartya Sen's Capability Approach (CA) has emerged as the leading alternative to standard economic frameworks for thinking about poverty, inequality and human development generally. In countless articles and several books that tackle a range of economic, social and ethical questions (Clark 2005: 2).

In developing this approach, Sen acknowledges Adam Smith's (1776) analysis of necessities and living conditions, along with Marx's concern with human freedom and emancipation, and Aristotle's theory of 'political distribution' and 'human flourishing'. It is important to stress that Sen does not deny economic growth and the expansion of goods and services. Instead, he

focuses on what people are able to choose and achieve. Capability is the freedom to choose and the freedom to achieve a valuable existence. Most of the criticism of Sen is based on the fact that Capability cannot be measured and evaluated by qualitative or quantitative analysis.

The most well-known criticisms concern how operational the Capability Approach can be. These include, for example: failing to provide a framework or coherent list of important capabilities; inter-personal comparisons of well-being will vary depending on the different valuations of Capability; and sometimes information about Capability is difficult to obtain, or impossible to observe (Clark 2005: 5-6).

I will endeavour to challenge these criticisms in the methodologies section of this Chapter. Before then, I shall summarize some of the papers that apply Sen's Capability Approach to the ICT4D, and look further into development theory and Sen's Capability Approach.

2.1.3 Literature review of Capability Approach and ICT4D study

Around 2010, studies by scholars on the 'Capability Approach' for ICT4D began to increase. However, the first reference to using a Capability Approach for ICT4D was in 2007, in the paper, 'Exploring the Value of the Capability Approach for e-Development' by Yingqin Zheng (2007). Dorothea Kleine is one of the leading writers on the use of the Capability Approach when studying ICT4D (Kleine 2009, 2010, 2013) and suggests the 'Choice Framework' as a challenge to the Capability Approach.

Jean-Yves Hamel (2010) is focused on the Capability Approach for ICT4D in his UNDP publications. UNDP is a leading organization that utilizes the Capability Approach, for example, by formulating the Human Development Index with Amartya Sen. Hamel argues for the role of ICT in human development and outlines its limitations.

Zheng notes that "It is clear that technology does not always, in fact often fails to, serve intended purposes, and that the spread of technological advances may not necessary lead to development" (Zheng 2007: 2). She suggests applying Sen's Capability Approach to the study of e-development, but only discusses the concept of the Capability Approach for ICT4D, not the methodologies used. Kleine (2009), however, does discuss methodologies and suggests the 'Choice Framework' to operationalize the Capability Approach for ICT4D. She points out that people's choices are never fully predictable or controllable. Hamel, on the other hand, sets core measurements, including health, education and income, and the dimensions of participation and empowerment. He also argues that:

> A recurrent observation in the literature surveyed in this paper is the important realisation that ICTs alone cannot improve peoples' lives; the use of ICTs needs to occur within broader strategies that are tailored to make the most use of these tools and techniques in order to reap their potential benefits for human development. ICT4D therefore only represents a potential for increasing opportunities and capabilities through technology (Hamel 2010: 59).

In 2012, the *Information Technology for Development* journal published a special issue, with six articles focusing on the Capability Approach and Development as Freedom. The questions posed by scholars Annika Andersson, Åke Grönlund and Gudrun Wicander (2012) are very close to my own approach, for example:

> What has been disputed however – at least by the research community – is how and why ICTs should be used for development. In the ICT4D research community, the very notion of development has increasingly been a subject of debate and we are asking ourselves: what development is? (Andersson, Grönlund and Wicander 2012).

The articles in this journal attempted to operationalise and measure the Capability Approach (Thapa, Sein and Sæbø 2012; Hatakka and Lagsten 2012; Kleine, Light and Montero 2012;

Johri and Pal 2012; Wresch and Fraser 2012). In my own work, I observed that the questions here are still ICT-centred, for example, what can ICT do for Capability? These are totally different from the question of what people want to do with ICT. In other words, it is not the ICT that matters, but what ICT is used for. ICT is just a tool to achieve an aim, but this does not matter as long as people can do what they set out to accomplish. Although this may look like a very small difference, it is in fact a huge paradigm shift.

Why do researchers not shift their focus away from using ICT? Maybe ICT, IT and the telecommunications market are too large to escape from. However, just as Sen argues that money is not the aim of life, I will argue the same for ICT. Ironically, this very important point was raised in 2000 by the Japanese diplomat Koji Tomita, who drafted the 'Okinawa Charter on Global Information Society' as a part of the G8 summit in Okinawa. This was popularly known as the 'IT Charter' and came with the announcement of a 15 billion USD commitment by the Japanese government. Unfortunately, no scholars or academics until now have examined the details of this charter. Its author, Mr Tomita, was fully aware that it had been incorrectly received by the global stake holders. In order to rectify their misinterpretations, he published an article just three months after the G8 summit (Tomita 2000. Translated by Author), in which he notes that:

> One of the misunderstandings of this Charter is that this Charter does not aim to promote IT itself. In this sense, calling this Charter the 'IT Charter' is inappropriate (Tomita 2000).

Importantly, he also mentions Capability in his commentary, since the "core of this understanding is the recognition of human centredness, and IT is only a tool to demonstrate human capability" (Tomita 2000. Translated by Author). Tomita also points out that this theme is clearly expressed in the second paragraph of the Charter:

> The essence of the IT-driven economic and social transformation is its power to help individuals and societies to use knowledge and ideas. Our vision of an information society is one that better enables people to fulfil their potential and realise their aspirations. To this end we must ensure that IT serves the mutually supportive goals of creating sustainable economic growth, enhancing the public welfare, and fostering social cohesion, and work to fully realise its potential to strengthen democracy, increase transparency and accountability in governance, promote human rights, enhance cultural diversity, and to foster international peace and stability. Meeting these goals and addressing emerging challenges will require effective national and international strategies (Okinawa Charter on Global Information Society 2000). Available from: http://www.mofa.go.jp/policy/economy/summit/2000/documents/charter.html Accessed 10 October 2015.)

He also points out that the risks of using IT is that IT development becomes an end in itself (Tomita 2000. Translated by Author). The aims of this Charter were to emphasize the human subject based on IT development, and to use this technology spontaneously to improve her/himself, thus building a better society (Tomita 2000. Translated by Author).

It is extraordinary that, as early as 2000, the G8 document contained a full discussion of what was, in essence, Development as Freedom and suggested Capability through ICT. Mr Tomita would, I imagine, have been fully aware of Sen's arguments at that time, especially as the central concept of Japanese Official Development Aid (ODA), as outlined by the Ministry of Foreign Affairs in Japan, refers to concepts such as Human Security. What is more extraordinary is that no academics or researchers, not even the Japanese Ministry of Foreign Affairs, have ever evaluated this very important argument in the Charter. I would like to emphasize this in my thesis. The Digital Opportunity Taskforce which arose from the the Okinawa Charter, submitted their report which included nine active plans at the following G8 summit in 2001. Judging from these plans, it seems that IT development has indeed become an end in itself, just as Tomita forewarned.

A review of the literature suggests that Sen's Capability Approach and Development as Freedom theory could be a key approach to the study of ICT4D. At the same time, much work is needed on working out how to measure and evaluate Freedom as Capability of choice, and how to use ICT for Development.

2.1.4 Development theory and Capability Approach

In this section, I provide an overview of 'Development Studies' and how Sen's Capability Approach emerged as part of development theory.

The study of Development Economics emerged after the Second World War. One of the origins of international cooperation is the European Recovery Program, also known as the Marshall Plan, in which the United States supported the European countries after the Second World War (1947 to 1949). However, this assistance scheme was undertaken by the so-called 'developed' countries of Europe and the United States. Full scale development aid began with the Colombo Plan, which was agreed upon in 1950 at the British Commonwealth Conference in Colombo, Sri Lanka. Britain, which once had a large number of colonies around the world, took the initiative in this plan. 24 non-Commonwealth members also joined, including Japan in 1954, and in 1958, Japan provided the first loan to India (Tanaka 1994).

A possible origin of the process of development between 'developed' and 'developing' countries, or 'colonial' and 'colonized' countries, may be found much earlier in the Covenant of the League of Nations, as a result of the Versailles Peace Conference at which Woodrow Wilson introduced 'Self Determination' and the new concept of 'Mandated Territory' for former colonial regions:

> To those colonies and territories which as a consequence of the late war have ceased to be under the sovereignty of the States which formerly governed

> them and which are inhabited by peoples not yet able to stand by themselves under the strenuous conditions of the modern world, there should be applied the principle that the well-being and development of such peoples form a sacred trust of civilisation and that securities for the performance of this trust should be embodied in this Covenant. The Covenant of the League of Nations, ARTICLE 22 (underlined by Author).

This article tells us a great deal about the origin of the term 'development'. For example, pointing to "peoples not yet able to stand by themselves under the strenuous conditions of the modern world" shows that colonial powers saw the peoples of colonized territory as not being capable of standing by themselves according to modern values of the world (which essentially meant the colonizers' values). Furthermore, this article claims that development for the people of colonial territories should 'form a sacred trust of civilization'. Here again, we can see a unilateral perception, namely 'civilization' from colonial countries to colonized countries. Yanaihara established 'Colonial Studies' in Japan from the 1920s to 1930s, and also analysed this new regime of mandated territory. He argued that, although the concept of a mandated territory was against 'uncivilized exploitation', it was not against 'rational exploitation'. Thus, recognising mandated territory as a new regime in the League of Nations did not contradict the imperialistic philosophy (Yanaihara 1948: 197-198).

Even after WWII, under the process of decolonization within the United Nations system, development meant Economic Development and becoming more like Western countries. Preston points out that "All the major theories of development are informed by Western ethics and this raises an obvious question" (Preston 1996: 22). He describes how Social Science, with the idea of 'enlightenment', developed during the 17th to 18th century in Europe and is also a foundation for current Development theory.

The post-WWI world was influenced by institutional approaches, with Keynesian policies being developed within a planned economy, for example, the 'New Deal' in the USA during

the 1930s. Political pressure during the Cold War also spurred the influence of United States economic policy on the developing world through interventionism. The period from 1930 to 1960 saw the economic rationalist theories initiated by Keynes overshadow all others, resulting in a limited use of other approaches, such as economic sociology, which was developed by Weber, Simmel, Pareto and Durkheim (Preston 1996).

Thus, decolonization and development started with the 'theory of economic growth', established by such people as William Arthur Lewis (1915-1991), who contributed a theory of Development Economics for developing countries. Decolonization and development also originated in those non-Western countries that already had a built-in Western colonial social structure. This Western colonial social structure was first established in Latin America and Asia in the 18th century, then in Africa in the 19th century, by European powers. These colonial cities were expanding outward with the trading networks to form a global system. This may be explained within the logic of the capitalist system, that is, the colonial city as the basis of the colonial state machine, influencing law, administration, trade, development, and the social regulation of European and non-European populations (Preston 1996: 144-145).

The study of development has flourished in this post-WWII context with multiple diverse theories. How has Sen's development theory emerged from such a variety of theories and debates? Hideaki Esho, who introduced Sen's theories to Japanese academia, offers the following chart to describe the key trends of Development Studies (see Table 2.1).

Structuralism (from late 40s to early 60s)

|

First paradigm shift (late 60s)

Neo-Classical Approach / Reformism (BHN Approach) / Dependency Theory (Neo-Marxism)

|

Second paradigm shift (late 80s)

New Political Economy / New Institutional Theories / New Growth Theories (Endogenous Growth Theory, Path-dependence Theory) / Capability Approach by A. K. Sen

Table 2.1 Transition of the Development Economics (Esho 1997: 2)

From the 1940s to 1960s, the study of Development Economics focused on 'Structuralism'. Structuralism is a major contributing factor to the economic divide between developed and developing countries. It was argued that the economic structure of developing countries was entirely different from that of industrial developed countries, which widened the divide between developing and developed countries. In the late 1960s, the first paradigm shift occurred in studies of Development Economics (see Table 2.1). Three theories emerged from criticisms of 'Structuralism': the Neoclassical approach, the Dependency theory (Neo-Marxism) and Reformism.

Of these, the Neoclassical approach became the mainstream theory of development study, while Dependency theory was seen as heretical. Dependency theory emerged from the same theoretical sequence as Structuralism, and argued that the poverty of developing countries was caused by exploitation from rich developed countries. In contrast to the Dependency theory, the Neoclassical approach emerged from denial of Structuralism and argued that the economic market could have functioned in developing counties. If this failed, it was seen as a result of excessive or incorrect interventions by the developing countries' own governments.

Reformism focused on employment, poverty and distribution, issues that were ignored by Structuralism, and targeted development as a means of achieving basic human needs.

In the late 1980s, there was a lot of criticism of the Neoclassical approach within the second paradigm shift of Development Economics studies (See Table 2.1). Newer theoretical approaches opened further discussion. These included: Political Economy, Institutional Theories, Growth Theories (Endogenous Growth Theory, Path-dependence Theory), and the Capability Approach. Together they represented the antithesis of the Neoclassical approach. While the Neoclassical approach argued that the market economy could have functioned in developing countries, these newer approaches claimed that the developing countries were subject to imperfect competition or dominated by market failure. Three of these new theoretical approaches (Political Economy, Institutional Theories, Growth Theories) re-valued the roles of government and the market. Another theoretical approach, developed by Sen, was the Capability Approach, which also provided an antithesis for the concept of 'utility' and the ultimate foundation of the Neoclassical approach (Esho 1997: 2-4).

How is reformism distinguished in the context of development studies? Esho argues that the peculiarity of reformism is that it questions the 'meaning of development' and restores the moral principle of Development Economics (Esho 1997: 108). Dudley Seers brings up 'The meaning of Development' (Seers 1969) and argues that, if poverty, unemployment and unfairness still exist, we cannot say that development has been achieved even after an increase in GDP. Possibly in response to Seers's suggestion, the International Labour Organization (ILO) launched the World Employment Program in 1969. This program promoted employment and attempted to eradicate poverty. From 1968 to 1981, when Robert McNamara was President of the World Bank, he advocated for human resource development and the eradication of poverty, and increased the focus on basic needs, such as education,

health, and safe water. The activities of the ILO and World Bank suggested a new purpose for development, that of 'Providing Basic Needs' (Esho 1997).

However, Paul Streeten criticizes the Basic Needs approach, saying:

> First, and most important, the basic needs concept is a reminder that the objective of the development effort is to provide all human beings with the opportunity for a full life. However a 'full of life' is interpreted, the opportunity for achieving it presupposed meeting basic needs. In the past two decades, those concerned with development have sometimes got lost in the intricacies of means – production, productivity, saving ratios, export ratios, ... and lost sight of the end. They came near to being guilty, to borrow a term from Marx, of 'commodity fetishism' (Streeten *et al*. 1981: 21).

I believe that Streeten used 'Commodity fetishism' as a criticism of 'Basic Needs' as an abstract concept and the ultimate aim of development, rather than something that went beyond meeting the basic needs of human life. 'Commodity fetishism' was originally identified by Karl Marx in his book, *Capital: Critique of Political Economy*. It relates to the social relationship defined by the economic transformation of commodities into economic value. Also, 'Fetishism' was used as an anthropological term in reference to non-Western societies, where the value of an object is understood within the society in which it is consumed. The Basic Needs approach was dragged down by 'Commodity fetishism', which lost its meaning for human development.

To meet the narrow focus of the Basic Needs approach, 'Human Development' came to be discussed as part of reformism. This concept covers the physical environment, human rights and political freedom as part of a wider approach for improving the human condition. Streeten outlines two types of approaches to human development. One of these is focused on income and means production as aspects of human development. He called the proponents of this approach 'human-resource developers', who promote an extreme form of human capital as an outcome of development. The other group, he called 'humanitarian', the members of which emphasize nutrition, education and health, rather than human productivity, as outcomes of

development. Streeten also notes that these two approaches appeal to two different constituencies. The human-resource developers appeal to economists, bankers, the World Bank and technocrats. The humanitarian approach appeals to churches, NGOs, idealists and moral philosophers. Streeten again paraphrases Marx in his discussion of human development (Streeten 1994: 355-358).

Esho argues for 'reformism' as a 'humanitarian', people-centred approach (Esho 1997). According to Esho, reformism revealed a need for development to deal with morals. However, the Basic Needs approach declined in the 1980s, at a time of financial crisis and macro-economic imbalance, and the IMF and World Bank subsequently opted for economic structural adjustment (Esho 1997).

Other important discussions on reformism came first from E. F. Schumacher in his 1973 book, *Small is Beautiful*, which suggests sustainable development, including the concept of Buddhist economics. Second was the 1975 report, 'Another Development', by the Dag Hammarskjold Foundation, which suggests a needs-oriented, self-reliant, endogenous, and ecologically sound approach based on structural transformations.

Of these, an endogenous approach is of particular interest, as it may be similar to Sen's concept of Capability. The authors of 'Another Development' outline the requirements of an 'endogenous' approach in their recommendations: first, gear development to the satisfaction of needs, beginning with the eradication of poverty; second, become endogenous and self-reliant, that is, rely on the strengths of the societies to undertake development; and finally, stay in harmony with the environment. In this report, the endogenous approach is described as springing "from the heart of each society, which relies first on its own strength and resources and defines in sovereignty the vision of its future, cooperating with societies sharing its problems and aspirations" (Dag Hammarskjold Foundation 1975). As noted above, the

endogenous concept appears to be similar to Sen's Capability Approach, although it is obvious that the Dag Hammarskjold Foundation focused on 'society', while Sen's focus is more on individual freedom. However, as noted by Sen, there is a correlation between individual freedom and society.

Sen's development theory of the Capability Approach, together with Development as Freedom, is a unique argument, which has a major influence on academic and developmental agencies, such as those associated with the United Nations. The Capability Approach is categorized as an example of reformism in development theories, and yet, Sen disagrees with the Human Basic Needs approach. I assume that he also disagrees with the human resource developer and humanitarian approaches. The Capabiluty Approach may be similar to the concept of endogeneity, as suggested by the Dag Hammarskjold Foundation. It is also important to note that a focus on humanitarian issues is not an entirely new approach to development studies. As Sen indicates, the origin of this debate is thousands of years old, and includes both Aristotlean and Indian religious philosophy. If, however, current development studies emerged from arguments that may have originated with the League of Nations after the First World War, with strongly imperialist and colonial regimes as a backdrop, the Capability Approach also gives us an opportunity to examine Western-centred development. It is equally important to be aware that any study of development itself comes with an historical background of colonial economics (Seers 1968). Thus, the Capability Approach, which rejects the pre-defined meaning of development, gives us new insights into the study of development itself.

2.2 Methodologies

2.2.1 Qualitative data analysis for Capability Approach

The following is my favourite philosophical story of Zhuangzi, an ancient Chinese philosopher.

One day, Zhuangzi and Huizi were strolling on Hao Bridge.

> Zhuangzi: “Look how happy the fish are just swimming around in the river”.
>
> Huizi: “How do you know they are happy? You are not a fish”.
>
> Zhuangzi: “And you are not me. How do you know I don’t know the fish are happy?”
>
> Huizi: “Of course I’m not you, and I don’t know what you think; but I do know that you’re not a fish, and so you couldn’t possibly know the fish are happy”.
>
> Zhuangzi: “Look, when you asked me how I knew the fish were happy, you already knew that I knew the fish were happy. I knew it from my feelings standing on this bridge” (Liu 2011: 19).

If Zhuangzi had spoken about the number, size or colour of the fish, then Huizi would not have challenged him, yet the happiness of fish was a matter of debate for these two Chinese philosophers. I have enjoyed this story since I was teenager, but I still cannot understand its full meaning. While studying Sen’s arguments on Development as Freedom and the Capability Approach, this story comes to my mind occasionally and helps me to think about how I might understand another’s freedom and capability.

One of the challenges of Sen’s work concerns the ability to measure Freedom or Capability:

> The measurement of human freedoms is the ongoing preoccupation of those seeking to ‘operationalize’ the capability approach, or make it more user-

> friendly. The problem of 'operationalization' of the capability approach has been well acknowledged (Hodgett and Deneulin 2009).

In this thesis, I am using qualitative methods to measure Freedom or Capability, based on interviews with users, policy-makers and providers of ICT. Sen argued that the indicators of Capability should not be pre-defined, but left to individuals (in this case the interviewees), and so I intend to use 'Storytelling Approaches' for these interviews. Fortunately, we are not studying fish, but humans, who can tell us about their thoughts and feelings.

The use of 'Storytelling' is examined by Susan Hodgett and Séverine Deneulin in their article, 'On the use of narratives for assessing development policy' (Hodgett and Deneulin 2009), and also in the report, 'Storytelling Approaches to Program Evaluation: An Introduction'. This was compiled by California Endowment (2007), a non-profit organization based in the United States.

Hodgett and Deneulin agree with the use of narratives in reviewing policy assessments of the European Union (EU) Community Infrastructure. They further note that quantitative and qualitative research have intelligible distinctions. For example, qualitative narratives:

> enable us to assess whether a policy intervention has expanded people's freedoms in a way that no statistical indicator could ever do. In that sense, the hermeneutical method seems closer to the fundamental ethic of the human development paradigm as 'people-centred development'. It enables us to evaluate the extent to which a policy has changed a person's life in their full humanity. Stories enable us to capture the freedom component of the capability approach which lies at the very heart of human development (Hodgett and Deneulin 2009: 76).

In an attempt to understand how one can collect stories from people, I would like to refer to the report of California Endowment, which introduces a practical introduction to storytelling approaches for program evaluation. It also advises that:

> These approaches can be used in almost any setting, with any number of participants, in any language. They are flexible and can be creatively tailored to the needs and styles of your particular organization or project (California Endowment 2007).

Such an approach is of great value to my research on ICT4D in Vanuatu. To undertake this, I developed a questionnaire (Appendix F) for the purpose of obtaining stories from my interviewees. First, I explained my research purpose to them, and then began the questions. These identified which ICT people were using. For example, I asked very simply:

1. 'What can you do with ICT?' [It is important that I not ask 'What is something ICT can do for you?' The former question is people-centred, while the latter is more focussed in ICT].

2. 'Is it what you wanted to do?'

3. 'What do you want to do if ICT is free or if broadband becomes cheaper?'

Thus, the first question is about the present, the second relates to the past, and third is about the future. I developed further questions based on suggestions from the report, 'Storytelling Approaches to Program Evaluation: An Introduction'. For example:

i. First, tell us a little about yourself.

ii. Please describe the problem or problems you were facing that first led you to come to us.

iii. Describe some of the activities in which you have participated or the services you have been receiving.

iv. Have these activities or services made a difference in your life?

v. Looking ahead, what are some of the new or continuing challenges that you expect to face? Do you plan to continue participating in our programs?

Question ii is about the past, iii and iv, about the present, and v, about the future. My questions are constructed according to this framework, because it is appropriate for telling a story about using ICT to look at the past, present and future.

During my twenty-five years of work experience, I have conducted thousands of interviews connected with project finding, formation and evaluation, as well as policy-making. Questions for qualitative research, such as in an interview, should be both simple and flexible. This kind of research requires a recording of the interviewer's thoughts, such as their knowledge of wide areas, communication ability, analyzing ability, ethics and balance of humanity. The last two elements are especially important for assessing people's capability and freedom. I should note that, although I obtained the approval of the Ethics Committee of Otago University and the Government of Vanuatu to undertake my field study, it is important to be sensitive when looking at individual ideas of freedom, which is a private matter for many.

Let me return to the argument between Zhuangzi and Huizi on the happiness of fish.

Zhuangzi says:

Look, when you asked me how I knew the fish were happy, you already knew that I knew the fish were happy. I knew it from my feelings standing on this bridge.

Huizi denies Zhuangzi's interpretation on the happiness of fish, but knows that Zhuangzi knew about the happiness of fish. This is a 'form of knowing' rather than an 'object of knowing'. If Zhuangzi had said the fish were red, and if Huizi had same concept of the colour red, then Huizi could not deny Zhuangzi's assertion. Even this common meaning of colour is relative. We should not forget that there are blind and colour blind people who do not have the same concept of the colour red. It is important to note that they do not have the same meaning, concept or feeling about the colour as Zhuangzi. In Micronesia, there is a famous small island in which almost 10% of the population is colour blind. This was introduced by Oliver Sacks in his book, *The Island of the Colour Blind* (Sacks 1997). Perhaps because of its remoteness and exclusiveness, island societies can sometimes have totally different experiences, which challenge me to reflect upon diverse meanings, feelings, ethos and so on. On these occasions, Zhuangzi philosophy has helped me to understand the Pacific Islands in many ways. Hodgett and Deneulin explain this from a theoretical perspective, when they note that hermeneutics disputes the adequacy of statistics and quantitative data to represent truth, and argue that it depends on shared beliefs. It relies on a representation of social reality that united the scientific community in the shared belief that empiricism is understood as the observation of causes. They also point out that "There is thus no such thing as 'objective truth' in the social sciences independent from interpretations and meanings. If shared meanings change, then the 'objective truth' changes as well" (Hodgett and Deneulin 2009: 70). This suggests to us that the results of interviews from individual ni-Vanuatu could vary to some extent but, as they live in the same country and share similar contemporary cultural values and backgrounds, we should expect some common or similar responses.

The challenge of this exchange is to allow the interviewee to determine his or her own capability indicators, as suggested by Sen, and for these not to be pre-defined. This means

that, if ten people are interviewed, they may tell ten different stories and the question then becomes how to deal with such a range of responses.

2.2.2 Rashomon effect

Hodgett and Deneulin provide some assistance in dealing with the above question, when they discuss their epistemology in the paper, 'On the use of narratives for assessing development policy' (2009). In here, they note that "Such qualitative assessment finds its roots in the hermeneutical framework of social analysis. According to hermeneutics, social reality is not constituted by objective facts, which could be represented by brute data, but is constituted by common meanings" (Hodgett and Deneulin 2009: 69).

The colour, size and number of fish can be construed as objective data, yet these data do not represent social reality. The happiness of a fish may be discussed within a hermeneutical framework, and 'constituted by common meanings', as suggested by Hodgett and Deneulin. To address the question of common meanings, I look to the anthropologist Karl G. Heider's (1988) examination of ethnographers' differing views on the same events in his paper, 'The Rashomon Effect: When Ethnographers Disagree'.

Rashomon (1950) is one of the first movies of the great Japanese film director, Akira Kurosawa, who became more famous overseas than in his own country of Japan. The film, *Rashomon*, arose out of a combination of two novels by Ryunosuke Akutagawa (1892-1927): *Rashomon* (Akutagawa 1915) and *Yabu no Naka* (Akutagawa 1922). The core of the film's plot is based on *Yabu no Naka* (In a Grove). The terminology and concept of the 'Rashomon effect' were also coined outside of Japan. Allow me to quote from Heider's transcript:

> The film is set in 12th-centuryJapan and concerns the encounter in the forest between a bandit and a samurai and his wife. The mystery of the film comes from four quite different accounts of the same event. Each account is clearly self-serving, intended to enhance the nobility of the teller. Each account is presented as a truth at a trial by the bandit, the samurai's wife, the samurai,

> and a passing woodcutter who may have been an onlooker. As each of the four testifies, we see that particular version of the events on film, so that the apparent truthfulness of the visual image supports each testimony in turn. But unlike the familiar detective story on film, where accounts that are later impeached are given only verbally, *Rashomon* commits itself to, and convinces us of, the truth of each version in turn. And unlike the detective story, we are not given an explanation wrapped up nicely in truth at the end (Heider 1988: 74).

Heider examines the ethnographic disagreements between anthropologists examining the same society by referring to this movie and analyzing how and why they (the anthropologists) hold different views. He identifies four categories: first, that someone is wrong; second, that they are looking at different cultures or subcultures; third, that they are referring to the same culture at different times; and finally, that they are looking differently at the same culture. In his analysis, Heider suggests a focus on the "broader queston of what we need to know to understand an ethnography" and "what we need to include in our own ethnographies" (Heider 1988: 90).

This interpretation made some sense to me in my work on Capability. When attempting to balance gender, age, occupation and other variables in my Vanuatu interviews, I would find that each interviewee told a different story from a different viewpoint. I analyzed each story from the perspective of a Capability Approach. In this sense, it is important to try to ascertain and analyze Capability from each of the interviewees within the framework of freedom of choice and freedom of achievement. Some examples of this may be found in the questions, 'What can they do?' and 'Is that what they wanted to do?'

My view is that, although Heider's argument was concerned with disagreement among ethnographers, the 'Rashomon Effect' can also be applied to those researchers who have studied the Capability Approach and ICT4D. Many researchers may disagree about ICT4D studies using the Capability Approach. The arguments concerning the 'Rashomon Effect' can

be applied when examining and assessing these disagreements. For this reason, I decided to refer to the 'Rashomon Effect' in connection with my interviews. In the next section, I shall discuss the methodology of using the KJ method, which can be used to analyse a range of information originally developed for ethnographic field research.

2.2.3 KJ Method

The KJ-method is a new type of field research tool for qualitative data formulation and analysis. It is useful for analyzing many different stories on the same event, in cases of the Rashomon effect. In this thesis, I will use the KJ-method to sort and analyze the transcripts of my field interviews. The KJ method was developed by a Japanese ethnographer, Jiro Kawakita, as a result of interpreting ethnographic field data on social organization and rituals in Nepal in the 1950s and 1960s. In order to understand his field data, Kawakita used an 'idea-generating methodology' to obtain qualitative data (Scupin 1997).

The KJ method is named after Kawakita's initials (Kawaikita Jiro) and subsequently became popular, not only in the analysis of ethnographic qualitative data, but also in education and business management. This method was applied to organize complex, immeasurable, idiosyncratic, non-repetitive, behavioural, qualitative data collected in the field. The KJ method also conforms to the general rule of logic, not as deduction or induction, but as abduction, a concept which originated before Aristotle (Kawakita 1995: 28). The term 'abduction' or 'retroduction' was coined by Charles Sanders Peirce in the late 19th century, and derived from one of three forms of reasoning in the Aristotlean logic of apagögé. The other two forms of reasoning are synagögé or anagögé, which was later called deduction, and epagögé as induction. Kawakita also emphasized that his method would enable people to free themselves from *a priori* assumptions, preconceived notions, rigid formalisms and dogmas,

and unrealistic hopes/utopianism (Scupin 1997: 234). The origin of Kawakita's question lies in a search for meaning, or whether humans can live their life as whole persons (Kawakita 1995: 173). This arose from his very early research questions: first, 'How can people feel the reasons for living?'; second, 'How can people communicate their thoughts with each other?'; and third, 'How can we develop the Capability (creativity) of humans?' (Kawakita 1995: 200). Thus, his original questions seem fit for measuring Capability, freedom of choice and human achievement.

The KJ method suggests four steps in the analysis of qualitative data: label making, label grouping, chart making, and written or verbal explanation. In my thesis, I not only analyse data from interviews, but also compare these with already existing statistics, such as those available from the Vanuatu government and the World Bank. This approach is suggested by the California Endowment (2007) and Hodgett and Deneulin (2009), all of whom use the storytelling approach to evaluate both quantitative and qualitative data about human well-being, in order to contribute to development policy. The Capability Approach, placed within the meta-narrative framework, will provide a useful framework to achieve these aims (Hodgett and Deneulin 2009: 68).

The concept of the KJ method is therefore a perfect tool for a Capability Approach analysis of ICT4D, since 'freedom', which I am going to examine, may be analysed by complex, immeasurable, idiosyncratic, non-repetitive, behavioural, and qualitative data. 'Freedom' should also be free of *a priori* assumptions, preconceived notions, rigid formalisms and dogmas, or unrealistic hopes or utopianism, as emphasized by Kawakita.

Furthermore, as my core research question involves the Capability Approach, there are expected to be a variety of responses, depending on what interviewees can communicate, what the interviewees ask, and what is shared or received from them.

I have been unable to find any papers on the Capability Approach that utilize the KJ method and my intention to use it here may make this thesis one of the first to do so. In this light, I will endeavour to present an argument on how the KJ method can be applied when measuring the Capability Approach.

2.2.4 Summary of Methods

Society or community is bound by similar perceptions, common meanings and human feelings, rather than data. Each person has different feelings, depending on the family, the society and the community to which he/she belongs. These groups, however, still share common values, perceptions, meanings and feelings, such as the importance of family, education and money. These values are not easy to measure, but I intend to challenge quantitative measurement with the storytelling approach and KJ method in this thesis. This will be a major contribution of the thesis since, as I discussed in this Chapter, one of main issues of the Capability Approach is how to make it operational. The main criticism of Sen's Capability Approach is its failure to provide a framework of measurement. In addition, elements of Capability, such as inter-personal well-being, will vary according to different valuations. People's Capability is often difficult to attain and impossible to observe (Clark 2005: 5-6).

2.2.5 Document research

Except for my field research in Vanuatu, all other research consisted of analysis and interpretation of documents, both online and through library sources, for example, at the University of Otago library, the Hocken Collections, the National Archives of the Vanuatu

Cultural Centre, the Hamilton library of the University of Hawaii, the Kyoto Prefectural library and Kitamachi library in Shinjuku city. Chapter 3 outlines my research on the historical background of ICT4D and Universal Service, in which I accessed academic books and research papers as well as government records and reports. Chapter 4 outlines the history of the Pacific Islands, in particular, telecommunication development. The material for this chapter was largely drawn from academic books and research papers, government records and reports. I also examined other PhD theses, news articles, transcripts of lectures, and online sites.

Although Chapter 5 is primarily concerned with he field study, this research also includes an ethnographic study of Vanuatu, based on the autobiographies of political leaders, academic research papers and books, government records and reports, and news articles. I also supplement this material with an analysis of court records, and those of the colonial government council, to gain a greater understanding of the debate surrounding Vanuatu's political changes. These were available at the Hocken Collections in Dunedin, New Zealand, and at the National Archives of the Vanuatu Cultural Centre in Port Vila, Vanuatu.

Chapter 6 contains another case study, in which I examine USPNet and PEACESAT. This material has also drawn from academic papers and books, theses, project papers and official reports from USP, PEACESAT and the Forum Fisheries Agency (FFA). In this chapter, I refer to the experience and knowledge I have gained in twenty-five years of working on projects in the Pacific. I focus on how these organizations were established and developed from the perspective of Capability, and whether ICT had magnified these Capabilities or not.

2.3 Ethics

In order to conduct my fieldwork, I obtained permission from the Government of the Republic of Vanuatu, through the Office of the Government Chief Information Officer, The Prime Minister's Office, dated 18th September 2013 (Appendix B). I also obtained permission from the Otago University Ethics Committee, dated 10 December 2013, reference number 13/262 (Appendix C) and in a letter from the Ngai Tahu Research Consultation Committee, dated 19th November 2013 (Appendix D). Before the interviews, I provided an information sheet (Appendix E) to each interviewee in order to explain its purpose, and to ensure that they could provide informed consent by signing the attached form. In addition, I made a draft of the transcript within a few days of each interview, and sent these to interviewees for confirmation and comments.

In the next Chapter, I will examine the historical background of discourse on ICT4D since the 1950s, and also the history of the Universal Service of telecommunication, beginning with its origin in the United States.

Chapter 3: Discussion of Universal Service and ICT4D

In this Chapter, I intend to present an historical background, followed by a detailed discussion, first of Information Communication and Technology for Development (ICT4D), and second, of Universal Service. Before discussing what Universal Service is, I will take a close look at ICT4D, with a focus on its historical background. This is important, as the roots of ICT4D are located well before the IT revolution of the 1990s, but most of the discussion around ICT4D focuses on present issues, without any historical background. It is important to understand the political and social elements as a backdrop to ICT4D, for example, why and how developed countries needed to assist with ICT in developing countries, or why and how developing countries demanded that developed countries should assist them in their ICT development.

It is reasonable to start this historical overview with the *Maitland Report*, which was released in December 1984 by the International Telecommunication Union (ITU) as the first comprehensive study on ICT4D. However, I would initially like to summarize the events from a few decades prior to the writing of the *Maitland Report*. These events began in the mid to late 1950s, with the Bandung Conference (1955) and the Sputnik crisis (1957), in other words, decolonization and space development during the Cold War. Following this background I will then discuss the *Maitland Report*. Finally, I will summarise the current ICT4D discussion, including former US Vice President Al Gore's Global Information Infrastructure (GII), and will present other global trends, such as the Okinawa ICT Charter (declaration of G8) and the World Summit on the Information Society (WSIS).

The second part of this Chapter will discuss the definition of Universal Service, by focusing on the United States, where this term originated along with their telecommunication industry,

about one hundred years ago (Mueller 1997). This will be followed by an examination of Dr Koichi Hayashi, Dr Milton Mueller and Dr Richard John, who discussed Universal Service in the United States from different perspectives. I will then discuss Universal Service in other countries, taking the OECD, France and Japan as case studies of developed countries. The reason I chose these examples is that they represent the former colonisers of the Pacific Islands, as well as their current main donors. Japan was chosen not only for these reasons, but also because, as an island nation itself, it has almost 500 inhabited remote islands and thus also deals with issues related to Universal Service.

These discussions of ICT4D and Universal Service are intended to show the complex background of these issues. These involve both social and political factors, such as nation building, the Cold War, decolonization, public demand and ethos. In order to address the research question, it is important to understand the discourse on ICT4D from the time of the Cold War, as well as the background of discussions on Universal Service in developed countries. The newly independent countries that emerged after the Second World War were not passive recipients of information and technology. Rather, they were radical and active players in the global politics of the time. Based on many factors, including geography, politics and history, the nature of each society influences the application and impact of Universal Service, such as equity and distribution.

3.1 Historical background of ICT4D

From here, I will describe the complex histories of space development and decolonization, which has been intertwined with ICT4D since the 1950s. I have also set out a Chronicle of Space Development, Decolonization and ICT4D, as seen in Table 3.1 at the end of this section (See page 55)

3.1.1 1950 – Space Development and Decolonization

ICT4D developed from the unique political situation following the Second World War. One post-war movement included a demand from newly independent countries for their equal right to new space territory, which at that time was a new territory for nation states (See Bogota Declaration 1976). The other movement arose from two hegemonies, the United States and Soviet Union, who both wanted to develop space technology as part of their power struggle, and to gain political allies from the newly independent nations (Galloway 1997).

After the Second World War, the process of decolonization accelerated and a major symbolic event was held in Bandung, Indonesia, in 1955. Twenty-nine decolonized countries from Africa and Asia agreed to a ten-point 'declaration on promotion of world peace and cooperation', in order to avoid an atomic world war. They also suggested that "… all States should co-operate, especially through the United Nations, in bringing about the reduction of armaments and the elimination of nuclear weapons ... In this way, international peace can be promoted and nuclear energy may be used exclusively for peaceful purposes" (Final Communiqué of the Asian-African conference of Bandung, 24 April 1955. Available from http://franke.uchicago.edu/Final_Communique_Bandung_1955.pdf Accessed 10 August 2015).

In 1955, the newly independent countries from Africa to Asia suggested that nuclear energy be exclusively used for peaceful purposes. This rhetoric was soon to be repeated in 1961 by the President of the United States, John F. Kennedy, in his speech to the United Nations on outer space development, including satellite technologies.

In 1957, two years after this first conference of non-allied countries in 1955, the Soviet Union was successful in launching the space rocket Sputnik, which exacerbated tensions in the Cold

War. Non-allied, newly independent countries who gathered at the Bandung Conference were dragged into the respective camps of the two hegemonic powers.

Another year after this competition commenced between the United States and the Soviet Union, the United Nations Committee on the Peaceful Uses of Outer Space was provisionally launched in 1958, and formally established as a UN resolution in 1959 (Kopal 2008). In the same year, the International Telecommunication Union (ITU), which was established in 1865 and is the oldest intergovernmental organization in existence, agreed to provide technical support to developing countries. This could be seen as the first ICT4D-based activity in the developing countries, and was crucial in furthering cooperation between developed nations, particularly the United States and Soviet Union, who needed to develop space communication systems.

In 1961, Kennedy, made an historical speech before the UN General Assembly, including a proposal for peaceful space development and a global system of communications satellites linking the entire world via telegraph, telephone, radio and television. This led to the establishment of the International Telecommunications Satellite Organization (INTELSAT) in 1964, with 86 participating countries (INTELSAT n.d.). In 1971, the Soviet Union also established the satellite communication service organization, INTERSPUTNIK, with agreement from eight countries: USSR, Bulgaria, Cuba, Czechoslovakia, Hungary, Mongolia, Poland, and Romania (Galloway 1997). Opportunities existed for the newly developed third world countries to access these satellite communication systems, but yet again, they were allied to the United States and Soviet Union hegemonies.

In 1965, the United Nations Development Program (UNDP) was established and development for these newly independent nations was strengthened. At the same time, space development was reinforced. In 1969, humanity made its first steps onto the moon, just as President

Kennedy had promised in his 1961 speech urging peaceful and scientific use of outer space and the cooperation of all nations. Kennedy also suggested "… a global system of communications satellites linking the whole world in telegraph and telephone and radio and television. The day need not be far away when such a system will televise the proceedings of this body to every corner of the world for the benefit of peace" (Kennedy 1961). His point was that "every corner of the world for the benefit of peace" could be seen as the concept of a worldwide Universal Service for telecommunications. This issue, however, needed to wait another twenty-five years to be seriously discussed by an international organization, ITU, as I discussed in this Chapter (3.2.1), and then another twenty-five years before being implemented by various international organizations, such as ITU, UNDP, and World Bank.

The divide in wealth between developed and developing countries was further exacerbated in the 1960s and 1970s, and their access to ICT was no exception. Studies in Media and Communication showed an uneven flow of information between developed and developing countries. This situation not only worsened the divide; it also created obstacles to development (Lerner 1958; Schramm 1964, 1979; Lerner and Schramm 1967).

Key thinkers on communication, Daniel Lerner and Wilber Schramm, developed Communication Development Theory in the 1950s. At this time, many nations had begun to outline economic development plans for emerging newly independent countries. Japan, for instance, became involved in a development plan for third world countries within the policy guidelines of the Colombo Plan. Such plans were intended to result in social change within the newly independent countries. For example, it was hoped that, through education, the literacy rate would increase, enabling these countries to develop further. Lerner argued that a key criterion for social change involves the mass media, meaning that a growth in mass media would arise from national development, necessitating an increase in reading and writing skills (Lerner 1958).

William Schramm, on the other hand, looked at the interaction between economics and communications, in which a high level communication system would encourage industrial development and vice versa. He also argued that communication capability would change the society of developing countries and lead to democratization (Schramm 1964).

In summary, the theories of Lerner and Schramm are that: first, mass communication and mass media have a critical role in the national development, democratization and modernization of developing countries; second, the media has a critical role in moving towards democracy on a political level and increased GNP on an economic level; and third, within the perspective of modernization and development communication theory, traditional values of developing countries can be obstacles to political and economic development. Mass communication and mass media have a role in changing these traditional values (Lerner 1958; Schramm 1964, 1979; Lerner and Schramm 1967).

While communication development theory argued for the positive relationship between social progress and advances in communication, Cultural Imperialism emerged as a contrary paradigm. According to H. Schiller,

> The concept of cultural imperialism today best describes the sum of the processes by which a society is brought into the modern world system and how its dominating stratum is attracted, pressured, forced, and sometimes bribed into shaping social institutions to correspond to, or even promote, the values and structures of the dominating centre of the system (Schiller 1976: 9).

Tomlinson (1991), on the other hand, argues that the theory of ‘Cultural Imperialism’ is applied to political economic theory (‘Imperialism’) from a cultural perspective. Tomlinson says that, because of the vagueness and inclusiveness of ‘Cultural Imperialism’, any discussion would depend on the discussants’ own perspectives and limitations. In defining

Cultural Imperialism, Tomlinson examines the separate concepts of ‘Culture’ and ‘Imperialism’. With respect to ‘Imperialism’, he draws on the work of R. Williams (1983: 160), who notes that ‘Imperialism’ is comprised of two distinct ideas: ‘Political domination’ and ‘Economic domination’. The concept of ‘Political domination’ arose from nineteenth century colonialism, while ‘Economic domination’ was identified by Marxist scholars in the twentieth century. Tomlinson then looks at the meaning of ‘Culture’. While this is more difficult to conceptualise than ‘Imperialism’, the nineteenth century anthropologist E. B. Tylor defined it as follows:

> Culture and Civilization, taken in its wide ethnographic sense, is that complex whole which includes knowledge, belief, art, morals, law, custom, and any other capabilities and habits acquired by man as a member of society (Tylor 1871: 1).

This means that ‘culture’ is a concept that is built into a nation’s social structure, and will change over time and between communities.

From the above, it is important to note that there is no single concept of ‘Cultural Imperialism’, and that discussions on this topic are based on the individual’s own perspective. Furthermore, the concept of ‘cultural imperialism’ is based on modern liberal ideology, which respects pluralism. This liberal ideology is a product of the history of Europe. It means that there are different levels of contradiction, which make discussion more complex. Thus, communication development theory, as shaped by Lerner and Schramm, has been criticized using the concept of ‘cultural imperialism’. This, however, faded away as no one could agree on common definitions for ‘culture’ or ‘imperialism’.

The United Nations Educational, Scientific and Cultural Organization (UNESCO) is one of main global organizations that examines communication and development issues. Claudia

Padovani and Kaarle Nordenstreng described UNESCO's shift on the issue of east-west politicics from the 1970s to 1990s in their 2005 paper, 'From NWICO to WSIS: another world information and communication order?' In here, they reveal that the Non-Aligned Movement (NAM) was "supported by the socialist countries, [and] led to an historic media debate at the UN and UNESCO as well as in media professional associations and among communication scholars around the world" (Padovani and Nordenstreng 2005: 264). In 1976, the Non-Aligned Symposium (NAM) was held in Tunis, where it was argued that there were global imbalances in information flow and communication systems. The Symposium also argued that solving global imbalances had led to the acquisition of "decolonization of information and [*the initiation of*] a new international order in information" (Padovani and Nordenstreng 2005:264). Another NAM meeting was held in 1973 in Algiers, at which members argued that "'the activities of imperialism are not confined solely to the political and economic fields, but also cover the cultural and social fields". They also advocated for "concerted action in the fields of mass communication" (quoted in Padovani and Nordenstreng 2005: 264). Thus the problem of imbalanced communication between developed and developing countries, or formerly colonized and colonial countries, was discussed by the Non-Aligned countries, who presented their criticisms of imperialist practices and expressed their support for decolonization. Padovani and Nordenstreng also point out that this movement obtained support from 'socialist countries'. Thus, it is apparent that the imbalance in communication became a major issue for socialist and capitalist countries. In other words, this imbalanced exchange of information was dragged into the Cold War conflict.

In order to respond to demands from NAM and socialist countries, UNESCO developed the concept of a 'New World Information and Communication Order (NWICO)'. In 1977, it launched the International Commission for the Study of Communication Problems, asking the

Nobel Peace Prize activist Seán MacBride to take the lead. In 1980, this Commission released a report, titled 'Many Voices One World', otherwise known as the *MacBride Report*, which covered a wide range of issues. These included: over 80% of global news reporting being controlled by a handful of major news agencies; a few developed countries occupying almost 90% of the radio spectrum; and a small number of developed countries with multiple satellites occupying most of the available geostationary orbits, thus preventing future opportunities for satellite use by developing countries. These issues could be an obstacle to developing countries' freedom to advance the progress of communication (MacBride Commission 1980).

However, the United States and the United Kingdom withdrew from UNESCO after this report was released. Robin Mansell and Kaarle Nordesterng (2007) argue that the withdrawal of America and Britain from UNESCO was not because of "… the NWICO debate, the *MacBride Report*, or M'Bow's leadership", and point out that there was "… a strategic shift away from multilateralism — a warning to the international community that leading Western powers refused to be outvoted by the majority of the world's nations" (Mansell and Nordesterng 2007: 23). After these two hegemonic powers withdrew from UNESCO, Amadou-Mahtar M'Bow, Director General from 1974 to 1987, resigned from the organisation. Mansell and Nordesterng also point out that "… The culture in UNESCO during the 1980s and early 1990s was to view the *MacBride Report*, and the NWICO debate, as politically incorrect" (Mansell and Nordesterng 2007: 23-24). Thus the concept of 'New World Information and Communication Order', along with the *MacBride Report*, *Many Voices One World*, was brought to a halt by the Western countries, as a result of political tension.

In 1976, another voice on the subject of ICT4D came from developing countries, but was again ignored by the hegemonic powers. Eight equatorial countries, Brazil, Colombia, Ecuador, Indonesia, Congo, Kenya, Uganda, and Zaire, joined together to sign the Bogota Declaration (Ishimoto and Yanagisawa 1999). This made it clear that the geostationary orbit

arc above each country is the sovereign territory of that country. The declaration also stated that such sovereign rights are in the best interest of all countries and all mankind, not just the most developed nations. From this point, it was also thought that the geostationary arc above the oceans was part of the common heritage of all mankind and should be exploited for the benefit of all mankind. Those that were developing space exploration, such as the United States, did not respond to these demands from developing countries. Instead, they continued to enjoy a monopoly on space technology and power, not for the improvement of developing countries, but to strengthen their own military-industrial complex.

It should be noted that, in recent years, more equatorial countries from around the world have claimed ownership of their own overhead geostationary arcs. For example, the Kingdom of Tonga obtained a satellite orbit in 1988, and have since managed Tongasat (Tongasat web. Available from http://www.tongasat.com/, Accessed 10 August 2015). Social scientist Anthony Fossen (1999) notes that the Government of Tonga registered its claims on sixteen of the most valuable unoccupied orbital parking spaces for geostationary satellites on the 23rd March 1990. These linked to over sixty countries, including most of Asia, and at least two-thirds of the world's population (Fossen 1999: 2). Fossen also noted that, 'paradoxically', Tongasat led to a deregulated and privatized satellite market, resulting from an attempt to reassert American hegemony (Fossen 1999: 5). This tells us that, in the area of managing satellite communication, sovereignty gave the Kingdom of Tonga equal power with the United States.

At this point, I have demonstrated that satellite communication was developed as a result of the compromise between decolonized countries' demand for rights to orbital territory and spacefaring technology, and the demands of the military-industrial complex of the world's hegemonies, led by the United States and the Soviet Union during the Cold War. It is evident

that these nations gave lip service in favour of the peaceful use of space for the benefit of all mankind, but were instead attempting to control space for their own purposes.

As seen in Table 3.1, following the launch of Sputnik in 1957 (Sputnik crisis), space development was the result of fierce competition between the two hegemonic powers under the increasing tension of the Cold War. The gap in the development of ICT became wider between developed and developing countries. Two significant voices from developing countries, both *Many Voices One World* and the *Bogota Declaration*, were ignored. This led, in turn, to the ITU-initiated *Maitland Report*.

3.1.2 1980-*Maitland Report*

In 1982, the ITU reacted to general discontent on the information and communication divide (Table 3.1). During the ITU Plenipotentiary Conference, held in Nairobi in 1982, the Independent Commission for World-Wide Telecommunications Development was established. In 1983, an international investigation committee was launched under the chairmanship of Donald Maitland, and submitted its report in 1984. Officially titled *The Missing Link*, this came to be known as the *Maitland Report*, and revealed the huge telecommunications divide between developed and developing countries (Maitland 1984).

The Commission was formed by various countries, both developed and developing. These included India, United States, Kuwait, Japan, Germany, Morocco, France, United Kingdom, Tanzania, Venezuela, Gabon, Senegal, Romania, Indonesia, USSR, Costa Rica and Saudi Arabia (Maitland 1984: i-viii). The report revealed a huge divide between telecommunication services in developed and developing countries. For example, it stated that: more than half the world's population lived in countries with fewer than 10 million telephones between them and most of these were in the main cities; two thirds of the world population had no access to

telephone services; and Tokyo had more telephones than the whole of the African continent, with its population of 500 million people (Maitland 1984: 13).

1865 Est. ITU
1939-1945 WWII
1943 Draft Constitution of International Organization
1945 United Nations Conference on International Organization
1947 Est. UNESCO
1948 Universal Declaration of Human Rights
1952 ITU commences its programme of technical cooperation
1955 Bandung Conference
1957 Sputnik crisis
1958 United Nations Committee on the Peaceful Uses of Outer Space
1959 Role of ITU's technical cooperation is mentioned in the International Telecommunication Convention
1961 Address Before the General Assembly of the United Nations, by JFK
1961 Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space
1964 Est. INTELSAT / INTERSPUTNIK
1965 Est. UNDP
1967 Outer Space Treaty
1971 Est. INTERSPUTNIK, PEACESAT start
1972 UNESCO Mass Media Declaration
1973 The first oil crisis
1973 Non-Aligned Movement (NAM) Summit, 'concerted action in the fields of mass communication'.
1976 Bogota Declaration
1976 Non-Aligned Symposium on Information, Tunis
1977 UNESCO International Commission for the Study of Communication Problems
1979 The second oil crisis
1980 UNESCO *MacBride Report*
1980 Brandt Report
1982 ITU Plenipotentiary Conference at Nairobi
1983 ITU World Communication Year
1984 ITU *Maitland Report*

Table 3.1 Chronicle of Space Development, Decolonization and ICT4D Compiled by author

Due to time constraints and financial limitations, the Commission's discussion was based on existing reports and over 700 comments that were obtained from all over the world. In summary, it claimed that "There is in our opinion no good reason why by the early part of the next century virtually the whole of mankind should not be within easy reach of a telephone and of all the benefits this can bring" (Maitland 1984: 4).

Because of developments in wireless technology, this recommended outcome was almost achieved in 2015 (ITU 2015). This increased access is mostly due to growth in the developing world, where mobile-cellular subscriptions account for 91.8 per cent of the worldwide total. ('Download the key 2005-2015 ICT data for the world, by geographic regions and by level of development, for the following indicators' ITU, http://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx). Now, in 2016, we are confronting the new challenges of providing broadband for Internet access, something that did not exist when the *Maitland Report* was released.

The resolution from the ITU Plenipotentiary Conference, held in Nairobi in 1982, agreed that the *Maitland Report* had inherited the findings of two previous reports (RESOLUTION No. 20 of the Plenipotentiary Conference of the ITU). One of these is the *MacBride Report* (1980), which I discussed in the previous section. The ITU resolution noted "the broad consensus of the International Commission for the Study of Communication Problems (the MacBride Commission) on the common interest in accelerated development of telecommunications infrastructures" (General Secretariat of the International Telecommunication Union, International Telecommunication Convention, Nairobi, 1982: 254). The other is titled 'North-South: A Programme for Survival' (1981), and is otherwise known as the 'Brandt Report'. The Independent Commission on International Development Issues was established at the

request of Robert McNamara, President of the World Bank. Willy Brandt, a German politician and Nobel Prize awardee, was appointed to chair this Commission. The ITU resolution commented on "the significant contribution made by the Independent Brandt Commission on International Development Questions to the dialogue on world economic issues" (General Secretariat of the International Telecommunication Union, International Telecommunication Convention, Nairobi, 1982: 254). Both reports discussed the divide between developed and developing countries as well as the responsibilities of both. The *Maitland Report* may have been a response to both of these other reports, advocating for the development of communication, information and society, and not only for telecommunication itself. I believe that the ITU, which is basically affiliated to the incumbent telecommunication companies from developed countries, makes an important point on considering the social issues of developing countries. Also I note that the issues identified by the *MacBride Report*, which were largely disregarded by UNESCO, were taken up by the ITU. This tells us that there was persistent demand from developing countries to rectify the imbalance in information and communication. It also indicates that the United States and the United Kingdom, who withdrew from UNESCO after the *MacBride Report* was released, were not against alleviating this imbalance.

In a collection of essays titled *Maitland +20, Fixing the Missing Link*, David Souter notes that the *Maitland Report* was written "largely from a technical point of view" (Souter 2005: 13). He also points out that the *Maitland Report* is similar to much of the current ICT4D literature on "ICTs primarily as technologies – the 'T' in 'ICTs' – rather than as media for the transmission of information and communication" (Souter 2005: 13). Despite Souter's criticism, I would argue that the report of *The Missing Link* is still important for current ICT4D discussions. First, it provides a useful discussion on the meaning of development.

Second, it establishes from various perspectives why telecommunications is needed for the progress of developing countries.

One important point from the *Maitland Report* is its advocacy for telecommunications as "… an essential component in the process of development – a complement to other investment – which can raise the productivity and efficiency of agriculture, industry, commerce and the social service, and enhance the quality of life of the developing world" (Maitland 1984: 8). This still applies to the current priority arguments, such as on the introduction of broadband Internet or clean water supply.

The *Maitland Report* also introduced comments from President Soeharto, who stressed that the value of telecommunication in strengthening the social fabric of countries like Indonesia was unquantifiable (Maitland 1984: 10). President Soeharto also noted that such cohesion would lead to "the sense of national and regional identity, self-reliance and political stability" (Maitland 1984: 10).

Along with the Pacific, Indonesia is another pertinent example of the significance of telecommunication issues. Indonesia has about 15,000 islands, with about 500 languages, and a long history of exploitation by the Dutch. Only in 1928 did the people of Indonesia decide to use one common language for the sake of independence. Telecommunication had a huge role to play in overcoming the diversity and geographical dispersion and allow Indonesia to integrate as a nation (Ricklefs, 1982: 177).

The *Maitland Report* also emphasized that telecommunication development improved not only economic development but also education and health services. PEACESAT (which I will discuss in Chapter 6) is identified as a model case in this report, which noted that "In the South Pacific the experimental PEACESAT satellite network has been used to summon

medical teams to deal with outbreaks of cholera and dengue fever and to coordinate emergency assistance after typhoons and earthquakes" (Maitland 1984: 8).

As these examples illustrate, the Maitland Commission recognized that telecommunication is only a part of development, which is a process that includes other infrastructural developments, nation building, education and health, rather than just installing the telecommunication facilities themselves. One of the Commission's recommendations was therefore to establish a Centre for Telecommunication Development (CTD) within the ITU. The Commission suggested that the CTD should consist of three components: Policy Unit, Telecommunication Development Service, and Operations Support Group (Maitland 1984: 53-55).

In 1987, the CTD was established in the ITU, but this has not worked out as expected (Hayashi and Tagawa 1994). Hayashi and Tagawa suggest two reasons for this. The first is that, while *The Missing Link* report made a significant appeal to the world's intellectual community, it was unable to obtain the required financial support from member countries. Second, due to a lack of finances, the CTD could not survive alone and relied on the existing organization of Telecommunications Cooperation and Development (TCD) in the ITU. In 1992, the CTD was merged with TCD to form a new organization in the ITU, called the Bureau for Development of Telecommunications (Hayashi and Tagawa 1994: 195-196). This tells us that the CTD, which had been established in response to the recommendations in the *Maitland Report*, was merged with the TCD, which had already been established in the ITU and did not have a mission of responding to the *Maitland Report*. Thus, the demand to rectify the imbalance in communication waned again after NAM made its declaration in the 1970s. One cause of this was the result of political decisions by UNESCO, and the other was due to financial concerns for the ITU.

The *Maitland Report* received widespread attention from around the world, but the ITU and developed countries were not very active in their response until the end of the 1990s, when a new type of ICT movement was introduced by the United States, that of Global Information Infrastructure (GII) (Hudson 2005: 38). In 2003, ITU launched the WSIS (World Summit on the Information Society), with a particular focus on the Pacific Islands (*See World Summit on the Information Society (WSIS) Asia-Pacific Regional Conference, The Tokyo Declaration: the Asia-Pacific perspective to the WSIS* http://www.itu.int/wsis/docs/rc/tokyo/tokyo_declaration.pdf).

This ITU and UN initiative had a hidden agenda, as there were strong concerns about the United States' hegemony on Internet governance. Interestingly, the Pacific Islands had a strong position on this political issue, with more than ten voting rights in the international arena.

3.1.3 1990 – IT revolution and Digital Divide

The current ICT4D debate arose only in the late 1990s, when, as Souter points out, "development specialists [began] to re-engage with the issues raised in the Maitland Commission Report" (Souter 2005: 10). This was because of "the rapid spread of telecommunication access seeing its potential for supporting delivery of development objectives" (Souter 2005: 10).

In the mid-90s, the Internet and telecommunications were deregulated in the United States and other developed countries. The IT revolution had occurred all over the world, and the American reforms under the Clinton government had a particularly significant global influence on ICT. After the National Information Infrastructure (NII) announced a

telecommunication policy statement on the 15th September 1993, focusing mainly on the domestic market, US Vice-President Al Gore announced another telecommunication policy statement, the Global Information Infrastructure (GII), on the 15th February 1995 (Hamano 1995). It has been argued that the GII had a political agenda, in that it would benefit the global society as well as helping in the recovery of global competitiveness for American industry (Kumon 1995: 19).

It is important to assess how Al Gore's GII dealt with development. Gore identified ten examples in his 'Agenda for Cooperation: Global Information Infrastructure' (Gore 1995: 26-27) (Table 3.2). Again, PEACESAT (see Chapter 6) was identified as a successful case, as it was in the *Maitland Report*. Unfortunately, all of those points raised by GII described development as 'what ICT can do' rather than 'what I (we) can do with ICT'. In other words, it was an ICT-centred perspective, or an ICT promoter's perspective, rather than approaching the issues from the user's standpoint (Table 3.2). More unfortunate was the description of PEACESAT's achievements and the same omission was found in the Maitland Commission report. This important and historical announcement made no mention of what PEACESAT (which used a free United States donated satellite) had achieved in meeting the demands of Pacific Island people, such as USPNet, the distance education network at the University of the South Pacific. Although USPNet is a separate project from PEACESAT, it was using the same satellite (Table 3.2).

The ten points raised by Gore (Table 3.2) serve to prove Kumon's arguements. That is, the GII is mainly aimed at attracting people in the ICT industry from around the United States, with an opportunity to expand their businesses throughout the world, including in developing countries. It is worth reproducing Gore's major points here (Table 3.2).

- Distance learning projects can make available a wealth of educational resources to improve local educational and training capabilities, offering cost-saving, effective alternatives to overseas studies;

- Computer networks linking medical school libraries and remote sites can improve the delivery of health care services, particularly to rural communities, by expanding access to demographic, epidemiological, and medical reference materials. In Zambia, district hospitals are being linked for clinical consultation, distance learning, health literature dissemination, and epidemiological data exchange. African medical libraries are linking up with libraries overseas for research and document delivery services;

- Satellite and radio-based systems that collect and disseminate health statistics can be used to identify underserved segments of the population and to target those areas for expanded delivery of family health services;

- Remote sensing can be used to identify and protect important ecological systems. The Administration is promoting an international partnership, known as Global Learning and Observation to Benefit the Environment (GLOBE), that will allow children all over the world to collect and share environmental data. Students will work with teachers and environmental scientists to expand knowledge about weather, air and water chemistry and quality, biodiversity, and other 'vital signs' of the Earth. The combined data will be transformed into striking 'pictures' of the entire planet, allowing each student to see how their school's observation is an important part of the global environment;

- Computer and satellite networks can provide monitoring and, in some cases, early warning of natural disasters, allowing for better coordination of humanitarian assistance efforts between host and donor countries, speeding the delivery of aid and assistance. In the South Pacific, the PEACESAT satellite network has been used to coordinate emergency assistance after typhoons and earthquakes, and to summon medical teams during outbreaks of cholera and dengue fever;

- Computerized market price data for agricultural and horticultural products can provide new agribusiness opportunities and can facilitate direct links between exporters and clients;

- Access to international markets, particularly for small and medium sized businesses, can be created by providing electronic access to information such as transportation schedules and costs, insurance and customs data. The United Nations Conference on Trade and Development (UNCTAD) trade points system uses electronic data interchange and other technologies to establish a network of trade points around the globe. In Algeria, for example, the introduction of a computer-mediated trade point has stimulated an increase in the number of companies involved in international trade from twenty to 2,500;

- Electronic data interchange technologies, which can reduce the administrative cost of international trade transactions by as much as twenty per cent, can help companies increase productivity by streamlining manufacturing and service delivery. Through industry-led consortia such as CommerceNet, companies can explore collaborative engineering, on-line catalogues of products and services, and mechanisms for electronic payments;

- Scientists can continue to explore the use of 'collaborators", tools and virtual environments that allow scientists to work together without regard to space or time. Scientists need the ability to share data and the tools for data analysis, visualization, and modeling, to control remote instruments, and to communicate with their colleagues;

- Using the World Wide Web, individuals and institutions all over the globe have begun to create distributed 'virtual libraries' on specific subjects. As these opportunities continue to grow, tools for information discovery and retrieval and protection of intellectual property rights will become increasingly important

  (Gore 1995: 26-27).

Table 3.2 Ten points as examples in the 'Agenda for Cooperation: Global Information Infrastructure'

Some five years after the GII, the Japanese government announced the 'Okinawa Charter on Global Information Society' as part of the G8 summit in Okinawa, in July 2000 (Asia Development Bank 2003: 11). This Charter suggested the promotion of digital opportunity and the elimination of the digital divide, as well as the inclusion of developing countries for IT development. At the same event, the Japanese government committed a total of 15 billion US dollars (including the Official Development Aid (ODA) fund and non-ODA (other official government) budgets) for this specific purpose over five years, starting in 2000 (Asia Development Bank 2003: 11). Although this presumably had a significant impact on global politics and industries, it is not possible to find any evaluation reports or discussions on how this budget was used to eliminate the digital divide in developing countries.

As satellites and communications were part of the political agenda from the 1950s, ICT4D once again became a global issue in the political, economic and development spheres. As a political issue, Internet Governance had become a cut throat contest between the United States and ITU (Utsumi 2006, 2010).

The ITU and UN subsequently organized the World Summit on the Information Society (WSIS) in 2013 to eliminate the digital divide, especially for developing countries. One political agenda of the WSIS was Internet governance. The Internet was originally developed

within the United States Department of Defense as ARPANET, and grew with support from the United States government. Thus, even though the Internet spread all over the world, the United States still had control over it. This meant that the United States could potentially censor all online information. The ITU Secretary-General, Yoshio Utsumi, was strongly critical of this situation and attempted to transfer governance of the Internet from the United States to the ITU (Utsumi 2006, 2010). The ITU had not made any contribution to the birth and development of the Internet, but criticized the Internet when it broke into telecommunication services, such as Voice of Internet Protocol (VoIP). This global political conflict between ITU and the United States provided developing countries, such as those in the Pacific Islands, with significant bargaining power. ITU was basically dominated by America's enemies, such as China and Russia, while the World Bank and Asian Development Bank mainly financed the US and Japan respectively. As a result of the war between the Internet Governance ITU and the World Bank/Asian Development Bank, these competitors began to support the ICT of developing countries.

The GII, IT Charter and WSIS were the main proponents of ICT4D in the late 1990's. The GII and IT Charter emphasized open markets, competition, and free inter-connection for ICT. The ITU, on the other hand, had organized the WSIS, an aggregate of telecommunication companies that enjoyed their monopolies for almost 100 years until the deregulation of the market in the 1990s. These focused on protecting their interests, which they might have lost as a result of the Internet's new service regime (The Economist September 2015).

Both organizations commonly stressed 'Universal Service', basically meaning ICT for everyone, everywhere. I shall explore the meaning of Universal Service in the next section.

3.2. Universal Service

3.2.1 Origin of Universal Service

The term ‘Universal Service’ for telecommunications was first used in 1908 by Theodore N. Vail, President of AT&T (the United States Telecommunication provider), as the new slogan of his company. Mueller (1997), Hayashi and Tagawa (1994) and John (1999) all provide interesting discussions of Vail’s use of this term, and examine the definition of ‘Universal Service’. Mueller simply explains that “Universal Service means a telephone network that covers all of a country, is technologically integrated, and connects as many citizens as possible” (Mueller 1997: 1). Hayashi argues that the term, ‘Universal Service’, is only common in the United States telecommunication industries because of the 100 year history with Vail and AT&T. He points out that the term is barely known in the Japanese telecommunication industry, although they have the same idea of Universal Service, which is known as ‘Universally Fair’ (Amaneku Kohei) and is found in the Public Telecommunication Act of 1953 (Hayashi and Tagawa 1994: 17-18, 22-23):

> Aim : This Act aims to promote public welfare by providing prompt and reliable public telecommunication service, at a reasonable price, universally and fairly by Nippon Telegraph and Telephone Corporation and Kokusai Denshin Denwa Corporation (Chapter One: General rules, Article One Aims, Public Telecommunication Act 1953. Original text is in Japanese and translated by the Author).

Hayashi worked for the Nippon Telegraph and Telephone Corporation (NTT) for more than 30 years, and eventually held the position of President of NTT in America. The Japan Telecommunication Service (NTT) was government owned and started its own monopoly towards the end of the nineteenth century, when the telecommunication business started in Japan. Even after public corporatization as a result of defeat in World War II, NTT kept its

monopoly until 1985. Thus, Hayashi, who worked for NTT for several decades, supported Vail's robust policy of Universal Service and monopoly administration. The main reason why Hayashi wrote on Universal Service was because of deregulation of telecommunications in the United Sates (as discussed in the former section), which also influenced other countries, including Japan. With deregulation, Vice President Gore tried to promote competition between communication services on the open market, and at the same time, emphasized the potential of 'Universal Service'. The main issue was how this would be possible in the competitive, deregulated environment. It must be remembered that, at this moment in time, the incumbent telecommunication company, AT&T, believed that Universal Service was only possible through a monopoly. AT&T's argument was that, if competition began, then services would not reach those rural and small market areas that did not meet their costs or benefit the economy, and Universal Service would not be sustainable (Mueller 1997: 162-164).

In 1985, Hayashi also argued the case for the deregulation in Japan. As Japanese economists had not been interested in the economics of telecommunication, this meant that a fair academic debate was not possible. The debate between those who were for and against the division of NTT (pro-divide and anti-divide of NTT) did not result in any theoretical advances in the field by academics. This is in contrast to the United States, in which both pro- and anti-division advocates from AT&T had hired academic economists who developed and armed themselves with more robust theories. Some of these, such as the Contestable Market Theory, supported the natural monopoly theory, but ironically, also supported the free market theory (Hayashi and Tagawa 1994: 216-217).

Hayashi also points out that communication technologies faced a drastic change, from the long-standing situation in which one telecommunications company had a responsibility to connect end to end, to the contemporary situation, where the company had a responsibility to connect one end to multimedia service entities, but not to the other end. In these

circumstances, Universal Service would be possible only with the cooperation of multiple stakeholders, and not just a single telecommunications company (Hayashi and Tagawa 1994: 213-215).

At the time when Hayashi was writing his book in the United States, Mueller had just denied that the provision of a Universal Service would only be possible with monopoly administration, that is, by AT&T. However, history tells us that Vail's monopoly policy did trigger competition within the United States, which ultimately led to Universal Service.

Mueller notes in his PhD thesis that the AT&T slogan of "one system, one policy universal service", developed by Theodore Vail in 1907, was entirely different from current ideas of what constitutes Universal Service (Mueller 1997: 4). AT&T (formerly named the 'Bell Telephone Company') was established in 1877 by Alexander Graham Bell's father-in-law, Gardiner Greene Hubbard, who retained the patent and monopoly business until 1894. After the patent (and the monopoly) expired, the Bell Telephone Company declined any interconnection proposals from other telephone companies. As a result, thousands of independent telephone companies started their own services in places where the Bell Telephone Company did not provide a service. Mueller argued that:

> On the supply side, access competition puts a premium on universality. Networks with a larger scope are more likely to attract users. More specifically, non-interconnection of competing network creates three incentives to enlarge the scope of a network (Mueller 1997: 24).

The three incentives for interconnection were: first, to be the first to serve unserved areas or markets; second, to lower the price of access; and finally, to interconnect users in noncompeting networks (Mueller 1997: 24-25). In addition, Vail's vision of a Universal Service was not the same as that of the present day AT&T, which is committed to expanding

service to everyone, everywhere. Vail's original doctrine for Universal Service represented an extremely powerful case for monopoly and fragmentation. In other words, because of his attempt to monopolize, thousands of independent telecommunication services were created by the 1920s to form a universal telephone service in the competitive environment.

> Access competition did not put a telephone in every home, but according to the available statistical sources, it did put a telephone exchange or line in practically every community. By 1920, the physical infrastructure for supporting universal telephone service was essentially in place (Mueller 1997: 147).

Mueller also noted that neither policies nor supply led to Universal Service, not even those arising from the Kingsbury Commitment (1913), which was an antitrust law suit. Rather, it was user demand that led to policies in favour of an increasing penetration of telecommunication service.

> In essence, a better understanding of the unique characteristics of telephone competition and monopoly must come from two sources; an improved definition of the output of networks and focus on demand-side rather than supply-side economics (Mueller 1991: 11).

Not everyone agrees with Mueller. Richard R. John, for example, is against the view that Vail did not have the same idea of Universal Service that we recognize today (John 1999). John examined Vail's early experience at the US Railway Mail Service, established in 1869, during which Vail made significant administrative contributions towards its efficiency and reliability. John argues that "most recent studies of telephone history say nothing about it at all" (John 1999: 77), and points to Vail's own ethos of public service arising from his experience with mail. Vail declared that the government should have been "invested with an 'absolute power' to determine which trains should carry the mail, and how much room should be provided to facilitate its sorting" (John 1999: 78). Vail also "favored its regulation – and, indeed, was

convinced that intelligent government oversight was not only inevitable, but desirable" (John 1999: 78).

In addition to Vail, Gardiner Greene Hubbard, the telephone promoter, had a strong public-service ethos (John 1999: 75). John describes how Hubbard was interested in the telegraph service, which was run by the Western Union as a public and universal service, long before he started his own telephone business in 1877. In 1866, Hubbard criticized the Western Union, which was a *de facto* national monopoly: "... its rates were too high, its service too limited, and its offices too few" (quoted in John 1999: 75). He also "lobbied Congress repeatedly to charter a 'postal telegraph' that would underbid the telegraph giant and provide universal service for all" (John 1999: 75). John denies Mueller's claim that the concept of Universal Service resulted from the flurry of the 1890s and the 1900s, but argues instead that "universal access to information on commerce and public affairs had been a goal of postal policy for over a century" (John 1999: 75). He also brings up Louis Galambos' concept of 'organizational synthesis', with discussion on the United States beginning around 1880, when the modern corporation as a large-scale institution was on the rise. He later suggests that: "Only then, perhaps, will it be possible to understand the civic origins of universal service – and, more broadly, the cultural and political context out of which the modern corporation emerged" (John 1999: 79).

Neither Hayashi, Mueller, nor John mention in their arguments that the United States has been a unique nation building exercise, and that, at that time, it was a new nation in the world. The US gained independence from Britain in 1776, with only 13 colonies located on the east coast. When the telephone service started in 1877, many states were yet to emerge. In other words, they were still on the way to forming the present-day nation. In addition, the United States is the only country in the world where the telecommunication service has never been nationalized, except between June 1918 and July 1919 for national security reasons during

and immediately after World War I. There are some points of agreement between a few of these authors. For example, although the arguments of John and Mueller seem to differ, both claim that user and community needs are relevant within a cultural and political context, and in particular, to Universal Service.

There is one more issue that Hayashi, Mueller and John did not mention in their arguments, which we should be kept in mind when discussing how telecommunication and the concept of Universal Service were developed. As noted by Robert V. Bruce (1973), Bell developed the telephone based on his position as a world class expert on acoustics. He was also an authority on education in this area, and established a School of Vocal Physiology and the Mechanics of Speech. His students included Helen Keller and Mabel Gardiner Hubbard, the daughter of Gardiner Greene Hubbard. Bell developed the telephone largely because he needed permission from Hubbard to marry his daughter Mabel. Bell's mother, Eliza Grace, was also deaf and this drove him to study acoustics. Interestingly, Bell's father and grandfather were also experts on phonetics and speech disorders (Bruce 1973).

Two key figures in telecommunications development, Bell and Hubbard, were fully involved with people with disabilities, not only in their own family, but as leaders in the community on social issues (Bruce 1973; John 1999). One of most current discussions on Universal Service of ICT relates to the ways in which people with disabilities can obtain access to ICT as Universal Service. The original concept of Universal Service should include the contributions of Bell and Hubbard, and not only of Vail. They may have been motivated by the idea of disability and their concerns for this minority in society, rather than purely commercial considrations.

In the next section, I will look at the discussion of Universal Service in Europe. Universal Service in Europe has only been discussed since the 1980s, with the OECD report on their

initial study. After this, I will examine case examples from France and Japan to see how these countries discussed and implemented Universal Service. These countries were chosen for particular scrutiny, since they would have influenced Pacific telecommunication policy as the former colonial rulers and current major donors of aid. Japan is not only a former colonial power and aid donor, but also has 6,852 remote islands, 421 of which are inhabited. Japan's own policies provide an interesting point of comparison with the Pacific Islands.

3.2.2 Universal Service for Developed Countries

3.2.2.1 OECD

In contrast to the United States, 'Universal Service' was not mentioned in Europe until the 1980s. The OECD undertook a comprehensive study, and in 1991, it released a report titled 'Universal Service and Rate Restructuring in Telecommunications', which discussed the threat to Universal Service in Europe from the process of liberalization.

This study revealed that most European countries do not have any obligation to provide Universal Service, and nor do their telecommunication policies include this as an explicit goal. The report noted that "individual citizens possess no legal right to telephone service on demand, [and] conversely telecommunication administrations are under no legal obligation to provide service" (OECD 1991: 28).

The report argued that European countries do not have Universal Service, but that Public Service "… has been used in general European regulatory discourse to date and that governs the thinking of European administration and regulators" (OECD 1991: 29). The reason for European countries to put more weight on the concept of public rather than universal service is explained by the fact that these countries were governed by Roman law instead of common

law. Another contributing factor was the Hegelian tradition, which distinguishes between States and civil society. The State is "the expression of the highest form of social rationality and of the public interest", while 'civil society' is "the subordinate realm of competitive private interest" (OECD 1991: 29).

Perhaps this explanation is key to understanding why European countries did not have a concept of Universal Service, but rather a public service provided by voluntarism, and not because of any obligation to their governments.

The result of this report, which highlighted the lack of a definition for Universal Service in Europe, was to suggest four constituent elements that could be targeted and monitored. These included: universal geographical access, universal affordable access, universal service quality and universal tariffs (OECD 1991: 84-85).

Now I would like to explore very briefly how Universal Service and Telecommunication was developed in France and Japan.

3.2.2.2 France

In 1837, a law was adopted in France that punished anybody caught transmitting signals from one place to another without authorization, since the "government believed they had to control the content of the message transmitted" (Berne 2008: 121). According to Berne, the "French government did not hesitate to intervene heavily in the economy. From King Louis XIV in the seventeenth century, to Emperor Napoleon in the early nineteenth century and President Mitterand in the 1980s, ..." (Berne 2008: 1). It was not until the 23rd October 1984 that a law was passed for the first time giving everyone the right to a telephone on demand (OECD 1991: 44). Subsequently, on September 30th 1986, Article 11 of La Liberté de

Communication gave the Commission Nationale de Communication et Liberté the power to ensure equality of treatment for all of those with access. However, the right to equal access is different from universal service (OECD 1991: 44).

Berne has argues for telecommunications within the perspective of public service and nationalization. The reasons for this are that most public utilities were taken out of private hands and nationalized after the war. There was a second wave of nationalization following the election of a socialist government in 1981, but this was quickly abandoned (Berne 2008: 122). At the same time, a theory of public service had also emerged, but many French authors argued that there was no clear definition of public service. Berne has discussed the idea of public service within the French legal system. Similar to other European countries, France has two major legal systems, one of which is private and the other administrative law. "Administrative law system rules, with its own administrative courts, laws and regulations, the relations between the general public and State entities" (Berne 2008: 123). Until 1990, France Télécom was part of a government body that was entirely ruled by the public administrative legal system, after which it gradually moved to the private legal system.

In France, the idea of a nationally owned telephone system, without a specific definition of public service and ruled by administrative law, developed at the end of the nineteenth century. Berne notes that, until the 1960s, "the Government, and even the administration of PTT, were not really interested in providing telephone services to everybody" (Berne 2008: 125). However, the number of telephone lines soared from 4 million in 1969 to 18 million in 1981. This is in contrast to the French mail and telegraph service, which had already achieved Universal Service in the late nineteenth century.

In spite of objections that Universal Service could not be achieved with the liberalization of the telecommunication market, Berne argues that many European counties showed otherwise.

France, for example, had no difficulty in proceeding with the liberalization of the telecommunication market and Universal Service. Furthermore, the success of liberalized telecommunication and the concept of Universal Service proved important for competition in the public sector, in areas such as electricity, banking, health and housing.

With my limited knowledge of French history, it is interesting to discover that the concept of Universal Service was not common to the French, with their experience of the revolution and ideals of liberty and the personal freedom. The United States and France both had many overseas territories in the Pacific. Although outside the frame of this research, it would be interesting to know how the concept of Universal Service and liberalization would (or would not) have worked in these territories. In Vanuatu, a country colonized and managed by both the French and British as a territory for almost 100 years, the concept of Universal Service only applied to the colonizers, not to the indigenous peoples. My case study will discuss this further in Chapter 5. Until Vanuatu's independence in 1980, the local people did not have citizenship (Rawlings 2012). After that time, its former colonial managers, the French and British, still owned the national telecom company, which did not provide any service to 70% of the population until its deregulation in 2008.

3.2.2.3 Japan

Japan is categorized as a developed country, as well as a top level global economic power. While there are 6,852 outer islands surrounding the main islands, only 421 of these are inhabited (Ministry of Land, Infrastructure, Transport and Tourism. National Land Policy Bureau. Remote Islands Development Division. 2012. Rito no Genjo ni tsuite http://www.mlit.go.jp/common/000190753.pdf).

The first telegram service started in December 1869, between Tokyo and Yokohama. In January 1890, the first public telecommunication service started between Tokyo and Atami, and in December 1890 telephone exchange services started in Tokyo and Yokohama, with 155 customers in Tokyo and 42 in Yokohama (Nomura Investor Relations 2004).

Japan began to import telephones only one year after these were invented in the US in 1876. It took thirteen years to initiate a public telecommunication service, due to arguments between the Ministry of Industry (Kobusyo) and business leaders such as Eiichi Shibusawa, who expressed strong support for a private operation. The Ministry of Industry was abolished in 1885 and a new Ministry of Communication established. After this, Telecommunications became a national service from the Ministry of Communications, along with post, lighthouse and shipping (Nomura Investor Relations 2004).

Telecommunication services increased rapidly. Before World War II, almost 1,080,000 telephone lines were registered. However, due to the enormous infrastructural damage after the war, only 540,000 telephone lines remained (Nomura Investor Relations 2004).

By June 1st 1949, following an order from the General Headquarters of the Supreme Commander for the Allied Powers, the Ministry of Communication was divided into the Ministry of Post and the Ministry of Telecommunications. After three years, the General Headquarters of the Supreme Commander for the Allied Powers abolished the Ministry of Communication and established an independent public corporation for Telecommunications, Railway and Tobacco (Nomura Investor Relations 2004).

Telecommunication services made a slow recovery after World War II, and there was a strong need to manage these outside of the national budget, with an entrepreneurial spirit of enterprise and efficient management. The Nippon Telegram and Telephone Public Corporation Law was enacted on the 31st July 1952, and on the 1st August 1952, the Nippon

Telegraph and Telephone Corporation (NTT) was established (Nomura Investor Relations 2004). Also in 1952, the San Francisco Treaty came into force and Japan was released from the jurisdiction of the Supreme Commander for the Allied Powers. As its economy recovered, demand for telecommunication services also increased.

Establishment of the NTT Corporation was intended to meet two objectives: to end waiting lists and achieve instant access nationwide. As set out in the Public Telecommunications Act 1953, its mission was "to promote public welfare through the provision of prompt and reliable public telecommunication service at a reasonable price, universally and fairly" by domestic and international communication services, that is, the Nippon Telegraph and Telephone Corporation and Kokusai Denshin Denwa Corporation (Chapter One: General rules, Article One Aims, Public Telecommunications Act 1953. Original text is Japanese and translated by the Author). By 1978, waiting lists were down to zero, and in 1979, Japan had achieved nation-wide automatic instant access.

In April 1985, the NTT Public Corporation was privatized and became the NTT Corporation, in accordance with the Nippon Telegraph and Telephone Corporation Law (Act No. 85, December 25, 1984). However, the existing structure of NTT was retained until the 6th of December 1996, when the NTT and the Ministry of Post and Telecommunications agreed on 'Guidelines for reorganization of NTT'. In July 1999, this was divided into NTT East, NTT West and NTT Communications. Telecommunication services in Japan began a new era of high quality competitive marketing, in contrast to the previously expanding monopoly market, both in name and in reality (Ministry of Internal Affairs and Communications n.d.).

Consequently, in October 2000, the Japanese Government announced a new policy covering both Universal Service and the competitive market. In June 2001, the Universal Service Fund was introduced as part of the Telecommunications Law. The Nippon Telegraph and

Telephone Corporation Law compelled NTT East and West to provide Universal Service in Japan. This meant that they were obliged to service rural areas even if these were not profitable. The Universal Service Fund was introduced to provide compensation for NTT East and West if losses were incurred. This mechanism covered only fixed and analogue telephones, public telephones and emergency calls (Ministry of Internal Affairs and Communications n.d.). Interestingly, NTT never made use of this mechanism, since they were operating at a surplus until the 2005 fiscal year. In practice, NTT used a cross subsidization mechanism even after it was privatized (Ministry of Internal Affairs and Communications n.d.).

By 2005, because of a dramatic price war and new low-cost communication technologies, such as VOIP (Voice over Internet Protocol: using Internet for telephone), NTT could no longer make a surplus to cover areas of loss. This meant that the previous Universal Service Fund could not function appropriately. From 2006 to 2007, the Telecommunication Advisory Committee, under the Ministry of Internal Affairs and Communications, commissioned a report and invited public submissions. Since this invitation, the Universal Service scheme has been repeatedly reviewed to respond to changing market behaviour (Ministry of Internal Affairs and Communications n.d.).

With the emergence of the mobile phone, the penetration rate of fixed-line telephones has not increased, but rather, decreased slightly (for example, to 79.1% in March 2014). At the same time, in March 2014, the household penetration rate of mobile phones was 94.8% (Ministry of Internal Affairs and Communications 2014). Current discussion on Universal Service is no longer focused on telecommunications, but on ultra high speed broadband Internet service.

Cable communication service is necessary for ultra high speed broadband. Undersea cables incur a significant cost, however. Until recently, Japan’s most westerly island, Yonaguni, with

a population of only 1,500, was not allowed to install such cables. This situation has changed under the current international security environment, which involved a Chinese maritime threat to its border with Japan since 2010. In 2014, the Japanese government decided to build a defense base on Yonaguni, with the consent of the local government (Kasai, 2014), and an undersea cable plan was subsequently announced, with the purpose of connecting to Yanaguni Island. This planned cable will not only connect to those islands to the South-West of Okinawa, but also loop around these same islands (Figure 3.1). This means that, if part of the cable were to disconnect, these islands would still be connected via this loop. For isolated islands with vulnerable social infrastructures, stable communication is necessary for disaster relief, medical treatment, and the Japanese defense base, which is soon to be built (Furugen 2014).

A similar situation can be seen in Micronesia. The undersea cable, HANTRU-1 (Hannon Armstrong Capital LLC and operator Truestone LLC), was launched in 2010 from Kwajalein in the Marshall Islands to Guam. This connects the two capitals, Majuro in the Marshall Islands and Pohnpei in the Federated States of Micronesia. This cable plan was originally designed for use by the United States military, since the US counter missile base in Kwajalein requires high quality communications with another military base in Guam (Marianas Variety 2009).

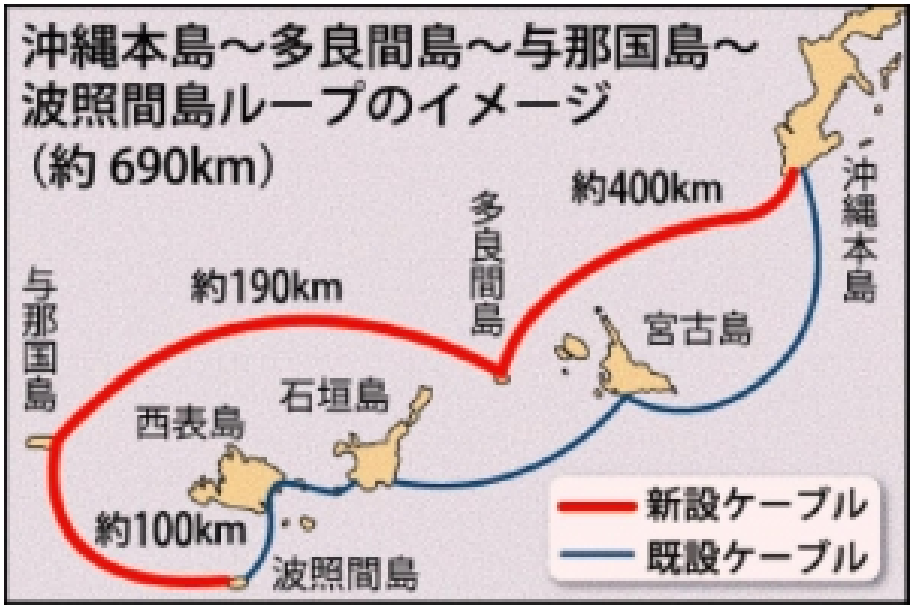


Figure 3.1. Map from Okinawa Times 12 February 2015 Available from:

http://www.okinawatimes.co.jp/article.php?id=102600 Accessed 20 July

Image map of cable looping between Okinawa's main islands – Taramajima – Yonagunijima – Haterumajima (690km)

Thick line – New Cable

Thin line – Existing Cable

From left (west) Yonaguni Is. (1500), Iriomote Is. (2,300), Hateruma Is. (500), Ishigaki Is. (40,000), Tarama Is. (1,200), Miyako Is. (54,000), and Okinawa main Is., Number in bracket represents population.

Both case studies inform us that small and remote islands have the potential to be connected to ultra high speed Internet, for defense purposes in case of international threats, not only to service local demand.

3.3 Summary

This chapter first explored the origins of discourse on ICT4D in the context of space development and decolonization during the Cold War, which started towards the end of the

1950s. It then looked at telecom liberalization and competition, led by the United States throughout the 1980s. The second part of the chapter examined the discourse on Universal Service, from its origin in the United States at the beginning of 1900s, to the continued discussions in the EU in the 1980s. The chapter then looked at three examples from the developed world, France, Japan and the European Union.

From the above geographical and historical perspectives, we can observe a complex social background in discussions about ICT4D and Universal Service, with Cold War tensions, decolonization, debates over monopoly or liberalization, the public-service ethos, the process of nation building, boundary disputes, and even historical administration systems, such as Roman law. It seems that user demands and the public-service ethos are the main themes associated with Universal Service, but these have not previously been discussed in detail. For example, during the Cold War era, newly independent countries expressed a clear and robust demand for access to telecommunications, including the use of satellite technology. In the United States, when telephones were developed, there was robust demand from users, as well as from service providers with a clear sense of public service.

In the next Chapter, I shall explore the historical background of the Pacific Islands dynamism of human movement, along with information sharing and communication, and followed by current telecommunication development and Universal Service within the Pacific Islands.

Chapter 4: Background of Pacific Islands and Telecommunication

Universal Service in telecommunications is a challenge to all nations, especially in the Pacific Islands, with a small number of people spread across the vast Pacific Ocean. In this Chapter, I shall first look into the history of the Pacific Islands from the perspective of 'mobility', from their initial colonization at 50,000 years ago to current European settlement. Then I will discuss colonization, decolonization and current movements, in terms of the migration of Pacific Island peoples. Finally, I would like to explore the historical background of telecommunication development, including recent deregulation.

4.1 Mobilizing – Historical background of the Pacific Islands

> Our forefathers traded in canoes. Hundreds of years later I'm talking to you through a satellite. But the message has not changed. We are friends. We are neighbours. We have a distinctive history and background and we can best protect our interests and further our expression through regional cooperation. Michael Somare, Prime Minister, Papua New Guinea, PEACESAT, September 14, 1975 (PEACESAT News File 1970-1975).

Human mobility probably started at the beginning of human history. The Pacific Islands have a long history of active human mobility, with evidence dating back 50,000 years. As noted by Sir Michael Somare, a long time before satellite technology was introduced, people already communicated information through other technologies, such as the canoe. In the present day, human mobility is associated with many terms, such as immigration, refugee, travel, deportation, exploration, colonization, and so on. Here I use the term 'mobility' to include any kind of human movement. A lot of attention in the current discussion on ICT4D is focused on new technologies, such as the Wireless, Internet and many kinds of ICT applications, but not

much is given to the content of information and communications. In order to demonstrate the significance of such content, it is important to examine the past as a journey, in which past forms of communication were really precursors to what is happening now.

4.1.1 First Colonization

50,000 years ago, the Earth was quite different from today. Glaciers still covered the whole of continental Europe. Coastal lands at that time were larger in area than today, and much is now submerged underwater. Modern humans left Africa and expanded eastwards, following the equator, and within 10,000 years they reached the Australian continent and the highlands of Papua New Guinea, some 15,000kms away (White 2014: 556). Until 10,000 years ago, Australia and New Guinea were joined to form the ancient landmass of Sahul. Many of the islands of southeast Asia were also joined into another landmass, called Sunda (White 2014: 56).

Between Sunda and Sahul, people still needed to cross the seas in small boats. In other areas, however, they were able to walk across the exposed land. About 10,000 years ago, the Earth was warming and the glaciers of the Arctic and Antarctic began to melt. Huge areas of coastal land sank beneath the ocean, making it difficult to find evidence of past human activities. However, evidence of human occupation has been found in the highlands of Papua New Guinea at some 2000 meters above sea level. This offers unique insight into early globalization of 50,000 years ago (Summerhayes *et al.* 2010, Chanda 2007).

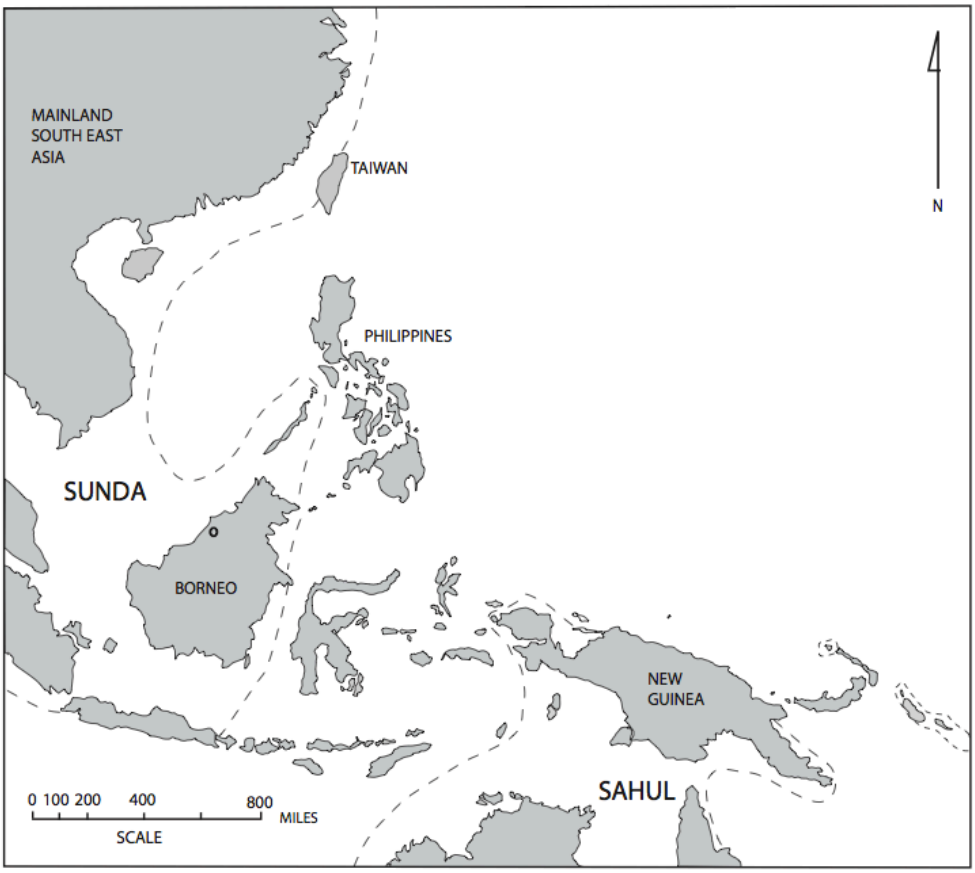


Figure 4.1 Map of Sahul and Sunda

Fifty thousand years ago, humans were already cutting and burning trees to open up the landscape for habitation. They also altered the environment by burning the land, thus increasing the erosion that transformed lakes into swamps. They also exploited wild mountain pandanus and transported crops, such as wild yams, from the lower altitudes into these higher valleys. It is also known that they were moving around the landscape on a yearly basis to hunt game. People from 50,000 years ago had the knowledge and skills to change their environment, which would have been entirely different to the one they left behind in Sundaland (White 2014: 568).

Human migration within the Highlands of Papua New Guinea was most active around 10,000 years ago, when the Ice Age came to an end. The warming climate made it possible for plants

that were originally grown in the warmer lowlands to be moved into the highland areas. For example, people introduced banana, sugarcane and taro, and agriculture developed around 9,000 years ago within the central highlands of Papua New Guinea (Denham *et al.* 2003: 189-190).

4.1.2 Austronesian Colonization

The next major movement of people into the Pacific Islands occurred about 3,500 years ago, when Austronesian speaking peoples from the area of Taiwan moved down the South East Asian island chain and eventually entered the western Pacific. These people crossed the divide from South East Asia and the Pacific. They were highly skilled navigators and spread by boat over thousands of kilometers. This continued for about 2,000 years, during which the Austronesian speaking peoples reached some 14,350 kilometers, from Madagascar in the west to Easter Island in the east, which is the equivalent of a third of the Earth's circumference. The Austronesian language family includes the largest number of languages in the world at present (Pawley 2002).

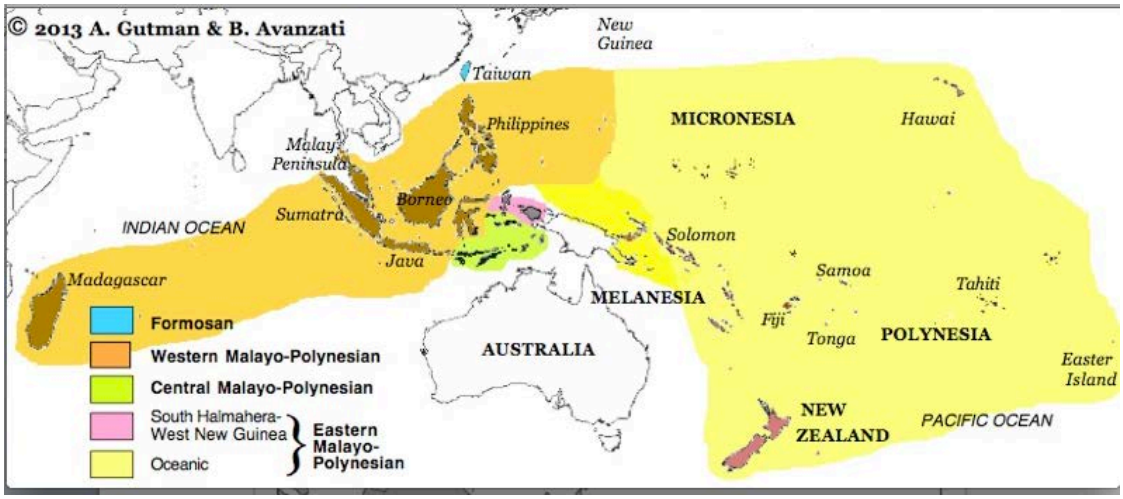


Figure 4.2 Map showing the spread of Austronesian speaking peoples

These Austronesian speakers moved into the easterly islands of Papua New Guinea, now known as the Bismarck Archipelago, some 3,300 years ago. Currently, Papua New Guinea has more than 800 languages, which include both Austronesian and non-Austronesian tongues. Non-Austronesian languages are not a single language family, but based on a wide range of languages. These split apart into totally different languages within the last 50,000 years (Foley 1986).

Pacific Island diversity is seen, for example, in Papua New Guinea, with more than 800 languages and a population of over 8 million, and Vanuatu, with more than 100 languages and a population of 250,000. This has grown in the course of their 50,000 year history. The similarities between Polynesian societies, as seen in the language and culture of Hawaii, New Zealand and Easter Island, are based on common ancestry and a 3,000 year history of long-distance seafaring technology.

The Austronesian group in the western Pacific are known as Lapita peoples, after their unique and distinctive Lapita pottery. These pots were made from local clays, using low temperature outdoor firing, and decorated with a complicated variety of dentate stamped designs. Information was shared on the design and skills of pottery manufacture, subsequently modified, and inherited by groups living thousands of kilometers away and separated by millenia of human history.

These Austronesian colonists eventually moved further east down the Solomon Island chain, and entered what is known as Remote Oceania. Here, for the first time, they colonized New Caledonia, Vanuatu, Fiji and Tonga, reaching Samoa about 2,850 years ago. Around 1,900 years ago, the descendants of these colonists moved further into new territories, including the Marquesas Islands in the east, Hawaii in the north, and the Cook Islands in the south. They eventually reached New Zealand in the far south and Easter Island in the far east. The area

from Hawaii to Easter Island to New Zealand forms a large triangle that includes the bulk of Polynesian peoples, spread over more than 8,000 kilometers (Bellwood 1978).

Thus, those humans who departed the African continent about 60,000 years ago spread and settled the whole of the Earth's surface, eventually reaching the Polynesian Triangle approximately 800 years ago. Such perpetual human expansion suggests an early form of globalization, and we can imagine that there was considerable exchange, storage and inherited information helped by advanced communication technologies at each stage of this expansion.

Life of People

Life in small villages on these islands was determined by social rules, and the English term 'taboo' is originally a Polynesian word, meaning 'sacredness' and 'prohibition'. This tells us that the people had many beliefs, information which some of the island communities shared. Traditional Polynesian religion held that their gods controlled people's lives, including population size, and each island's limited resources (Matsuda 2012: 19-21, 27). We cannot find any evidence of these social interactions, since the early Polynesians did not have written language, but we can imagine them using verbal and other schemes to exchange information. These people lived in a peaceful relationship, but also one of conflict and war. For example, Tonga established a maritime empire, colonizing nearby islands like Fiji and Samoa (Matsuda 2012: 27-28, 83). Again, colonial cultures require a significant degree of information. Tonga and other Austronesian-speaking communities also had an agricultural base and a hierarchical society, including chiefs. Similar social structures were introduced into Remote Oceania by the first Austronesian settlers, along with agricultural practice, some 3,000 years ago. Knowledge of agriculture must have been imported by the new arrivals.

These Austronesian peoples used large canoes with outriggers to sail many thousands of kilometers, carrying with them their larder: pigs, coconuts, chickens, dogs, taro and all the

necessary food and materials for a successful migration. This means that they already had the necessary knowledge for colonization. Such large scale journeys demonstrate that this movement was planned rather than accidental. Archaeological studies have also confirmed that seafaring was not unilateral, but multilateral, meaning that people travelled back and forth over hundreds and thousands of kilometers (Summerhayes 2000: 234-235). As previously noted by Sir Michael Somare, information transfer over thousands of kilometres of ocean had already existed for 3,000 years before satellites linked islands in the Pacific. Thus, colonization, immigration, and the exchange of people, materials and possibly information in the Pacific have been actively maintained by means of the 'ocean highway' for thousands of years before Europeans 'discovered' the Pacific Islands in the 16th century.

4.1.3 European Colonization

After several thousand years of Austronesian occupation, European colonization of the Pacific began about 500 years ago, the political landscape of Europe was transformed to include the Pacific and a new map of the Pacific was drawn.

In 1519, Ferdinand Magellan departed Spain and became the first European to visit the Mariana Islands of the North Pacific and the Tuamotu Islands in the South. At that time, the world was divided by the 1494 Treaty of Tordesillas, in an agreement between Spain and Portugal that was authorized by Pope Alexander VI. The hegemony of Spain and Portugal continued as they attempted to colonize the known world. The Spanish claimed the Mariana Islands (named after Queen Mariana of Spain) as their territory in 1565, and subsequently colonized it for almost 300 years (Atienza 2013: 14).

As a result of a disagreement with Portugal, the Dutch began to explore the Pacific in the seventeenth century. The King of Portugal was displeased that the Dutch had monopolized the

spice market in northern Europe, and therefore prohibited all Dutch ships from entering Portuguese ports around the world. However, the Dutch had already established the Dutch East India Company in 1602, and deployed their military. From that time onwards, they gained control over the main sea trade routes, including the Pacific Ocean (Taillemite 1987: 47-48). The emergence of the Dutch led to the breakup of the hegemony enjoyed by Spain and Portugal. In 1642, the Dutch explorer Abel Janszoon Tasman sailed to Tasmania (Australia) and New Zealand, and revealed the existence of Australia and other islands in the Southern hemisphere (Matsuda 2012: 84-85).

For the next 100 years, Europe experienced a war that restricted further exploration, and exploration of the Pacific only resumed after 1750. This new era was one of scientific discovery. The population of Europe had increased dramatically throughout the enlightenment period and the industrial revolution and each nation was eager to find new lands in which to establish colonies (Taillemite 1987: 63-66, 85-89).

In France, navigators were educated to a high level in astronomy and mathematics. In 1766, the French explorer Louis de Bougainville departed France and arrived in Tahiti, passing through the Straits of Magellan. Bougainville declared Tahiti to be French territory in the name of Louis XV. During his voyage, astronomers surveyed and measured the correct location of islands in the South Pacific and created new and more accurate maps. Bougainville recorded the local customs, describing the Tahitian people as the ‘noble savage’. Such descriptions had a profound influence on European philosophers, including Jean-Jacques Rousseau in his book, *The Social Contract* (Taillemite 1987: 80-81). Interestingly, Europeans brought back not only botanical, ethnographical, geographical and other scientific data on the Pacific Islands, which are located on the far side of the earth. However, they also brought back a social ideology which, although it may have been based on a false interpretation of Tahitian society, became a trigger for the French Revolution.

Two years after Bougainville's voyage, British captain James Cook explored the South Pacific with a number of scientists, including astronomers, to measure of the transit of Venus on Tahiti. This voyage generated major advances in anthropology, botany, biology and astronomy and led to the publication of an account of the voyage, along with many updated maps. Cook made two more voyages to the Pacific and obtained more precise and scientific information, which was highly valuable for subsequent navigators (Taillemite 1987: 90).

The success of Cook's voyage influenced the government of France, which was in competition with Britain, and under the orders of Louis XVI, La Pérouse headed a large scientific voyage to the South Pacific in 1785. He visited the coasts of California, Manila, Samoa, and Australia, departed Australia in 1788, and then disappeared. Louis XVI ordered an investigation into his disappearance, and further expeditions were sent at the end of the revolution.

One of these was led by Jules Sébastien César Dumont d'Urville from 1822 to 1825. d'Urville divided the Pacific into three geographic regions, Polynesia, Melanesia and Micronesia, which are still in use today (Clark 2003a, 2003b). He also made more than 100 maps of the Pacific, and these were used until the end of World War II (Taillemite 1987: 115-130).

European colonization of the Pacific Islands was driven by a search for knowledge. Any discoveries were promply published and shared with people in other European countries. They did not use information technology, such as the Internet and telephone, but instead used what was available to them, the written word, for sharing information.

4.2 Decolonization and Current Political status of Pacific Islands

In order to understand the wide range of issues with ICT4D in the Pacific Islands, it is important to examine the current socio-economic situation of Pacific Island Countries, their links to former colonial countries, and their degree of political dependency. It is also important to examine how those colonial countries came to the Pacific Islands and maintained their influence in the region, particularly during the period of expansion from the late nineteenth to the early twentieth century. It is important to understand this, because such former colonial countries as Britain, the United States and Japan are the principal donors, and influence development policies of Pacific Island nations today.

4.2.1 Political Status of Pacific Island Countries

At present, there are twenty-four political entities in the Pacific Islands. Some are fully independent, others remain as territories with some level of autonomy, while the rest gained independence, but kept a free association with another country for security and economic purposes (see Table 4.1).

With the exception of Papua New Guinea, most Pacific Islands have small population sizes and small scale economies, and have faced significant changes to their traditional lifestyles as a result of colonization by Europeans over the past few centuries. This means that progress towards modernization after independence or autonomy has been difficult. One major obstacle to building and managing these nations is a lack of human resources, a result of European colonial countries' failure to provide quality education to the people of the Pacific Islands.

Political Affiliation	Pacific Island Economies
Independent Countries (Members of the British Commonwealth)	Papua New Guinea, Fiji, Vanuatu, Solomon Islands, Samoa, Tonga, Tuvalu, Nauru, Kiribati
US free association	Republic of Marshall Islands, Federated States of Micronesia, Republic of Palau
NZ free association	Cook Islands, Niue, Tokelau (NZ territory)
US territory and state	Commonwealth of Northern Mariana Islands, Guam, American Samoa, Hawaii
French territory	French Polynesia, New Caledonia, Wallis & Futuna
British territory	Pitcairn Island
Chilean territory	Rapanui (Easter Island)

Table 4.1 Pacific Island Economies and Political Affiliations.

The number of people varies across Pacific Island Countries. According to 2015 data from the Secretariat of the Pacific Community (SPC) (http://www.spc.int/nmdi/population Accessed 20 June 2016), Papua New Guinea had the largest population, with about 7.7 million people, which is more than 76% of the total population of Pacific Island nations. Next is Fiji, with approximately 867,000 people, then the Solomon Islands, with a population of around 642,000. Of all Pacific Island Countries (excluding French and US territories), the Melanesian population accounts for more than 94% of the total. In Micronesia, the country with the smallest number of people is Nauru with about 10,900, followed by 18,000 in Palau. In Polynesia, Tokelau has only around 1,160 people, followed by Tuvalu with 11,300 and the Cook Islands with 15,300.

Next, I shall examine the growth rate of Pacific Island populations. Although the data in Table 4.2 is relatively old, it is still useful to this study. As seen in Table 4.2, only three Melanesian countries (Papua New Guinea, Solomon Islands and Vanuatu) have a population growth rate of more than 2%. Polynesian and Micronesian countries have less than 1%

growth, with the exception of Kiribati at 1.6%. The reason why Kiribati alone has nearly 2% growth may be, as Father Fran Hezel has pointed out, a lack of opportunity to emigrate from Kiribati (Hezel 2012: 5). The Pacific Community (SPC) statistics show growth rates for 2011. Although these figures come three years later than Hezel's data, they still tell us that Papua New Guinea (2.8%), Solomon Islands (2.7%), Vanuatu (2.6%) and Kiribati (2.2% in 2010) have a high rate of growth (http://www.spc.int/nmdi/population Accessed 20 June 2016).

Country	*Population (2009)*	*Annualized Population Growth*	
		2000–2009	*1990–2009*
Cook Islands	22,600	2.3	0.9
Fiji	849,200	0.3	0.7
Kiribati	98,000	1.6	1.6
Marshall Islands	54,000	0.6	1.0
Micronesia (FSM)	102,600	(0.4)	0.3
Palau	20,400	0.6	1.5
Papua New Guinea	6,732,200	2.3	2.5
Samoa	178,800	0.1	0.5
Solomon Islands	523,200	2.3	2.6
Tonga	104,000	0.5	0.5
Tuvalu	9,900	0.4	0.5
Vanuatu	234,000	2.1	2.3
Nauru	9,800	(0.2)	0.4
Niue	1,400	n/a	n/a

Sources: World Bank database; Cook Islands data from Statistics Office (www.stats.gov.ck); FSM data from 2010 census; Tuvalu and Nauru data from ADB (2010); Vanuatu data based on 2009 census; Niue data from *The World Factbook* (CIA 2011).
Note: Parentheses indicate negative growth.

Table 4.2 Population and Population Growth of Pacific Island Nations, Adapted from Hezel (2012: 5)

The growth of urbanization in the Pacific has grown increasingly significant in recent years. A high proportion of the population of many countries lives in urban areas, for example: the Republic of Marshall Islands (73.8%, 2011), Kiribati (54.1%, 2010), Solomon Islands (20%, 2009) and Vanuatu (20%, 2009) (http://www.spc.int/nmdi/population Accessed 20 June 2016). These percentages are growing at a much higher rate than national population growth. This is significant in terms of demand for telecommunications between remote islands and urban areas, or between the islands and other countries, such as New Zealand, Australia and the United States, to which the greatest number of Pacific Island people have emigrated.

Table 4.3 shows us that a sizeable proportion of small island populations are living in New Zealand. For example, in 2006, 2,166 Niueans lived on Niue itself (1,611 in 2011), while about 20,000 were living in New Zealand. This tells us that 10.38 times more Niueans live in New Zealand than on Niue. Niue has a Free Association arrangement with New Zealand, enjoying self-governance, while depending on New Zealand for some security and economic support, similar to the Cook Islands.

Such figures indicate that a drastically increasing number of people is moving from the Pacific Islands to New Zealand, Australia and the United States. This developing connection between island states and larger countries could be driven by a need to connect with families separated by space, and also for greater information flow between families as well as the transfer of money and materials.

Size of main Pacific ethnic groups in New Zealand and estimated resident population in home country

2006

Country	Usual resident population in NZ, 2006 Census	Estimated resident population in home country, 2006[1]	Ratio of Pacific population in NZ compared to home country
Samoa	131,103	176,908	0.74
Cook Islands	58,008	21,388	2.71
Tonga	50,481	114,689	0.44
Niue	22,476	2,166	10.38
Fiji	9,861	905,949	0.01
Tokelau	6,822	1,392	4.9

(1) Sourced from the Central Intelligence Agency's The World Factbook, available from www.theodora.com/wfb2006/.

Table 4.3 Size of main Pacific ethnic groups in New Zealand and estimated resident population in home country. Adapted from Demographics of New Zealand's Pacific Population Available from http://www.stats.govt.nz/browse_for_stats/people_and_communities/pacific_peoples/pacific-progress-demography/population-growth.aspx *Accessed 10 August 2015*

Kiribati, Solomon Islands, Tuvalu and Vanuatu are still categorized as 'Least Developed Countries', based on their GDP. In order to recognize the relationship between the size and economic growth of a country, it is useful to examine the difference between other small island countries, such as Singapore and Tonga.

Singapore has a land area of only 687 km^2, almost the same as Tonga, but their GDP is USD81,300 per capita, while Tonga's is only USD5,000. Singapore is strategically placed for trade and also has a strong Chinese network, which makes it possible for the country to become one of the foremost monetary centres of the world. Most Pacific Islands are geographically distant from the principal monetary and economic activities, and do not have the necessary human network for joining a global market economy. There are other indices for comparing the 'well being' of countries, such as the 'Happy Planet Index 2006'. Many

Pacific countries, such as Tonga (ranked 24th happiest country in the world), Vanuatu (ranked number 1 in the world), Samoa (14th), Solomon Islands (20th), Fiji (36th), and Papua New Guinea (76th) are apparently much happier than Singapore (at number 131) (Abdallah, Marks, Simms and Thompson 2006). This suggests that GDP alone is inadequate as a means of assessing a country's development and well-being. Unfortunately, the Happy Planet Index of well-being does not support national social infrastructure, such as telecommunication.

Most Pacific Island countries are currently using social infrastructures, such as telecommunication services, inherited from their former colonizers. Such telecommunication companies continued to operate for many decades after the independence of many Pacific Island countries, and held their monopolies with an exclusive licence, in agreement with the newly emergent governments. Most of these Pacific Island governments did not include any clear obligation for Universal Service in their regulations. Worse still, the small Pacific Island governments could neither support nor regulate those telecommunication companies that were mostly operated by the former colonial nations. As a result, telecommunication services in the Pacific Islands were among the least efficient in the world (Kelly 2005: 31). In particular, the remote areas did not have any access to telecommunication services for many decades, even after gaining independence (Ogden 2000: 466).

In summary, expansion of telecommunications in the Pacific Islands is vulnerable to the scales of economics and politics. Relatively weak social capital ensured that they would maintain their various political, economic, and security relationships with former colonists and powerful countries. The wide discrepancy between states, in terms of economic development, has played a key role in the differing political status of Pacific Island countries.

In the following sections, I shall outline the historical, political and social background of Britain, the United States and Japan as major powers in the Pacific. This is important for an

understanding of telecommunications, as these are prominent donor countries and have a significant influence on the developmental policies of Pacific Island Countries.

The many islands and nations spread across the Pacific Ocean still remain strongly under the political and economic influence of their former colonizers. For example, the United States has territories in the north Pacific, such as Guam and the Northern Mariana Islands, and also free associated states like the Republic of Palau, the Federated States of Micronesia and the Republic of the Marshall Islands. 65% of France's Exclusive Economic Zone (475 km^2) is located in small island territories in the Pacific, such as New Caledonia, French Polynesia and Wallis and Futuna.

4.2.2 Britain in the Pacific Islands

One of the strongest influences on the Pacific was Great Britain, with an empire that once occupied a third of the world, including many colonies in the Pacific Islands. After World War II, Britain transferred responsibility for her colonies in the South Pacific to Australia and New Zealand, both of which were themselves once colonies, as well as to other members of the Commonwealth. Newly independent Pacific Island countries also joined the Commonwealth, which consists of a loose network of former British colonies, as well as Britain itself. It exists as a group of nations, not bound by treaties or even as a federation. Fifty three independent and equal sovereign states are Commonwealth members, eleven of which are from the South Pacific: Australia, New Zealand, Kiribati, Samoa, Solomon Islands, Tuvalu, Tonga, Nauru, Vanuatu, Papua New Guinea, and Fiji. They share common values, such as with respect to education, law and sports (including cricket and rugby) (The Commonwealth 2015).

A major milestone of British colonization in the South Pacific was when, in 1770, James Cook landed in Australia and claimed it as part of the British Empire. After the American War for Independence, Britain began to send convicts to Australia instead of North America. Transportation began in 1788, when Governor Arthur Phillip brought convicts to the east coast of Australia and started the settlement at Port Jackson (Sydney). Although Australia had been inhabited for over 50,000 years, the advent of European colonies brought death to many indigenous people through violence and introduced disease (Matsuda 2012: 169-170).

The colonization of New Zealand began much later than that of Australia, with Britain taking a different approach. In 1840, they signed the Treaty of Waitangi with the indigenous Maori Chiefs which, in theory, obligated them to protect the islands and respect the rights of the Maori (Smith 2005: 43-69). Despite having two major colonies in the South Pacific, Australia and New Zealand, Britain had special interests in smaller Pacific Islands as stepping stones for trading ships to resupply as well as whaling bases (Onorio 1979: 29-33).

Kiribati and Tuvalu were colonized both as supply bases and as whaling bases. Samoa was first colonized by the Germans, who set up coconut plantations. Nauru was colonized for the mining of its phosphate. Britain also introduced indentured Indian labourers to work on its sugarcane plantations in Fiji.

Pacific Island countries began to achieve independence or greater autonomy, starting in the 1960s. In 1962, Western Samoa gained independence, followed by Cook Islands in 1965, Nauru in 1968, Fiji in 1970, Papua New Guinea in 1975, the Solomon Islands and Tuvalu in 1978, Kiribati in 1979, and Vanuatu in 1980. As discussed earlier, in order to survive as small-scale economies, these countries retained their special relationships with their former colonizers, such as Australia, New Zealand and France, and continued their membership within the Commonwealth of Nations (see Table 4.1). Another economic network, set up by

the European Union, was the African, Caribbean and Pacific (ACP) Group of States, which was established in 1975 by the Georgetown Agreement and Lome Conventions. The ACP regime is quite beneficial to those Pacific Islands that have been discriminated against on the global stage due to their small production scale and the costs arising from their distance from the major markets (Hayakawa 2012: 225).

As these networks demonstrate, economics and politics in the Pacific Islands continue to rely on the outside world, due to the small scale of their economies. For example, money sent home to Pacific Island countries by expatriates living abroad underpins local economies. In 1985, Bertram introduced the concept of a MIRAB economy, or one based on Migration, Remittances, Aid and Bureaucracy, as a way of explaining the high dependency of the Pacific Islands on remittances and migration (Bertram and Watters 1985, 1986, 2000).

The following examples demonstrate the importance of MIRAB economies. The Samoan population in New Zealand is 131,103, but just 176,908 in Samoa. In 2006, the population of Cook Islanders in New Zealand was 58,008, compared to 21,388 back in the Cook Islands themsleves. In 2007, Samoans living in New Zealand sent around NZD80 million, while Tongans sent NZD55 million back to their home countries (Bertram nd.). This accounts for nearly 25% of Samoa's and 40% of Tonga's GDPs, and thus demonstrates the importance of remittances to the local economies (see Table 4.4).

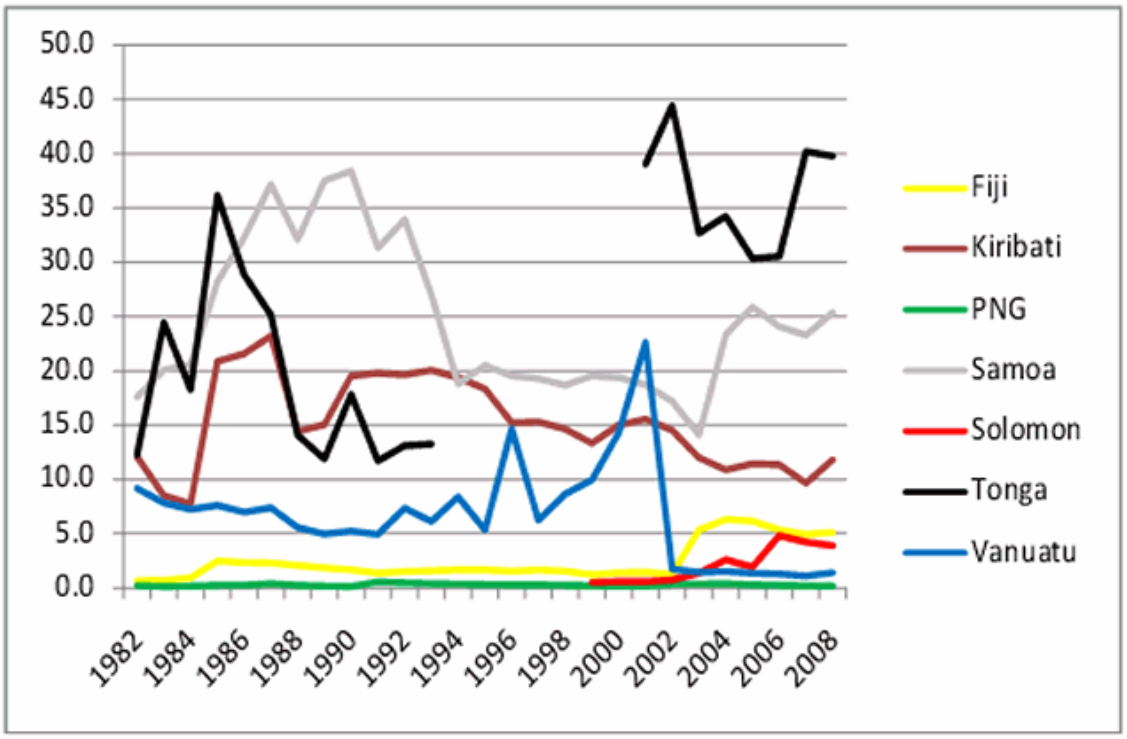


Table 4.4 Remittances as a percentage of current GDP for selected PICs. Source: World Bank Development Prospect Group (2009), UN Statistics Division (2009). Adapted from Population movement in the Pacific: A perspective on future prospects, 3. Drivers of Migration in the Pacific, Ministry of Business, Innovation and Employment (MBIE). Available from:

http://www.dol.govt.nz/publications/research/population-movement-pacific-perspective-future-prospects/04.asp#fig5 *Accessed 10 August 2015*

Most Pacific Island countries are also heavily reliant on aid from larger nations, such as the United States, Japan, Australia, and New Zealand. For example, economic aid accounted for almost 40% of the GNI (Gross National Income) of the Marshall Islands and Federated States of Micronesia and Tuvalu (Table 4.5).

The importance of remittances and donor aid means that the Pacific Islands need to continue to communicate, share and exchange both tangible and intangible materials, values and information with those donor countries. Information and communication technologies, such as

the Internet and wireless communication systems, should be among the tools used to meet this demand.

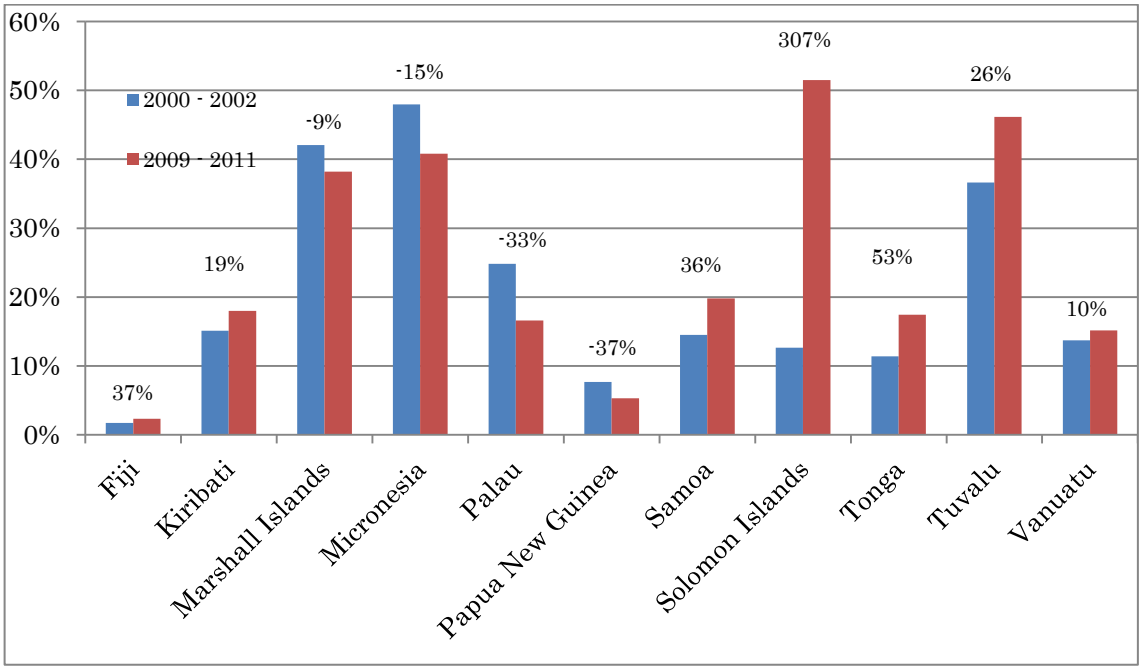


Table 4.5 Aid to GNI across the Pacific

Source: World Bank Databank. Populations for Cook Islands, Nauru and Niue are calculated from the Pacific 2020 report. Adapted from DEVPOLICYBLOG From the Development Policy Centre

http://devpolicy.org/rising-aid-dependency-in-the-pacific-20130917/ ***Accessed 10 August 2015***

4.2.3 United States in the Pacific Islands

The United States has the largest EEZ (Exclusive Economic Zone) in the world and 50% of this comes from its territories in the Pacific Ocean as well as the state of Hawaii. United States territories include: (from west to east) Guam and the Northern Marianas Islands; and (from south to north) American Samoa and the state of Hawaii. Also in the large expanse of the Pacific are several atolls, reefs and small islands, such as Kingman, Palmyra, Johnston,

Howard, Baker and Jarvis, which contributes 5,803,809 km^2, or 51.13% of the total EEZ of the United Sates (Table 4.6). Any issues that affect the Pacific Islands are therefore the business of the United States as well (Hayakawa 2012: 225).

US Pacific Minor Outlying Islands (PMOI)	EEZ km^2	% - total PMOI	% - total Pac EEZ	% - total EEZ
WAKE ISL.	407,238	11.53%	7.02%	3.59%
JOHNSTON ATOLL	442,629	12.53%	7.63%	3.90%
PALMYRA ATOLL & KINGMAN REEF	352,526	9.98%	6.07%	3.11%
HOWLAND & BAKER ISL.	434,922	12.31%	7.49%	3.83%
JARVIS ISL.	316,555	8.96%	5.45%	2.79%
HAWAII NORTHWEST ISLANDS (USA) *1	1,578,680	44.69%	27.20%	13.91%
Total of US PMOI (a)	3,532,550	100.00%	60.87%	31.12%
US Pacific Islands Territory (PIT)	EEZ km^2	% - total PIT	% - total Pac EEZ	% - total EEZ
HAWAII MAIN ISLANDS	896,002	39.45%	15.44%	7.89%
GUAM	221,899	9.77%	3.82%	1.95%
NORTHERN MARIANAS	748,867	32.97%	12.90%	6.60%
AMERICAN SAMOA	404,367	17.80%	6.97%	3.56%
Total of US PIT (b)	2,271,135	100.00%	39.13%	20.01%
	EEZ km^2			% - total EEZ
US Pacific EEZ a+b	5,803,685			51.13%
US total EEZ *2	11,351,000			

*1 Midway Islands. *2 All EEZ data from http://www.seaaroundus.org, except total US EEZ

Table 4.6 EEZ of United States territories in the Pacific (made by Author)

The reason for the high number of United States territories in the Pacific is the result of expansionism after US independence. Economic issues led to a need for safe ports for trading ships and bases for whaling, which started around 1850. It is important to understand United

States expansionism and colonization, the Northwest Ordinance of 1787, the Guano Islands Act of 1856, and Insular Cases of 1901 (Stayman 2009: 5-7).

Next to the Declaration of Independence, the Northwest Ordinance was one of the most important turning points in US history. This dictated that existing states would not expand, but the number of states could increase in the western regions of the North American continent. Any newly obtained land would be incorporated as a territory, and when the resident population grew to more than 60,000, this territory could apply to become a state (Stayman 2009: 6-7).

As a result of the Spanish War of 1898, the United States also obtained the Philippines, Puerto Rico and Guam. There was some discussion on whether the United States would give equal citizenship to these island people, with a different skin colour and culture (Torruella 2007: 298). The debates on this issue are referred to as the Insular Cases of 1901 (Stayman 2009: 7). As a result of court action, these areas were categorized as 'Unincorporated territories', the people of which did not have US citizenship. Some of the constitutional rights of the United States could be applied to these areas, but they could never become states. Although the Philippines eventually became an independent country, the others did not and similar regions now include: Guam, the Northern Mariana Islands, Puerto Rico, the Virgin Islands of the United States, and American Samoa. Today, they exist as territories of the United States, but the people of these territories do not have US citizenship. The implications of not having citizenship are profound. For example, Guam can send a representative to the United States Congress, but its people do not have voting rights. This means that the United States Federal Government places a lower priority on welfare, development and other social issues, including Guam's telecommunication service (Stayman 2009: 8-10).

Recently, the Northern Marianas Island government suffered because they did not take any action regarding the WTO regulations, which deregulated the garment industry (Global Investment Centre 2011: 15, 113). The Marianas' economy has been heavily dependent on its garment factories, including imports of cheap Asian labour. After the deregulation of garment production, Marianas could not compete with other countries and all of the factories were closed (Global Investment Centre 2011: 15, 113). There is a minor independence movement within these territories, although, as the local people can carry US passports and receive a minimum amount of social security, the call for independence may not be widely accepted.

The United States controls many non-inhabited islands in the middle of the Pacific. One innovation from this time of US expansion was the 1856 Guano Islands Act (Stayman 2009: 5). In effect, it allowed any United States citizen to claim as US territory any island which contained Guano (Phosphate):

> Whenever any citizen of the United States discovers a deposit of guano on any island, rock, or key, not within the lawful jurisdiction of any other government, and not occupied by the citizens of any other government, and takes peaceable possession thereof, and occupies the same, such island, rock, or key may, at the discretion of the President, be considered as appertaining to the United States (The United States Code, TITLE 48 – TERRITORIES AND INSULAR POSSESSIONS, CHAPTER 8 – GUANO ISLANDS, §1411. Guano districts; claim by United States).

As a result of this Act, the Kingman Reef, Baker Island, and Jarvis Island became territories of the United States, and were used for nuclear testing after the phosphate supply expired. In 2008, President Bush set aside the area covering these islands as the largest national marine sanctuary in the world. Thus, in claiming territories in the Pacific Ocean, the United States established its right to develop these areas, along with an obligation to protect them. Inhabited islands, such as American Samoa, Hawaii and Guam, whose inhabitants were not allowed to become US citizens in the past because of the colour of their skin, now needed to establish

good quality communication with the outside world, including the US and other countries. Non-inhabited US islands, such as Kingman Reef and Baker Island in the Pacific, also needed reliable communication with those that cared for the island environment and resources, including the EEZ. These telecommunication services had to be supported and managed, in terms of technical, financial and policy requirements, by a federal agency of the United States.

4.2.4 Japan in the Pacific Islands

Japan also has a history of colonizing Micronesian Islands after World War I. The Japanese entered this war at the request of their British allies, in order to protect Australia, New Zealand, the Pacific, and later, the world (Hirama 1998: 17-37). In 1922, as a result of the Treaty of Versailles, the Micronesian islands, which Germany had occupied, became the mandated territory of Japan. About 100,000 Japanese immigrated to these islands, mainly from Okinawa. Even after Japan left the League of Nations in 1933, it retained these islands as mandated territories. As part of its colonial policy, even under administration of the Japanese Navy (1914-1918), the government provided health, education and security services to these territories, not only for Japanese immigrants, but also for the local indigenous people (Iwaki n.d.). The economy was boosted and export revenue was included in the island territories' administration budget (Yanaihara 1963: 359-360). Deep sea fishing was started in the Pacific by Okinawan fishermen (Yanaihara 1963: 26-27). During World War II, the Japanese military expanded into Papua New Guinea, the Solomon Islands, and Kiribati. During its administration, many indigenous Pacific Islanders were schooled by Japanese teachers. After the war, the descendants of Japanese settlers and those who had obtained schooling from them became the political leaders of Pacific countries, spearheading their independence. These include the Hon. Toshiwo Nakayama of the Federated States of

Micronesia, the Hon. Kuniwo Nakamura of the Republic of Palau and Sir Michael Somare of Papua New Guinea (Hanlon 2014, Sayson 2001, Somare 1975).

After the war, in 1954, Japanese fishing boats were irradiated in US nuclear tests at Bikini atoll in the Marshall Islands. This event led to an anti-nuclear movement in Japan, and "the peaceful use of nuclear energy" was subsequently introduced to Japan by the United States. In 1980, the Japanese government announced its disposal of nuclear waste in an area to the northeast of the Ogasawara Islands, but encountered strong resistance from the Pacific Islands. In 1985, Japanese Prime Minister Yasuhiro Nakasone visited the Pacific Islands and announced that Japan would no longer dispose of nuclear waste in the Pacific Ocean. In the 1990s, Japan began shipping plutonium through the Pacific Ocean (Hayakawa 2012: 227-228). Also, it should be remembered that Japan is the main fishing nation in the Pacific Ocean, which is now within the EEZ of many Pacific Island Countries (Powles 2002: 60). These fisheries became a primary source of revenue (Cicin-Sain and Knecht 1989: 184-189). The official quantity of Japanese Development Aid to Pacific Island Countries is only 1-2% of the total ODA budget, but this still falls within the top three tiers of aid for Pacific Island countries (Table 4.7). For example, in 2015, ODA for Pacific Island Countries totalled 135.53 million US dollars (1 dollar = 100 yen), which accounted for only 1.03% of Japan's total bilateral ODA.

Recipient Country	First Donor		Second Donor		Third Donor	
Kiribati	Australia	27.04	NZ	11.33	Japan	10.80
Samoa	Australia	31.44	NZ	21.59	Japan	10.99
Solomon Islands	Australia	212.10	NZ	31.60	Japan	19.00
Tuvalu	Australia	8.00	Japan	7.00	NZ	7.00
Tonga	Australia	27.00	NZ	14.00	Japan	11.00
Nauru	Australia	20.00	NZ	2.00	Japan	1.00
Vanuatu	Australia	60.00	NZ	15.00	Japan	12.00
PNG	Australia	446.30	NZ	20.90	Japan	18.90
Palau	US	13.14	Japan	11.63	Australia	3.84
Fiji	Australia	52.15	Japan	14.14	EU	10.25
Marshall Is.	US	59.41	Japan	8.60	Australia	3.86
FSM	US	109.20	Japan	14.80	Australia	3.70

Million US Dollar, Average of 2013-2014, DAC; Data from Ministry of Foreign Affairs of Japan;
http://www.mofa.go.jp/mofaj/area/pacific.html Accessed 20 June 2016
Table 4.7 Top 3 Donor Countries of Pacific Island Countries

As a leading economic power in the Pacific, Japan has close historical and geographical ties with the Pacific Islands. Development in the Pacific Islands, including ICT, is important for the Japanese and Pacific Island economies, welfare and education.

4.2.5 Summary

This historical review, covering 50,000 years of Pacific Island history, aimed to show a perspective on human mobility. People cross vast oceans for many reasons, most significant of which are colonization, immigration, fuel supply, mining and fishing. As an integral part of such historical mobility, people have been sharing information across the Pacific Ocean for many centuries before the rise of telecommunications technology. For this, they used traditional technology, such as drums, smoke signals, songs, stories and other forms of oral expression. The arrival of Europeans and others in the Pacific, beginning in the 15th century,

led to a variety of economic developments and social changes. Given these links, telecommunications technology invented in Europe and the US also reached the Pacific in the twentieth century.

4.3 Background of Telecommunication development in the Pacific

This section explores the development of telecommunications in the Pacific Islands from 1902, when the first communication cable was laid across the Pacific. This was the period in which much of the expansion of the imperial Western powers took place. This will be followed by an examination of the current telecommunication regime, including an overview of deregulation and competition in Tonga, Papua New Guinea, Samoa and Fiji.

4.3.1 Western powers in the Pacific and communication marine cables

The first telegraph cable was laid across the Pacific Ocean in 1902. Beginning at Vancouver Island and continuing to Fanning Island, Fiji and Norfolk Island, it then separated into two cables, one for Australia and the other for New Zealand (Headrick 1991: 97). This ensured that all countries in the British Empire were connected by the 'All Red Line' (see Figure 4.3). Of course, this communication infrastructure was not developed for Pacific Island people, but for imperial economic and military use. Furthermore, for security purposes, the British Empire wanted its communication network to be excluded from bridging with any networks belonging to other nations (Headrick 1991: 98-99).

> Great Britain had finally achieved the ultimate goal of communications strategy. Its own cable network was invulnerable to attack or interference, and it had the ability to spy on its enemies or isolate them from the rest of the world. It was an important weapon in the world wars to come (Headrick 1991: 89).

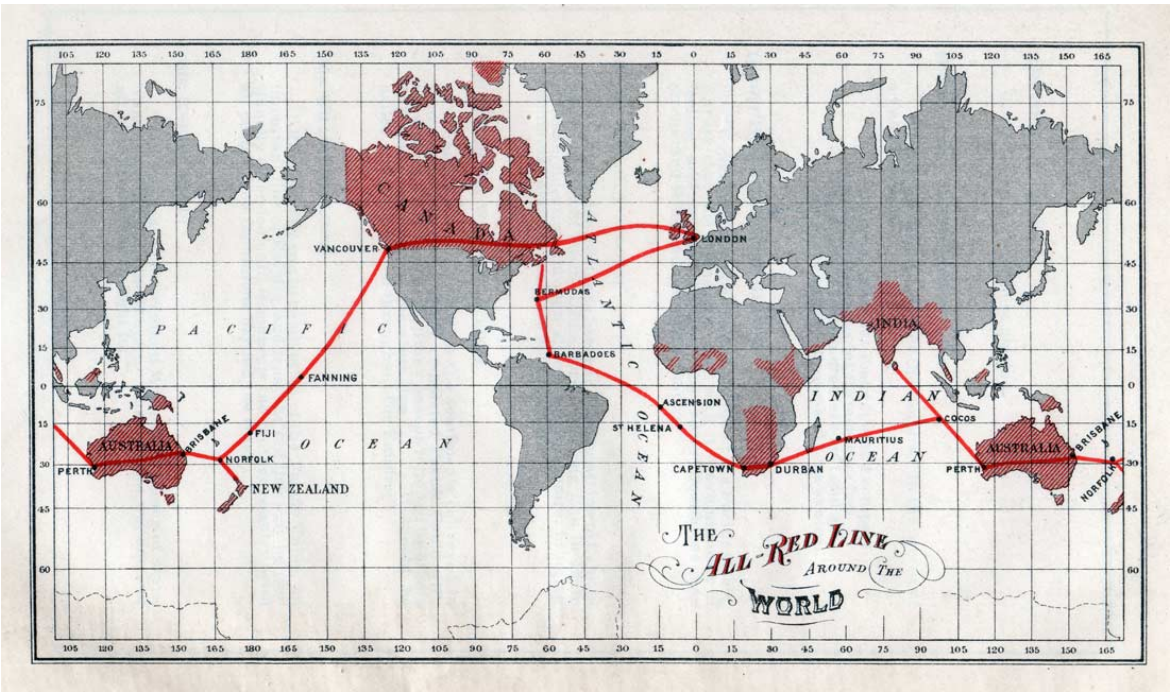


Figure 4.3 From George Johnson (1903), 'The All Red Line: The Annals and Aims of the Pacific Cable Project'

This policy of maintaining a British monopoly in international telecommunication led to the expansion of communication cables in the Pacific Ocean by non-British colonies. One example of this was the collaboration between the United States and Germany towards a communication cable spanning across the Pacific and connecting Germany to Asia. In 1905, the link bridging mainland United States with the Asia Pacific region was the German territory of Yap. First the Yap-Menado, then the Yap-Guam line and, in the same year, the Yap-Shanghai line was launched (Headrick 1991: 109). The Yap-Guam line was connected to Midway-Honolulu-San Francisco before it reached New York. From New York, via the Azores Islands in the North Atlantic, this cable was finally connected to Emden, north of Germany (Headrick 1991: 80-82). Again, the German Telegraph cable was launched for administration of the German Empire and for economic and military purposes, not for the people of Yap Island (Takaoka 1954: 405-412).

Headrick described this cable development in his book, *The Invisible Weapon: Telecommunications and International Politics, 1851-1945* (Headrick 1991). Britain enjoyed a monopoly and owned over half of the world's cables, even though this ratio gradually declined over time. In 1892, British ownership was 66.28% of the world's total, in 1908, it was 56.22%, and by 1923, it had declined to 50.54%. The United States, on the other hand, drastically expanded its cable network. In 1892, it had 38,986 km of cable, but after thirty years, the total length had expanded by more than triple, to 142,621 km, which accounted for 24.2% of the world's cable network. The French, who also had territories in the Pacific, owned around 10% of the world's cables, increasing to almost three times the initial quanity over thirty years (21,859 km in 1892, 64,933 km in 1923). After the three major powers, Britain, the United States and France, both Germany and Japan became major players in the cable network, having had an opportunity to occupy territory in the Pacific. Germany, which united in 1870, changed its colonial policy under Wilhelm II and expanded its power and territory, also causing tension among the Western countries (Takaoka 1954: 548-567). In 1908, Germany possessed 33,984 km of cables, or 7.18% of the world's total. After WWI, Japan also expanded its cable network to 14,463 km, after obtaining the Micronesian islands as compensation for protecting her allies, such as Britain, Australia and New Zealand, from Germany (see Table 4.8 and Figure 4.4).

	1892			1908		1923		
	Number of cables	Length (km)	% of World total	Length (km)	% of World total	Number of cables	Length (km)	% of World total
Britain	508	163,619	66.28%	265,971	56.22%	795	297,802	50.54%
America	27	38,986	15.79%	92,434	19.54%	147	142,621	24.20%
France	74	21,859	8.85%	44,543	9.41%	108	64,933	11.02%
Denmark	82	13,201	5.35%	17,768	3.76%	26	15,590	2.65%
Germany and Netherlands				33,984	7.18%			
Japan						214	14,463	2.45%
Others	535	9,206	3.73%	18,408	3.89%	2,276	53,819	9.13%
Total World Cables	1,226	246,871	100.00%	473,108	100.00%	3,566	589,228	100.00%

Table 4.8 Distribution of Cables around the World in 1892, 1908 and 1923 (Data from Headrick 1991).

During the negotiations for cables across the Pacific, small Pacific Islands were annexed by Britain and the United States. In 1888, Fanning Island was formally annexed by Britain. This island is located in the middle of the Pacific and is currently within the territory of the Republic of Kiribati. The annexation occurred as a result of a British Dominion government-held Conference in 1877, at which it was decided that any cable had to keep within (or would be restricted to) British territory. The other island was Necker Island, which is located to the northwest of Hawaii. In 1894, the colonial conference at Ottawa endorsed the cable project from Vancouver Island to Necker Island, and from there, to the British Fanning Island. There was an attempt to raise the British flag on Necker Island, but the provisional government of Hawaii quickly sent a ship to annex it themselves (Headrick 1991: 96) (see Figure 4.5).

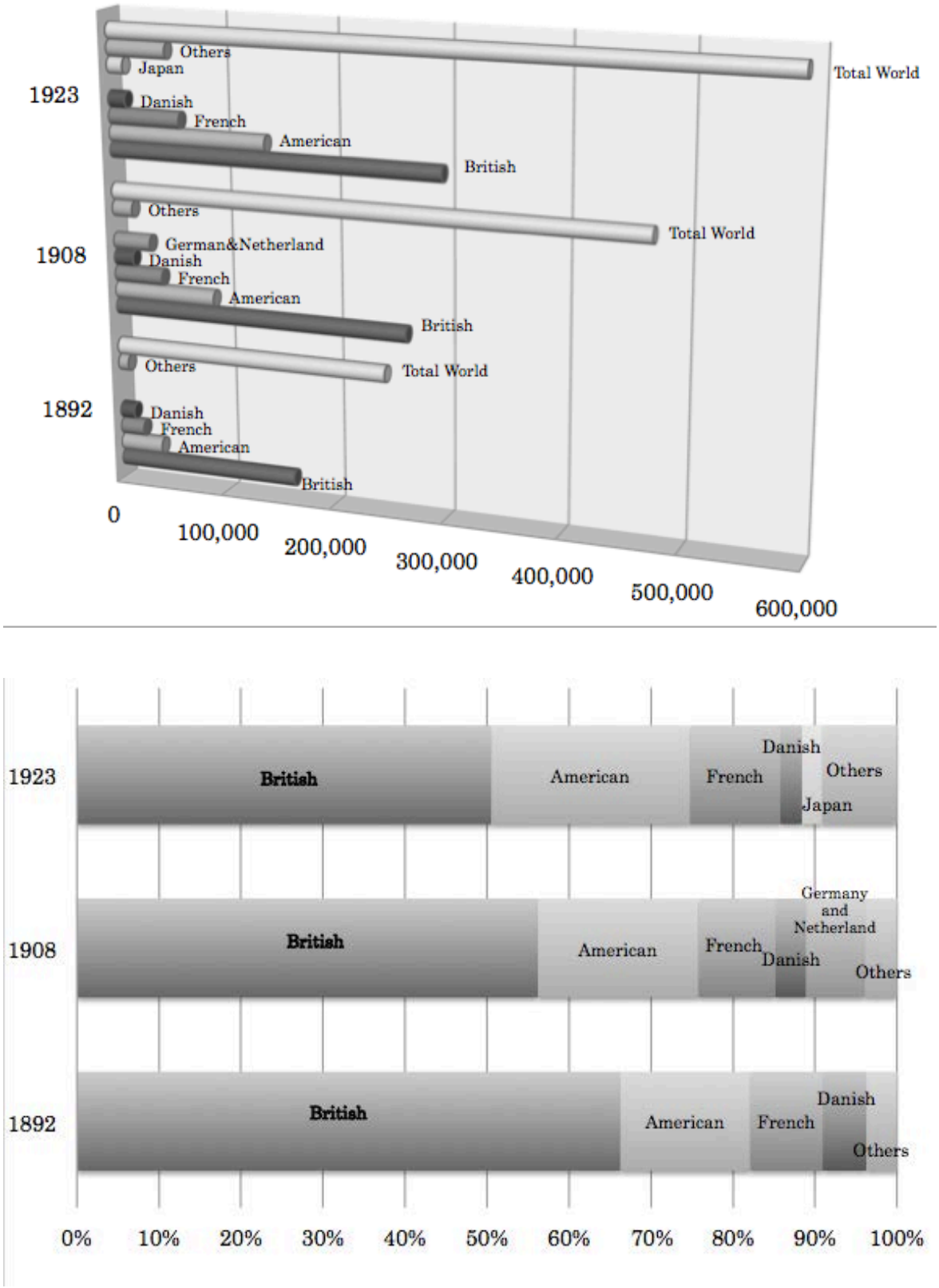


Figure 4.4 Distribution of Cables around the World in 1892, 1908 and 1923 (Data from Headrick 1991)



Figure 4.5 Ceremony to annex Mokumanamana (Necker Island) for the Provisional Government of Hawaii. (Source: Ben H. Norton – Bernice P. Bishop Museum, taken from Wikipedia)

Although cables connected the Pacific to Europe, it was high frequency (HF) radio that was used to communicate within Pacific Countries. High frequency radio, which is not costly, does not need a cable and is easy to operate and maintain. It was and is widely used in the Pacific Islands. From the 1920s until World War II, HF radio technology was introduced and connected in the Pacific Islands by the Western colonial administrations. HF radio was the most economic means for village administration in the Pacific Islands, and for colonial officers to connect to larger governments. However, as the colonial administration did not spend enough to upgrade facilities, these communication systems were significantly limited in their use for domestic and international communication (Ogden 2000: 464).

Ogden explains:

> In 1957 nearly a century after the first telephones were introduced in the Pacific, the first undersea telephone cable was installed between Hawaii and the western coast of the United States. However, it was not until the mid-1960s that transoceanic telephone cables connected North America with Asia, Australia and New Zealand. Even in these instances, it was only the islands within routing path of the undersea cables that were fortunate enough to have land-based relay stations – namely, Hawaii, Guam, Fiji and Papua New Guinea (Ogden 2000: 464).

We can see the geopolitical reasons for this connection of undersea cables in the 1960s. Britain joined the European Economic Community in 1973, cutting most of its strong economic ties with Australia and New Zealand, which subsequently strengthened their already existing ties with other countries, such as Japan. A commerce agreement between the governments of Japan and Australia had been signed as early as 1957, and brought about a need for a high volume of quality telecommunication services linking Japan and Australia across the Pacific Ocean.

Of those islands that were connected to undersea cables, Hawaii and Guam both have large United States military bases and thus need a strong communication system to connect with the American mainland. In the 1960s, only Samoa and Nauru had gained their independence, but neither was connected to an undersea cable at that time. Fiji and Papua New Guinea in the 1960s were still territories of Britain and Australia respectively. However, they were already connected to an undersea cable, due to their large economies of minerals and sugars that were owned and operated by colonial countries. Thus, as seen above, telecommunication services were not initially developed for Pacific Island people, but for the colonial powers to manage their militaries and economies.

Regional government entities endeavoured to improve the backwards status of telecommunications through regional cooperation. The South Pacific Forum (currently known as the Pacific Islands Forum) was established as a regional government organization in 1971.

These governments also formed the South Pacific Bureau for Economic Cooperation (SPEC) for the purpose of economic development, including telecommunications. SPEC had studied the possibility of a regional telecommunication network, but at that time, both satellite and undersea communication networks were too expensive for Pacific Island Countries (Ogden 2000: 464). In 1976, due to changes in the pricing policy of INTELSAT, the Pacific Islands were able to gain affordable satellite communications (Ogden 2000: 464-465). From the mid-1970s to the mid-1990s, the Pacific Islands obtained satellite communications for use in their daily life, but this was restricted, as only limited urban areas could have access, and the international costs were higher than to between small island countries. The 2006 World Bank Report reveals that:

> Telephone access is largely limited to urban areas in the Pacific. In Kiribati, Marshall Islands and Papua New Guinea, between 85% and 100% of main lines are in urban areas. In FSM and Samoa urban mainlines account for 70% and 72% respectively (World Bank 2006: 31).
>
> In all Pacific countries in this review, international telecommunications services are provided by monopolies. Charges for internet services and international calls from the Pacific are higher than in other small island countries, but local and mobile rates are similar (World Bank 2006: 17).

4.3.2 Summary

The British policy on communication cables was both physically and politically dominant in the world. As a result, some small Pacific Islands were annexed in order for the British to set up the necessary cables to create their network. This communication policy and the resulting monopoly remained until very recently, after existing for more than 100 years in the Pacific Islands. Although the communication cable and HF radio were introduced to the Pacific at an early stage, they were used only for colonial administration in the urban centres, and not for

the rural Pacific Island peoples. Even after the independence of many Pacific Island countries, the majority of their residents could not gain access to telecommunications.

4.4 Current issues of Telecommunication – Deregulation and Competition

Deregulation and market competition accelerated the introduction of more affordable new technologies and services with wider coverage, that is, Universal Service. This happened after the United States began to deregulate its own telecommunication services in the middle of the 1980s, followed by Japan and the European countries in the 1990s, as discussed in the previous chapter. Countries from Asia and Africa followed suit in the late 1990s, with support from international organizations. As Bhuiyan argues:

> The World Bank, ITU, and WTO have been the key international bodies to spearhead telecommunications deregulation in the global south states. The World Bank established telecommunication and deregulation as a development priority, the WTO Telecom Agreement enlisted specific commitments from many states for deregulation, and the ITU promoted deregulation by placing an increased weight on the opinion of business in telecommunication policymaking. Of these organizations, the US can easily dominate the WTO and the World Bank (Bhuiyan 2014: 34) (Underlined by Author).

Over 100 years ago, control of information flow in the Pacific with undersea cables was of utmost importance for Western expansion. As a result of international politics, control over modern technology and telecommunication regimes, such as an ability to influence deregulation and competition for political and economic advantage, is still of paramount importance to developed countries. Deregulation, reform and competition in their telecommunication regimes only came to the Small Island Developing States (SIDS) after 2000. In the Caribbean region, Jamaica was the first country to liberalize telecommunications in 2001. In the Pacific Islands, Tonga was the first country to liberalize in 2003, followed by

Samoa, Papua New Guinea and Fiji. ‘Ofa (2012) questions why SIDS resisted telecommunication reform, while other developing countries in Asia and Africa had already deregulated in the 1990s. At this point, I would like to review the deregulation and subsequent competition within the Pacific Islands, using ‘Ofa’s (2012) study.

4.4.1 Kingdom of Tonga

The first country in the Pacific to put a stop to this monopoly arrangement with a former colonial country’s telecommunication company was the Kingdom of Tonga.

> In an arrangement common to most Commonwealth countries in the Pacific and Caribbean, Cable & Wireless from the United Kingdom established the main telecommunications infrastructure for the island kingdom in 1978. A joint venture agreement with the Tongan Government lasted 22 years and provided all telecommunications services for inter-island and international communications (‘Ofa 2012: 49-50).

Tonga is different from other Pacific Island Countries, as they were never colonized by any European country. In 1875, King George Tupou I declared a constitutional monarchy, and Tonga became a British protectorate in 1900 under a Treaty of Friendship, which only ended in 1970. By 2000, Tonga passed two pieces of legislation on the regulation of the telecommunications sector. One of these was the Tonga Communication Corporation Act 2000, which absorbed Cable & Wireless. The Tongan government established a new company, Tonga Telecommunications International Limited, which was renamed the Tonga Communication Corporation (TCC) in 2001. Tonga was the first country to dispose of Cable & Wireless.

The other legislation was the Communication Act 2000, which established the Department of Communication as the central regulatory body. This legislation set rules for consumer

protection, tariffs, universal service, competition practice, arbitration, and so on (‘Ofa 2012: 50).

In the same year that this new legislation was introduced (2000), the domestic mobile company, TONFON, received its licence. This was subsequently acquired by Digicel in 2007. Commenting on the newly introduced legislation and new companies, ‘Ofa says:

> TONFON competed aggressively with TCC for mobile services in the first few years of operation. Competition in mobile services was intense as both providers attempted to improve service quality at a lower price. In less than two years, Shoreline Communication Incorporated established a Global System for Mobile Communications (GSM) network in collaboration with Globecomm, a United States based communication company, while TCC offered its GSM-900 network earlier in 2001 (‘Ofa 2012: 54).

As the result, tele-density for both mobile and fixed lines increased fourfold from 2001 (10.8 phones per 100 people) to 2005 (44 phones per 100 people).

4.4.2 Samoa

After competition was introduced to Samoa in 2006, mobile tele-density increased thirty-fold from 2002 (1.5 per cent) to mid-2007 (46 per cent) (‘Ofa 2012: 64). One reason for the difference between Tonga and Samoa is geographical. Tonga has 177 islands, extending about 800 kilometers in a north-south direction. On the other hand, Samoa has only two major islands, Upolu and Savai'I, which are located just 10 kilometers apart, with two smaller islands between them, Manono and Apolima.



Figure 4.6 Map of Samoa and Tonga. Adapted from TE ARA, Encyclopaedia of New Zealand Available from: http://www.teara.govt.nz/en/map/1253/tonga

4.4.3 Papua New Guinea

Papua New Guinea has the largest population of all Pacific Island Countries, with about 8 million people and more than 800 languages. This introduced competition into the mobile

sector in 2006, after 55 years of monopoly service by Telikom PNG Limited, which was 100% government-owned (‘Ofa 2012: 58, 62). As a result of competition with Telikom PNG and Digicel PNG, mobile penetration increased from 2% in 2006 to 45% in 2014 (World Bank, Mobile cellular subscriptions (per 100 people) Available from http://data.worldbank.org/indicator/IT.CEL.SETS.P2/countries/1W?display=default Accessed 10 August 2015).

4.4.4 Fiji

The government of Fiji ended its exclusive telecommunication rights for local, international and mobile services in 2007, and in 2008, competition was opened to any companies (such as Vodafone Fiji, Digicel Fiji and Telecom Fiji). The Telecommunication Bill 2006 was aimed at deregulation, and included ‘Universal Service’ (‘Ofa 2012: 69-70). In 2007, mobile penetration increased from 63 subscriptions per 100 people to 106 per 100 people in 2013 (World Bank, Mobile cellular subscriptions (per 100 people) Available from http://data.worldbank.org/indicator/IT.CEL.SETS.P2/countries/1W?display=default Accessed 10 August 2015).

‘Ofa examined five countries, Tonga, Samoa, Fiji, Papua New Guinea and Vanuatu. Vanuatu will be discussed in detail in the following chapter. However, all five countries succeeded in deregulation and in introducing competition, especially in connection to mobile phone services that do not require ‘sunken’ costs, such as the use of radio towers or much more expensive cables. In all five countries, in which a single mobile phone company was leading the competition, Digicel was Irish-owned.

4.5 Digicel

Table 4.9 shows the time of deregulation in five Pacific Island countries and the year when the private mobile phone company, Digicel, appeared in each. As seen in the table, except in Tonga, the Irish-owned 'Digicel' entered each country soon after or almost at the same time as deregulation of the telecommunications industry. Digicel played a significant role in the deregulation and competitive mobile phone markets of Samoa, Fiji, Papua New Guinea and Vanuatu.

	Digicel Operation Start*	Deregulated time
Tonga	November 2007	2000**
Fiji	October 2008	2008**
Samoa	November 2006	2005**
PNG	September 2006	December 2005 ***
Vanuatu	2007	2007****

Table 4.9 Digicel operation and Telecommunication Deregulation

Data from

* *'Ofa 2012: 85*

** *'Ofa 2012: 84*

*** *'Ofa 2012: 98*

**** *'Ofa 2012: 75-76*

Denis O'Brien, who was born in Ireland in 1958, is the owner and founder of Digicel. He is listed as one of the World's Top 200 Billionaires and has been for many years. After graduating from university, he worked in a bank, and subsequently started a radio and media

business in Ireland. In 1991, he started a telecommunications company, which he sold to British Telecom in 2000 (Kennedy 2011). In 2001, O'Brien started Digicel in Jamaica. He chose this location because:

> … O'Brien spotted a 3-inch-square ad in the Financial Times inviting bids for a mobile licence in Jamaica. He likes to say he was drawn to the region because of all the Irish 'troublemakers' banished there by the English after a 1649 invasion. But the real pull was that this was a country where only the elite had access to phones. In a place like that, he could get the masses to love him (Condon 2008).

In his keynote address on December 5th 2012 at the 27th Annual Irish America Business 100 awards luncheon, O'Brien explained that tens of thousands of Irish had been sent to the Caribbean by Cromwell, and that the legacy of these Irishmen can be seen today in the language and street names of Jamaican towns. The Irish also fought against slavery with the local islanders, and this connection helped O'Brien's business in Jamaica, since the Irish are fondly remembered. He also mentioned that Irish priests had educated local political leaders in the Caribbean and other places around the world.

He then described an encounter with the local Prime Minister when he first visited Samoa to discuss the establishment of Digicel. O'Brien tried to negotiate a duty free waiver for Digicel equipment with The Honourable Tuilaepa Aiono Sailele Malielegaoi. The Prime Minister mentioned that he knew everything about Ireland, for example, its poetry and literature, because he had been taught by the Christian Brothers in Auckland. Then, according to O'Brien, the Prime Minister told him, "Mr O'Brien, I will give you duty free waiver on behalf of Christian brothers"

This keynote address was presented to an Irish American audience, so for the sake of his business, O'Brien needed to present the Irish legacy to the world in glowing terms. However,

this still shows us something of his business philosophy. In his speech, he also talked about a different philosophy of capitalism and the meaning of investing in poor countries, not only for profit, but also for the benefit of poor people. (See http://irishamerica.com/2013/01/2012-business-100-keynote-speech-by-denis-obrien/ Accessed 10 August 2015).

Thus O'Brien is not only making money (as one of the world's top billionaires) by providing affordable mobile phone service to the world's poor, but is also functioning as a philanthropist, helping others by doing business in those countries in which he has established the Digicel Foundation. For example, Digicel PNG Foundation, established in 2008 in Papua New Guinea, pledged USD 17 million to support remote and marginalized communities. O'Brien also established the 'Front Line' Foundation for the protection of human rights defenders (Weinberg 2011), as well as the 'Digicel Foundation' to support social and community development programs, such as schools and sporting activities ('Ofa 2012: 123-124).

Many billionaires use their own money, earned through business enterprises, for philanthropic activities, but O'Brien's philanthropy not only uses the profit from Digicel, but also operates through the mobile phone business itself.

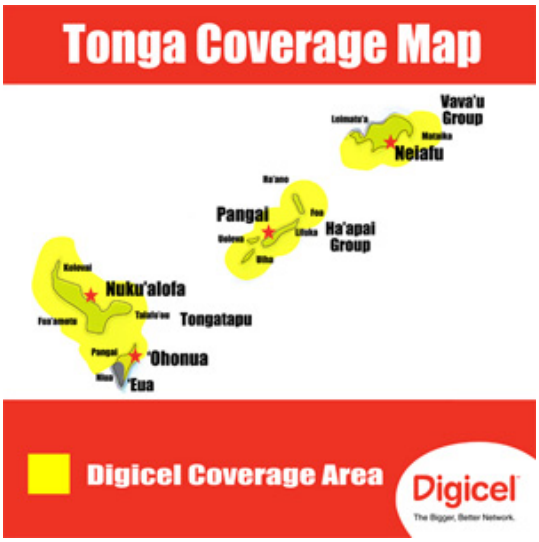
> In an April riot in Port-au-Prince, Haiti, the mob not only spared Digicel stores from its burning and looting but even gathered in front of a few of them and cheered. Says a jubilant O'Brien, as he reads an e-mail on the news, "They're calling us the Company of the People" (Condon 2008).

Digicel started operating in Haiti in 2005, when only 1-2% of the population had mobile phone subscriptions. By 2008, it had 2 million customers, or 64% of the market (Condon 2008). In the aftermath of the Haiti earthquake, Digicel supported the victims through its mobile phones:

> Cell phones kept people alive because there were people in the rubble who had their phones on them and they were texting to say "I am here" … What we did was, most of our customers would top [off their calling minutes] twice a day in very small payments. We said we were going to give $10 [worth of calling] to everyone… (Weinberg 2011).

By August 2015, Digicel was operating in six Pacific Island countries: Tonga, Samoa, Fiji, Papua New Guinea, Vanuatu and Nauru. Mobile phone coverage in those places extends almost across the entire nation. That is, Digicel provides Universal Service (See Figure 4.7, Coverage of Digicel). Digicel also provided free disaster warnings for Cyclone Pam, which laid a path of destruction along the entire length of the Vanuatu Islands in March 2015.

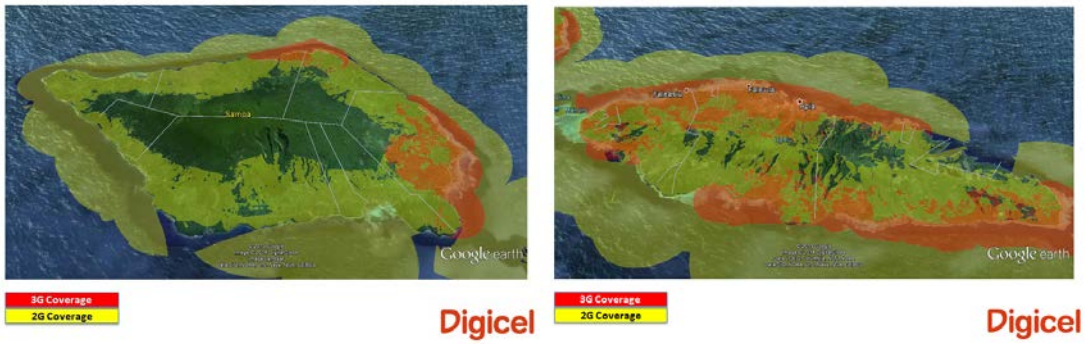
A. Tonga



Available from http://www.digiceltonga.com/en/coverage_roaming/coverage_map

Accessed 10 August 2015

B. Samoa



Savaii Island *Upolu Island.*

Available from http://www.digicelsamoa.com/en/coverage_roaming/coverage_map

Accessed 10 August 2015

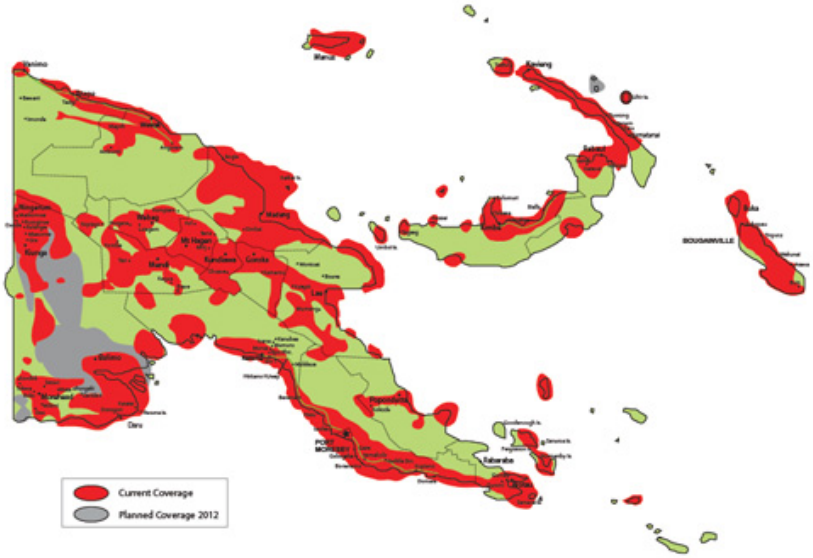
C. Fiji



Available from http://www.digicelfiji.com/en/coverage_roaming/coverage_map

Accessed 10 August 2015

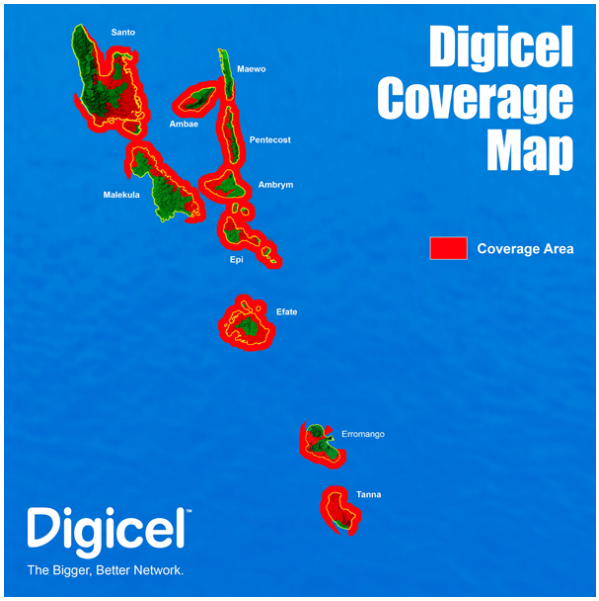
D. Papua New Guinea



Available from http://www.digicelpng.com/assets/uploads/map_PNG.jpg

Accessed 10 August 2015

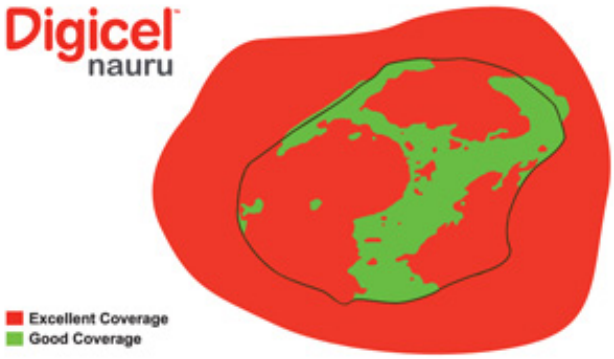
E. Vanuatu



Available from http://www.digicelvanuatu.com/en/coverage_roaming/coverage_map

Accessed 10 August 2015

F. Nauru



Available from http://www.digicelnauru.com/en/coverage_roaming/coverage_map

Accessed 10 August 2015

Figure 4.7 Coverage of Digicel

The role of Digicel is significant to any discussion of universal telecommunication service in the Pacific Islands. ‘Ofa looks at why Digicel succeeded, while local telecommunication companies failed. One of the key reasons was that Digicel was able to access international funding sources, such as the International Funding Corporation (IFC). Local incumbent companies also had the opportunity to apply for these funds, but may not have been approved, due to a lack of capacity or a proven track record. Second, as already mentioned, Digicel invested heavily in social and community programs. Third, Digicel entered a market that had been predominantly closed off and had no previous experience of competition. In addition, new, advanced mobile phone technology allowed Digicel to overcome any issues of geographical isolation. Fourth, Digicel employed a mass commercial advertisement strategy (‘Ofa 2012: 122-129).

‘Ofa does not consider the character of philanthropy or the company ethos in his assessment. On the other hand, Horst and Miller describe Digicel as a better company than the Cable & Wireless (C&W) British telecommunication company, which was established in the 1860s and enjoyed a monopoly in Jamaica and other former British colonies for over 100 years.

> Using idioms taken from the dominant Pentecostalism, there was a feeling listening to some people that C&W had reserved itself a place in hell and damnation. In contrast, in our first week of fieldwork an elderly man in Orange Valley made the rather extreme claim that ‘first there is God, then Digicel’ (Horst and Miller 2006: 28).
>
> In contrast, C&W was not just a company people disliked, but something that could cause visceral disgust that suggested almost satanic tendencies. It was common to place C&W within a general set of satanic and oppressive forces, which could include colonialism, slavery, Babylon and ultimately the Devil’s purpose (Horst and Miller 2006: 155).

O’Brien did not mention the British telecommunication company C&W in his keynote speech at the American Irish luncheon. However, both Jamaica and Ireland have a history of British exploitation and enslavement. If Jamaicans see C&W, the former colonists’ legacy, as the ‘Devil’, then the Irish and O’Brien may also see them in the same way. O’Brien’s business philosophy and company ethos may have been based on the Irish spirit behind an historical background of slavery, exploitation and violence against the Irish by the English.

Of course, as the founder and owner of Digicel, O’Brien found a business opportunity in providing mobile phone services to small island nations. He has also observed an inequity between developed and developing countries, especially between Britain and its former colonial nations in the Caribbean and Pacific.

I could not find any official criticism in the Pacific of his business, but only in his mother country, Ireland. Here, a lot of criticism has been levelled at O’Brien for financial scandals,

such as for the public water service (O'Shea, 2015). O'Brien also moved his residence to Malta to avoid paying tax in Ireland (*The Irish Times*, 5 March 2006).

4.6. Summary

This chapter has argued that the Pacific Islanders have been diverse and mobile for 50,000 years. People never stopped moving, with numerous waves entering and leaving the Pacific. This means that information has always been exchanged, delivered and shared over time, by multiple means, such as songs, stories, writing, radio, telephone and Internet. However, present-day telecommunication technology has drastically changed the global regime, including in the Pacific. A hundred years ago, the colonial countries launched communication cables and HF radio for their own purposes. From the 1960s, and even after the small islands had obtained their independence, there was a large divide between these and the developed countries. Finally, although the Pacific Islands were hindered in their deregulation of telecommunication services, the digital divide was essentially overcome with the introduction of competition into the mobile phone market after 2000. Universal Service finally reached the remote and rural areas.

In the next chapter, I will present the case study of Vanuatu, including an historical background of independence and development, along with the field study with a focus on the Capability Approach.

Chapter 5: Case study - Vanuatu ICT and Capability

As discussed in Chapter 4, some Pacific Island Nations deregulated their telecommunication regimes over the last decade from monopoly industries to those allowing for competition. As a result, rural and remote areas could access telecommunication services at an affordable price. This is the first time that telecommunication services, that is, Universal Service in the Pacific Islands, was available to everybody, since telecommunication was initially introduced into this region about one hundred years ago by the former colonial countries.

In this chapter, I shall examine the meaning of Universal Service for the people of Vanuatu, in a case study from the perspective of the Capability Approach and Amartya Sen's idea of Freedom of Choice and Achievement.

In 2007, the Vanuatu government deregulated its telecommunication service. Then, in 2008, Denis O'Brien launched the mobile phone company, Digicel, which subsequently reached most of Vanuatu's population, including the outer islands. The success and spread of Digicel in Vanuatu makes this country ideal for a case study. There are several additional reasons why I chose Vanuatu to illustrate Universal Service. First, I am familiar with the culture and people of Vanuatu through my experience heading many projects with the Sasakawa Peace Foundation. One of these projects was the Cultural Heritage training program at the local Cultural Centre from 2001 to 2003, while another involved Online course development with the USP law school, Vanuatu Campus, from 2001 to 2003, and again from 2006 to 2008.

Second, the required data needed for my research were readily available. I could access all documents, such as government policy papers, news articles and court cases related to these movements, and discussions in public media, mostly online. All of these data sources and references were critical for my PhD research and similar access to data and documents was

not possible for other Pacific Island Nations because the data was not available. Third, Vanuatu has a local think tank, the Pacific Institute of Public Policy, which has undertaken three series of national level surveys on mobile phones. These surveys utilized qualitative as well as quantitative approaches and their data has greatly assisted in defining basic changes of mobile phone usage within Vanuatu.

I stayed in Vanuatu from the end of July 2014 for five weeks with research permission from the Vanuatu government. While undertaking fieldwork, I was based in Port Vila, the capital of Vanuatu, but I did have the opportunity to visit Santo and Tanna to conduct interviews with ni-Vanuatu people.

Before introducing the findings of my field study I would like to offer a brief overview of Vanuatu's history, in particular on the independence movement, but also on the historical background of telecommunication in Vanuatu. I will outline the background of Vanuatu from a number of perspectives, starting first with its history, and then the tax haven system that has influenced telecommunication development. Second, I will explain how Vanuatu gained independence and examine the meaning of development. Third, I will explain the historical background of communications development under the colonial powers, followed by the current deregulation of monopolized telecommunications service. Next, I will review the series of reports on the current status of Vanuatu's mobile phone development. Finally, I will outline my field research.

5.1 Background of Vanuatu

5.1.1 Historical Background

With more than 82 islands, Vanuatu is located in Melanesia, in the western Pacific, at latitude 16° 0' S, and longitude 167° 00' E, which is northeast of New Caledonia and southeast of the Solomon Islands (see Figures 5.1 and 5.2). The first human colonization in Vanuatu was confirmed at around 3,000 years ago. These initial inhabitants were part of the Austronesian expansion of Lapita peoples, who originally came from south-east Asia. There is diversity in the 113 languages of Vanuatu, which are all Austronesian in origin. This, no doubt, reflects the complexity of interaction over a 1000 year period with other peoples to the west since the initial colonization of these islands. However, archaeologists and linguists are still debating the cause of this diversity (Tryon 1999: 109, 119; Donohue and Denham 2008).

In 1606, the Spanish arrived and founded a settlement on Espiritu Santo under the leadership of the Portuguese explorer de Quiros. The next Europeans arrived in 1768, when the French explorer Louis Antoine de Bougainville rediscovered the islands, and in 1774, the English explorer James Cook arrived and named the island chain as the New Hebrides (Spriggs 1997: Chapter 8). In 1825, European traders discovered sandalwood on Vanuatu, and European immigration started from this point. This was followed by blackbirding, which involved the abduction and forced labour of some 60,000 Melanesian people from New Guinea, the Solomon Islands, and Vanuatu for almost half a century, to work on sugarcane and cotton plantations in Queensland and Fiji (Matsuda 2012: 218-219).



Figure 5.1 Map of Vanuatu. Courtesy of Dr Stuart Bedford.



Figure 5.2 Location of Vanuatu.

Christian missionaries also arrived in the early nineteenth century, using Polynesian evangelists to make the initial contact. The British and French both had interests in the New Hebrides, leading to both governments agreeing to a condominium regime in 1906, with two schools, two hospitals, one British and one French. This was quite a unique form of colonial governance, and also the root of the current complex social and political framework of Vanuatu. Land was sold to the French and British at very low prices, or local people were

simply exterminated by Europeans (Lightner and Naupa 2005: 96, Speiser 1913: 35-37). During WWII, Santo Island was the main US military base for the Pacific theatre of war. The movement for independence began in the 1970s with local leaders, such as Father Walter Lini, who became the first Prime Minister of Vanuatu. While the British were in favour of independence, the French attempted to stop it. Finally, Vanuatu, with 113 languages spread over 82 islands, gained its independence in 1980.

The British government introduced a tax haven to the New Hebrides in 1971 (see below). This was supposed to have been part of a support scheme for the soon-to-be newly independent country. The condominium (French and British colonial) administration did not wish to levy income tax from its citizens, particularly those French citizens who owned most of Vanuatu's businesses, but it needed income for the running of the government (Lightner and Naupa 2005: 115). Tax havens, however, allowed for the development of a unique character of financial activities and telecommunications in Vanuatu.

5.1.2 Tax haven

The success of tax havens as centres of mobility and liquidity always depends on telecommunications. We could say that part of the reason for telecommunications development in Vanuatu was because of tax havens. This thesis does not focus on the tax havens, which would require a discussion on such issues as international relations, transnational crime and monetary schemes. Instead, it focuses on development theory. However, it is important to briefly touch on tax havens, because of their role in telecommunications (Rawlings 2004; Fossen 2003).

The tax haven was introduced to Vanuatu by the British government in 1971, the same year as the beginning of a tangible independce movement. Rawlings outlines the background of the tax haven after the establishment of the international monetary regime (the Bretton Woods system) in 1944, and how and why US dollars were transferred from New York to Britain and Europe. This movement of money continued in order to avoid monetary regulation, this time from Europe to the British colonies in small island nations and enclaves. Vanuatu was the first tax haven to be created in the South Pacific as an initiative of the British government. The launch of a tax haven in Vanuatu attracted many financial operations as well as some of the world's wealthiest people. In the 1970s, this led to a subsequent boost in infrastructure in the main urban areas of Vila on Efate and Loganville on Esprit Santo, such as houses, road and telecommunication. While the wealthy British government preferred to utilize the tax havens in Vanuatu, the Australian and French governments did not have large amounts of money, and had resisted the introduction of this scheme to avoid losing tax revenue (Rawlings 2004).

According to Fossen (2003), offshore gambling in the South Pacific began in Vanuatu in 1989, on the initiative of a private company. In the mid-90s, offshore gambling in Vanuatu was developed by the Totalisator Agency Board (TAB) of Australia and came to involve criminal personnel as well as former Australian Prime Minister, Bob Hawke. After the Internet was developed in 2000, Internet gambling was introduced into Vanuatu by the Australian casino tycoon, James Packer, owner of the Crown Casino. However, the underdeveloped telecommunication infrastructure was a major obstacle to the use of credit card payments for internet gambling.

> In May 2001, My Casino announced plans to close its Internet gambling sites based in Vanuatu, admitting that it had lost more than A$4.4 million (US$2.2 million) by accepting bets charged to more than one thousand false and stolen credit-cards and paying winnings to other accounts. … Offshore Internet Gambling sites are particularly vulnerable to hacking since they contain a great deal of credit-card information and are located in offshore financial

> centres that often lack the technological sophistication of metropolitan data centres (Fossen 2003: 18).

Another reason for the expansion of Internet gambling was the events of 9/11 in 2001.

> With increased international attention directed towards tax havens following the September 11, 2001 terrorist attacks on New York and corporate failures such as the Enron energy company in the USA, secrecy and confidentiality are no longer considered an appropriate way of making money (Lightner and Naupa 2005: 155).

Many online gambling sites were closed in 2003, including the Crown Casino in Port Vila, after losing approximately A$5.6 million (Fossen 2003: 20). The cause of this was "anyone who had connections with the United Sates or other countries where law, public officials, credit-card companies, or banks had made collection of payments precarious" (Fossen 2003: 20).

As can be seen in the examples above, the tax haven attracted many financial operations, including offshore gambling, but an underdeveloped local telecommunication network was an obstacle to its success, leading to further developments in telecommunications for this explicit purpose. We cannot overlook the role of the tax haven as an element of the independence movement. However, independence and development have a number of causes and meanings for the ni-Vanuatu. The following section will address this issue.

5.2 Melanesian Way – meaning of development for Vanuatu

> The main effort will then be to really polish up our very own Pacific and Melanesian ideas, to make them the basis of unity in our own country and within our region and to give us the necessary strength and direction to choose wisely what we want and do not want for the future (Lini 1980: 291).

The 1970s independence movement in Vanuatu provides us with a rich understanding of what development means for independence. Although the Vanuatu independence movement was a big issue, it is not the main focus of this thesis. However, since this thesis focuses on Development Theory, I would like to touch briefly on the independence movement as a background to further discussion. I will do this by focusing on the autobiography of the Hon. Walter Lini, the first Prime Minister of Vanuatu. I shall also refer to Ralph R. Premdas' discussion on 'Melanesian Socialism', for which Lini advocated. Second, I refer to *Melanesian Way*, by the PNG philosopher, lawyer and politician Dr Bernard Narokobi, who drafted Vanuatu's constitution.

5.2.1 Meaning of Development for Vanuatu

Beyond Pandemonium: From the New Hebrides to Vanuatu was published in the same year as Vanuatu's independence in 1980. In this book, Lini begins with his father's story and the importance of family values to Vanuatu's indigenous culture. As a Japanese woman, I was very impressed that Lini's father spoke to him about Japanese war prisoners in Santo during World War II, and that Lini included this story in his seminal work.

> My father still talks about the bombs that the Japanese dropped on Santo and still remembers vividly the concentration camp where the Japanese were kept and ill-treated (Lini 1980a: 9).

Why did his father keep talking about this story, and why did Lini think it important enough to write it down? I believe that there was strong resistance to European racism. Lini describes how Europeans mistreated his father and friends, and adds, "My family background and Pacific traditions influenced my development" (Lini 1980b: 10).

Lini then begins to describe his educational experience. There was a strong impetus from the Anglican church to use the English language for education. While studying in New Zealand, he was frustrated by study within a European context.

> By the end of that year I had become even more frustrated. Everything was being taught without any reference to my traditional thinking, to Melanesian culture and, the Pacific viewpoint (Lini 1980b: 15).

He later wrote "to the Education Director in the Anglican Church asking him to think seriously about including the teaching of Melanesian culture" (Lini 1980b: 15), but they did not include Melanesian culture in the school curriculum. As a result, he became the editor of a monthly magazine, *Onetalk*, which was distributed to the Solomons, New Hebrides, Kiribati and Tuvalu, and which helped people to think about the ways in which they would like their countries to develop. Again, we can observe that Lini was strongly resistant to the Eurocentric education system and eager to see his own traditional culture and history taught. Lini began to publish *New Hebrides Viewpoints* and established the New Hebrides Cultural Association, together with his colleague, Donald Kalpokas, in 1971. After three months, the Cultural Association launched the New Hebrides National Party, which led the movement for independence and later became the Vanuaaku Pati.

In this book, Lini introduces "an overall socio-economic development plan to be drawn up for a period of five years" as one of the Vanuaaku Pati policies. In terms of local economic development, the Vanuaaku Pati supported 'small scale producers', rather than the large scale monopoly production regimes. The Vanuaaku Pati also stressed 'Rural Development':

> Father Walter Lini says rural development is right at the heart of nearly all development aims of the Pacific Islands (see Lini 1980b: 30).

Lini discussed the fact that 80% of the population of Vanuatu lived in rural areas and therefore deserved high priority in development programs. At the same time, those in the rural areas are defined as the most resistant to 'change', another term for 'development'. However, Lini refused to accept that 'custom' was a constraint on development, and believed instead that the notion of 'custom' was perfectly satisfactory within modern development theory (Lini 1980b: 30).

In another book edited by Lini, *Vanuatu: Twenti Wan Tingting Long Team Blong Independens*, he claims that "Small is beautiful, small is powerful, and small is practical" (Lini 1980a: 291). This is the exact phrase that Ernst Friedrich Schumacher used in his book, *Small is beautiful* (Schumacher 1973). This book was very influential, not only within development circles, but also to a general audience, and Lini was clearly influenced by this idea of development.

Interestingly, the New Economics Foundation in the UK, which is one of Schumacher's circle, developed the 'Happy Planet Index', and in 2006, they selected Vanuatu as the happiest country in the world. According to the New Economics Foundation, its 'Happy Planet Index':

> measures what matters: the extent to which countries deliver long, happy, sustainable lives for the people that live in them. The Index uses global data

> on life expectancy, experienced well-being and Ecological Footprint to calculate this (New Economics Foundation Web Site http://www.happyplanetindex.org/about/, Accessed 10 April 2016).

It indicated that Vanuatu had perhaps achieved its development goals, with a focus on people, and which Lini introduced as the leader of the new country.

In this way, Lini formulated his idea of development for Vanuatu. First, he focused firmly on Melanesian traditions, not on European ways. Second, he focused on small scale and rural development, and more on people than on capitalism. Third, his idea did not mean staying in the past, but was similar to the modern theory of development. It is still at the forefront of theories of 'well-being' and 'human-security', for those actively involved in the present development arena.

5.2.2 Melanesian Socialism

Father Lini, who strongly supported Melanesian values for his new country, also proposed 'Melanesian Socialism', with the Vanuaaku Pati as a socialist party. Premdas examines Lini's 'Melanesian Socialism' in his 1987 paper, 'Melanesian socialism: Vanuatu's quest for self-determination'.

Lini stresses that his socialist ideology preceded that of Marx and Lenin, and was derived more from indigenous values. As such, he calls it 'Melanesian Socialism'. Premdas (1987) is more prescriptive, describing Lini's 'Melanesian Socialism' as "against their capitalist antithetical counterparts: communalism v. individualism; sharing v. self-interest; humanism v. materialism" (Premdas 1987: 142). Thus, Melanesian Socialism means communalism, sharing, and humanism, all of which are grounded in Melanesian culture that had been

ignored or discouraged during the period of European colonization. Premdas lists the sources of Lini's Melanesian Socialism as: Christianity, the 'Melanesian Way', which was developed by PNG political leaders (I will discuss this in the next section), and Tanzania's 1967 Arusha Declaration, which promoted socialism.

Lini was a Anglican priest, and educated in Christian theological seminaries in the Solomons and New Zealand. As previously described, there was strong pressure for Lini to study and develop his thinking within a European context. He had asked the church to include Melanesian culture but this suggestion was rejected. According to Lini, although Melanesian Socialism bears some resemblance to the basic Christian tenets, with an emphasis on mutuality, compassion, and caring for each other, he did not see the European planters, administrators and missionaries as sincere Christians (Premdas 1987: 144). However, as Premdas points out, Melanesian Socialists' opposition to capitalist, individualist and materialist values was itself a legacy of more than a century of colonial control. At the same time, Lini did not want to replace all things European, but to retain those European practices that were undoubtedly beneficial to Vanuatu. Premdas is critical of Lini's Socialism, arguing that it did not have any theoretical foundations, and was not practical for the reality of Vanuatu society. However, he also argues that the ideology of Melanesian Socialism could unite the country for the first time in Vanuatu's 3,000 year history. In this sense, Premdas argues that Melanesian Socialism, under the charismatic Lini, offered a vision for rival clans and divergent cultures with more than 100 languages (Premdas 1987: 159).

5.2.3 Melanesian Way

Dr Bernard Narokobi (1943-2010) wrote a series of articles on 'The Melanesian Voice' in the Papua New Guinea Newspaper, *Post Courier*, from 1976-1978. *The Melanesian Way*

(Narokobi 1983) was published with 45 articles from this series. Narokobi was a philosopher and lawyer as well as a politician, who actively supported not only the independence of his own country, Papua New Guinea, but also of Vanuatu. As Premdas indicates, Lini's 'Melanesian Socialism', or his idea for Vanuatuan development, was influenced by Narokobi's work of *The Melanesian Way*.

Neither Papua New Guinea nor Vanuatu had ever been united within the period of human occupation: 3,000 years for Vanuatu, and 50,000 years for Papua New Guinea. Their current concept of a nation was also envisaged by the colonial countries, and not by themselves. One of the challenges for Melanesians was to find a common identity for a diverse people with hundreds of languages and cultures and thousands of years of history. Narokobi stresses the needed for an ideology or philosophy to characterise their new nations. The Melanesian Way is an ideology and philosophy for national identity. Narokobi asks whether the:

> ... nation of ours will be united though parliament, public service, roads, bridges, armed forces and the like. I say, maybe, maybe not. The one thing that can unite us is ideology, or philosophy (Narokobi 1983: v).

Narokobi refused to offer an exact definition of his Melanesian Way. As he indicates, this is "like Moses asking the God of Israel to tell him who God was" (Narokobi 1983: 8). Thus, his discussion on Melanesian Way is "no more than meandering … romantic, or even apologetic" (Narokobi 1983: v). I would like to challenge this assertion and focus on three points in relation to the Melanesian Way. First, Narokobi insists that Melanesia had its own values and philosophy before its Christianization and colonization by Europeans. Second, he argues for a firm denial of the mentality of white superiority, which still permeated both Melanesian and European society in Papua New Guinea. Third, he reiterates that Melanesian people have the freedom to choose who they are: "We can choose, if we will" (Narokobi 1983: 5). 'Freedom

of Choice' is the idea of development favoured by Amartya Sen's Capability Approach, which I discussed in Chapter 2. Narokobi, Lini and other Melanesian leaders were fully aware that they could also choose their destiny.

5.2.4 Summary

I have discussed the meaning of development for Vanuatu through Father Lini's autobiography, his ideology of socialism, and Narokobi's *The Melanesian Way*. The main point is that their idea of development did not equate with increased GDP, material wealth, or even acceptance of European values and philosophy. Although Lini did not deny these, he gave a clear picture of the direction of development, based on freedom of choice within a more spiritual framework, and on his people's history and traditional values. This idea is similar to Amartya Sen`s Capability Approach, in which people have the freedom of choice and achievement in their own development. In the next section, I would like to explore how telecommunication was developed during the independence movement in Vanuatu.

5.3 Path of Communication Development – colonial period

5.3.1 Literature on Communication Development

There is no comprehensive literature on the history of communication development in Vanuatu, except for Lissant Bolton's paper, 'Radio and the Redefinition of Kastom in Vanuatu' (1999). Other brief explanations on this issue include a paper by Peck and Greggory (2005) and three pages of commentary by Rex Robinson (2002), who served as a radio engineer for the Condominium's Post Office Radio Service from 1961 to 1966. As there is no detailed description available on the history of communication in Vanuatu, I will present an

overview according to the *Proceedings of the New Hebrides Advisory Council* from the late 1950s to the early 1970s (1959-1960, 1962, 1963, 1965, 1966, 1967, 1971, 1974). Please see Appendix A for details of the proceedings.

In 1957, the Advisory Council was established by the two colonial powers, Britain and France. The indigenous peoples of the New Hebrides, now known as ni-Vanuatu, accounted for more than 90% of the population, yet only had a minor presence on the Council (Jackson 1972). This Council discussed various issues related to politics, economics, infrastructure, education and health.

I was able to access some copies of the proceedings (New Hebrides Advisory Council 1959-1974) from the Vanuatu National Archives in Port Vila, and from the Hocken Collections in Dunedin, New Zealand. These are not digitized and contain no list of contents or agenda, which meant that I had to read through every available document to find those sections in which the Council discussed telecommunications, radio, postal services, and so on. I may have overlooked some debates and was unable to check all the proceedings, as neither the Vanuatu National Archives nor the Hocken Library had a complete set. However, based on these documents, I was able to track developments in historical communications, including post, radio and telecommunications in Vanuatu.

In summary, the telecommunication systems did not develop much in the nearly twenty-five years after the repatriation of American soldiers stationed in Vanuatu during the Second World War, until the 'tax haven' was established around 1970. Even the postal service was poor. Also, it was revealed that ICT4D was solely for the benefit of the colonisers, and not for the ni-Vanuatu people, particularly in remote areas and outer islands. As noted by Rawlings, before independence, the indigenous ni-Vanuatu did not have citizenship, legal status, or civil, social and political rights (Rawlings 2012). They still had a minor presence on the council,

and suggested using the Bislama language and local content on the Radio. This led to and also encouraged the movement for unity and independence in Vanuatu.

5.3.2 Independence movement and role of Radio and Bislama

Discussion on the use of Bislama in the Advisory Council was a critical element of the indigenous Vanuatuans' unity and independence movement. For example, Bolton notes the influence of radio communication in fostering unity in Vanuatu. She examines interconnections between kastom, government and radio in her paper, 'Radio and the Redefinition of 'Kastom' in Vanuatu' (Bolton 1999), which defines 'Kastom' (custom in Bislama) in the following way:

> … I suggest that the term originally derives from missionary endeavors to make a distinction between unacceptably heathen practice, and acceptably Christian behavior. The antithesis of kastom in this opposition is the Bislama term skul, [or 'school'] which until the late 1960s referred not so much to school in the English sense, as to the whole missionary project of education (Bolton1999: 341).

With 113 languages and cultural groups living on separate islands, the people of Vanuatu did not have any common consensus on kastom, or even a uniform Bislama language. However, radio, which broadcast throughout the archipelago, redefined kastom and helped to standardize Bislama. The radio stations did not have any official policy to broadcast local content or language, but in reality, they did make it a point to do so. This was a major contribution to the unity of identity, which also led to independence.

> The importance of the radio in the redefinition of kastom is a function of the way in which radio created a nationally received forum for the communication of ideas (Bolton 1999: 355).

In the late 1970s, there was no standard Bislama, but plantation Bislama, French Bislama, English Bislama and local versions of Bislama on specific islands. Again, radio had a major role in standardizing the Bislama language.

> The contribution of radio to the standardization of Bislama … is very important to kastom. In order for local knowledge and practice to be presented to an archipelago-wide audience it has to be made at some level comprehensible in a language common at all, that is, in Bislama. ... it is the radio, in this sense, that made kastom a nationally recognized phenomenon (Bolton 1999: 349).

Bolton also describes the difference in attitude between 'listening' and 'hearing'.

> The ear is passive, open to all stimuli. Listening is an active function by which a person tunes in to a particular sound … (Bolton 1999: 345).

So, for ni-Vanuatu, the radio had a role in causing them to 'listen', rather than merely to 'hear'. Along with a shared Bislama language, kastom helped to forge a common and unified identity, which led to the independence of the entire Vanuatu archipelago. Radio was critical in this.

5.3.3 Use of Pidgin in News Media

In 1971, the 22nd New Hebrides Advisory Council Session discussed the 'Use of Pidgin in News Media'. This record tells us how language in the media was discussed under the colonial administration, and how 'Bislama', which is now one of the official languages in the Republic of Vanuatu, survived in the media.

According to the Proceedings, Archdeacon Rawcliffe, a member of the Advisory Council, suggested the use of 'bichelamar' (Mr Rawcliffe's use of 'bichelamar' is hereafter called by

its common expression, ‘Bislama’) as one of several languages of the news media. He argued that Bislama was a language in its own right, and that it was a mistake to see it as a variant of English. He recognized Bislama as a cultural achievement of the indigenous population, not something that had been developed by Europeans. As the grammar is ‘Melanesian’, he preferred a term other than ‘pidgin English’ to describe it. Archdeacon Rawcliffe concluded:

> It is easy for English-speaking people to view this language as a form of English and therefore to think of it as being ‘quaint’ or ‘funny’ but once you look at it as a language in its own right and not as a form of English you view [it] as something that should continue to exist as a lingua franca (New Hebrides Advisory Council 1971: 188-189).

He also suggested that Bislama needed an orthography other than English spelling, as had been developed in Papua New Guinea. I assume that the reason for Archdeacon Rawcliffe’s motion on this issue was because of negative actions or opinions with regard to the use of Bislama on the radio around 1970. M. Delacroix, an ex-soldier and French businessman, disagreed with Mr Rawcliffe’s motion and argued that Bislama should not be the third official language. He also suggested that speaking Bislama would be disadvantageous in the future:

> These who in this country will speak Bislama in future times rather than another language will see themselves cut off from several outlets and will find themselves limited in modern society (New Hebrides Advisory Council 1971: 190).

Mr. Seagoe, a British District Officer, supported Archdeacon Rawcliffe:

> … if we limited the language to English and French, 75% of the population and more will not understand what is going on in Radio Vila. … broadcasting service is of more importance to the New Hebrideans than Europeans … (New Hebrides Advisory Council 1971: 191).

Mr. Abbil, who in 1971 held a position at the New Hebrides Cooperative Department, suggested the continued use of pidgin English on the Radio for some fifteen to twenty years, until the ni-Vanuatu could speak a major language (English or French). He did not support Bislama as a full language in its own right.

Mr. Kalkoa, (George Sokomanu), who would become the first President of Republic of Vanuatu in 1980, supported the use of Bislama on radio, and also made an indirect political comment on the future.

> ... I tend to think that the pidgin which is at present used in the Radio Vila is not up to the standard and I am afraid the Melanesians on Radio Vila need better training in this language.
>
> ... I should like to see pidgin English maintained, as far as this group or territory is concerned as we never know what may happen in the future (New Hebrides Advisory Council 1971: 193).

He may have been referring to the possibility of future independence. Both Papua New Guinea and the Solomon Islands obtained their independence in 1975 and 1978 respectively. 1971 was the year in which the independence movement started with the newly-formed 'New Hebrides National Party'. Father Leymang, a ni-Vanuatu Catholic priest, agreed with Archdeacon Rawcliffe's argument in favour of using Bislama in the media, but added that "it should be second language between the islands to awaken people as to their belonging to a greater sphere from a political point of view … but [we should not] make pidgin into a written language and to an official language..." (New Hebrides Advisory Council 1971: 195).

At the end of this discussion, the Council did not reach a decision on the use of Bislama on Radio, and nor did they decide on whether it should be an official language. The President of the Council, Mr Allan, noted that a vote would not be taken, and that the matter of preparing a

recommendation to the Resident Commissions based on the debate should be left to Information Services.

The majority of the Council members had a negative opinion of Bislama as a lingua franca, while a few agreed to use it only for convenience. The exceptions were Archdeacon Rawcliffe, who defended their right to use Bislama as a lingua franca, and Mr Kalkoa.

We can observe that the European majority of this council attempted to decide the language for ni-Vanuatu. Voices from ni-Vanuatu and a minority of European supporters, such as Archdeacon Rawcliffe, were weak. Nonetheless, they still made an effort to obtain the freedom to choose the language that a majority of ni-Vanuatu wanted. This tells us that the Capability Approach could emerge from a strong political will for freedom of choice and achievement, expressed in this case as unity through communication.

Bolton (1999) and Walter Lini's autobiography (1980) demonstrate the significant influence of radio on the creation of identity and unity for Vanuatu, a country with a huge range of cultures. Radio also played an important role in the independence movement. In this sense, I believe this discussion on determining language in the media is very important, both culturally and politically.

5.4 Overcoming the Digital Divide - monopoly to competition

As discussed in Chapter 4, companies such as British Cable and Wireless, the legacy of former colonial countries, had maintained a monopoly on telecommunication services in the Pacific Islands. Beginning with the deregulation of the Tongan telecommunication services in 2003 ('Ofa 2012), Samoa, Papua New Guinea, Vanuatu and Fiji followed Tonga's lead. Each country had a unique process of deregulation.

Again, one of the reasons why I chose Vanuatu as a case study for my thesis was that the process of deregulating its telecommunication system is very well documented and accessible, including court cases between Telecommunication Vanuatu Limited (TVL) and the Vanuatu Government. I would now like to demonstrate how the Vanuatu government changed the monopoly regime of telecommunication by focusing on the related court cases. This court action led to deregulation and competition in the telecommunication regime, with an obligation to provide Universal Service under the Vanuatu government's new regulations.

5.4.1 Monopoly Telecommunication system

Following its independence in 1980, there were two telecommunication entities operating in Vanuatu: the government-owned Post and Telecommunication as its national carrier, and Vanuatu International Telecommunications Ltd (VANITEL) as its international carrier (who also owned Intelsat). Telecom Vanuatu Limited (TVL) was incorporated in 1992, as the result of a merger between VANITEL and National Telecom Limited (previously Post and Telecommunication). TVL was the sole provider, with a monopoly licence for 20 years until 2012. TVL's shares were one-third government-owned, with an equal quantity of the remaining two thirds owned by the former colonial companies, Cable and Wireless (UK) and France's Cable et Radio.

In 1993, the government also abolished the regulatory Telecommunication Authority and transferred the authority for frequency allocation to the TVL. The TVL had therefore enjoyed full monopoly control in Vanuatu from 1992, including the authority to allocate frequencies. However, until the end of the monopoly in 2007, TVL did not provide any telecommunication services to almost 80% of the population, located mainly in the rural areas ('Ofa 2012).

5.4.2 Court Case for telecommunication licence

In 2005, the government of Vanuatu granted a telecommunication licence to Pacific Data Solutions (PDS), who were only allowed to provide telecommunication services for internet gaming companies and its own Holding company. As discussed earlier in this chapter, the underdeveloped telecommunication infrastructure was a major obstacle to the use of credit-card payments in internet gambling. Improving the quality of telecommunications has been crucial for financial activities, such as tax haven and online gambling, and not intended for people in the rural areas.

TVL, which was guaranteed a monopoly on telecommunication services, took the Vanuatu Government to court in 2006. The government won both this case and the consequent appeal in 2007. As a result, the process of deregulation was accelerated and competition introduced to telecommunication services in the same year.

The court case focused mainly on arguments about who and what counted as the 'general public' as recipients of telecommunication services. This is important because, in granting the monopoly licence to TVL, the government of Vanuatu required it to provide a telecommunication service to the 'public'. PDS were not permited to provide a telecommunication service to the 'general public' or publicly available services.

The judge also argued:

> 33. The starting point is the natural and ordinary meaning of the words. In relation to the 'general public', the New Shorter Oxford English Dictionary refers to one of the meanings given in it for the 'public', namely, 'people collectively, the members of the community'. The use of the adjective 'general' emphasises the breadth of the phrase. The expression 'for the use of the general public' has the sense of being available to all and sundry (Telecom Vanuatu Ltd v Minister for Infrastructure and Public Utilities [2006] VUSC 67; Civil Case 205 of 2005 (12 September 2006)).

He concluded that "the PDS licence does not permit the operation of a public national or international telecommunications service in terms of the Telecommunications Act", and thus dismissed TVL's claim.

TVL subsequently appealed this case. However, its appeal was dismissed for the same reasons as the original court case. Ironically, through arguments made in the court, both the claim and subsequent appeal revealed that TVL did not in fact provide a telecommunication service to the 'public':

> Indeed, it would be surprising if the monopoly contemplated by the proviso to s. 16 (6) was not to ensure that the telecommunications services to which it refers were not available to as wide a section of the Vanuatu public (or in the case of those using international telecommunications services the wider public seeking electronic communications into or out of or through Vanuatu) as possible, subject to paying the applicable general fee (Telecom Vanuatu Ltd v Minister for Infrastructure and Public Utilities [2007] VUCA 8; Civil Appeal Case 32 of 2006 (5 April 2007)).

5.4.3 Deregulation and new regime for Telecommunication service

Although the court dismissed TVL's claim, it also focused unexpectedly on the definition of Universal Service through its discussion of what constitutes the General Public. Even the Vanuatu Telecom Act did not refer to universal service obligations as part of the responsibility associated with a monopoly licence. It was obvious that TVL had failed in its responsibility to provide a service to the 'general public', that is, its 'Universal Service obligation'. In other words, TVL drove itself into a corner by bringing this issue to the court. In doing so, they brought to the attention of both the Vanuatu government and the people of Vanuatu that TVL had not met its obligation to provide a telecommunication service, especially to 80% of the rural population. That is, it did not provide a Universal Service.

Subsequently, in 2007, the government of Vanuatu ended TVL's exclusive licence and issued a new telecommunication licence to TVL. In 2008, it issued a mobile and international licence

to the new entrant, Digicel Limited. Not only that, it also launched the independent interim regulator in 2008 (Telecommunications and Radiocommunications Regulator (TRR) of Vanuatu), and the Chief Information Officer (CIO) and the Office of the Government CIO (OGCIO) under the Prime Minister's Office in 2011.

5.4.4 Summary

The telecommunications infrastructure in Vanuatu had been developed only twice prior to 2005. The first time was during World War II, when the US army was stationed in Vanuatu (then the New Hebrides) around 1945. The second time was when the tax haven was introduced around 1970. The current telecommunications development started in 2005 and arose from financial activities, such as online gaming. The deregulation of Vanuatu's Telecommunication system was more complex ('Ofa 2010). There was pressure from the WTO, along with encouragement from the ADB and other development partners, to promote deregulation and open the market. However, the court unexpectedly and ironically judged that TVL, which was mostly run by British and French companies, did not provide a service to the public. By 'public', it meant the people of Vanuatu, who had finally obtained citizenship after the country's independence in 1980.

The thesis argues that the decision to deregulate and introduce competition into Vanuatu's telecommunication service was made by the people of Vanuatu, who had obtained their independence as a right to self-determination. Some 30 years after independence, 80% of the population, especially in rural areas, had yet to receive TVL telecommunication services. The ni-Vanuatu and their government finally and freely chose to develop the telecommunications system for themselves.

5.5 PIPP Reports on social and economic impacts of telecommunication

5.5.1 Significant documentation from a survey by local institute

As noted at the beginning of this chapter, the main reason why I chose Vanuatu as a case study was that the history of its ICT development is well documented and accessible. One document contains a series of reports by local research institute, the Pacific Institute of Public Policy (PIPP), on the social and economic impacts of telecommunication. This was the first ICT survey in Vanuatu, with the exception of statistical data studies, which were mostly conducted by organizations such as ITU.

PIPP undertook three surveys after the deregulation of Vanuatu's telecommunications industry: in 2008, 2009 and 2011-2012. Each of these studies covered both urban and rural areas, with a good balance of gender issues, and used both qualitative and quantitative methods. The sample selection for PIPP's research was also well balanced with broad coverage. This means that the results are likely to be reliable. In 2008, PIPP surveyed three rural and urban areas, while in 2009, they covered nine rural and three urban areas. In the 2011-12 survey, they covered thirteen rural and three urban areas. The results indicate that the impact of telecommunications is more signifant in rural areas and that efforts should focus more on these.

The number of samples in the PIPP studies increased over time. In 2008, they used 185 surveys and 90 semi structured interviews. In 2009, this increased to 767 surveys and 142 interviews, and in 2011-12, it increased again to 1197 surveys and 93 interviews.

These were collected by a large number of locally trained staff. For example, in the 2011-12 survey, 47 enumerators were hired to collect around 1300 samples from 16 urban and rural areas. Such a nationwide integrated survey could never have been undertaken by an individual

scholar such as myself. The PIPP research series is therefore very important to my study of Universal Service in telecommunications.

5.5.2 Aim of PIPP Survey

It is not only the sample size of the PIPP's survey, but also its content and study concept that are important to my research. This is because the PIPP survey focused more on people than on ICT, using the concept and methods of the British Government Department for International Development (DFID) model. The DFID published "The Economic Impact of Telecommunications on Rural Livelihoods and Poverty Reduction: A study of rural communities in India (Gujarat), Mozambique and Tanzania" (Souter *et al.* 2005). In this report, they indicate that:

> Very little substantial or detailed research has been done so far on these questions on what impact has the telephone had on livelihoods – on how people live their lives, protect themselves against vulnerability and take opportunities for a more prosperous future? Do people use the telephone for social or business purposes? How important is it to them in emergencies? Does it make a difference to how they obtain the information they need to run their lives? And how does it fit into the pattern of other communication channels they have available? (Souter *et al.* 2005: 7).

This is important, since my own research is focused on human capability, that is, what people can do with ICT, rather than on what ICT can do for people. This DFID model is similar to what I am looking at and is therefore a meaningful reference.

5.5.3 Findings of PIPP Survey

The three year series of surveys revealed first, that telephones, particularly mobile phones, have become a primary mode of communication across the country. Second, rural respondents reported using their phones less frequently than those in urban areas. Third, the greatest positive impact of the telephone appeared to be in enabling more frequent contact with family and friends. Fourth, the use of letters and communication by local leaders has been steadily decreasing. Finally, the greatest benefits of telephones arise when they are used in constructive ways, to improve connectivity with distant correspondents, rather than to break down close social ties.

Some of these findings from the PIPP study were used to develop a basic understanding of the ICT environment in Vanuatu. For example, mobile phones are becoming a primary mode of communication across the country. Other findings support the result of my field study, such as the frequent contact with family and friends as a positive effect.

5.6 Vanuatu fieldwork

My fieldwork in Vanuatu lasted for a period of five weeks. I stayed mainly in the capital, Port Vila, making two domestic trips to Santo Island and Tanna Island for one night each. During my fieldwork, I interviewed 19 people. In the following summary, I will first describe those interviewees (the sample), and then analyze transcriptions of the interviews. Finally, I will present an analysis based on the data and focusing on five perspectives: tourism, education, seasonal workers, Facebook Yumi Toktok Stret, and negative impacts on society and users' lives.

5.6.1 Timing

The timing of my fieldwork in Vanuatu over a five week period during the months of July/August 2014 was perfect, as it had only been five years since affordable mobile phones were introduced into most areas of Vanuatu in 2009. Users, policy makers and ICT providers, the subjects of my interviews, were fully aware of the advantages and disadvantages of ICT for their country and communities. More importantly, they still had vivid memories of when access to telecommunications did not exist in the remote and rural areas. One interviewee, Ms Marie-Jeanne Barang from Pentecost in northern Vanuatu, works at a Hotel in Port Vila.

> Ms Barang is from Pentecost and lives and works in Port Vila. Before Digicel came, mobile phones were expensive and communication with her parents in Pentecost was very difficult. She had a TVL mobile phone, but her family in Pentecost did not. They had to walk to the telephone centre some 2 hours walk from their village. How did they know she will call them? She would tell her parents the date and time when she would call next (transcript of interview: Ms Marie-Jeanne Barang, Hotel staff, 18th August, 2014).

Another interviewee, Mr Andrew Molivurae, is from Ambae, which is located in northern Vanuatu with a population of about 10,000.

> Before the liberalization of telecom, when mobile phones were introduced to his home island, Ambae, there was only one telephone line in the main city. If the line was cut or had technical problems, then people made complaints. However, these complaints were simply ignored by the monopoly carrier and nothing improved. This situation worsened between 2006 and 2007.
>
> In some of the remote villages of Ambae, people needed to walk for a day to arrive in the major town and to stay a few nights just to make a telephone call. Even then, when they arrived in town sometimes the telephone line did not work. Furthermore, even if they could access a phone and people in Ambae could phone their family in Port Vila, the family may not be there. In that case, they just left a message to someone in Port Vila to ask them to deliver a message.
>
> The reverse is also the same or even worse. If someone from Port Vila tried to call people in Ambae, they just left a message to whomever was at the telephone station in Ambae, with a request to deliver a message.

> Thus, the communication system was totally unreliable, risky, and took large amounts of time, money and energy. The current mobile phone system, which covers all of Ambae Island, has drastically changed this situation (transcript of interview: Mr Andrew Molivurae, Former President of Vanuatu IT User Association, Director of IT Billing Engineering, 4th August, 2014).

I had an opportunity to study ICT in Vanuatu in 2007, as a member of the Sasakawa Peace Foundation, and our team visited Loltong on Pentecost Island. I was not informed, however, of how severe the difficulties in communication were in the village at that time. I assumed that the past communication environment was seen as an ordinary situation for the villagers of Loltong, and so they would not have recognized how severe this was. Today, however, people recognize and describe how difficult communication in the rural areas used to be. Again, a period of five years since the introduction of new technology may be the perfect time to gather and analyse narratives on telecommunication development, because the past is still fresh in people's memories. They can now examine for themselves the impact and progress made possible by this new technology.

5.6.2 Questionnaire

I developed questions for three categories of interviewees: ICT users, policy makers and ICT providers (Appendix F). Basic foundation questions were the same for each:

1. What do you use ICT for?

2. Does ICT do what you wanted it to do?

3.What do you want to do in the future?

The purpose of my research was to ascertain the capability and freedom of choice available those who use ICT, rather than what ICT can do for people. That is, I wanted a people-centric, not an ICT-centric, perspective.

5.6.3 Summary of interviewees

Interviews were conducted with the following people: ICT Providers (n=2), policy makers (n=6) and users (n=11).

Gender:

The population of interviewees consisted of 7 females and 12 males. There was only one female policy maker and no females among the ICT providers. This reflects the general situation, in which ICT policy and business is still dominated by males (see Table 5.1).

	Total	Female	Male
User	11	6	5
Policy maker	6	1	5
ICT provider	2	-	2
	19	7	12

Table 5.1 Gender of Interviewees

Age:

I did not ask interviewees for their ages. However, I have allocated each into five age cohorts: 20s = 7, 30s = 4, 40s = 6 and 50s and 60s = 1 each (see Table 5.2).

	Total	20s	30s	40s	50s	60s
User	11	6	2	2	1	-
Policy maker	6	1	2	2	-	1
ICT provider	2	-	-	2	-	-
	19	7	4	6	1	1

Table 5.2 Age of Interviewees

Location:

Although 17 of the interviewees live in Port Vila, most have family in the outer islands and overseas (see Table 5.3).

	Total	Port Vila	Tanna	Santo
User	11	10	1	-
Policy maker	6	5	-	1
ICT provider	2	2	-	-
	19	17	1	1

Table 5.3 Location of Interviewees

Home Island (country)	
Australia	3
England	1
Overseas (other)	1
USA	1
Ambae	2
Pentecost (South 1 North 1)	2
Malekula	2
Tanna	1
Port Vila	6
Total	19

Table 5.4 Home Islands, Country of Interviewee

Summary

I had originally planned to interview two main ICT providers, TVL and Digicel. However, after several emails and telephone exchanges with managers of TVL and Digicel, I could not confirm an interview with either. I can only assume that there was a reason for their lack of enthusiasm, because during my stay in Vanuatu, the Telecommunications and Radiocommunications Regulator (TRR) and both providers were engaged in critical discussions on Universal Broadband Access. These discussions are publicly available on the TRR website.

5.6.4 Analysis of interviews

Following the KJ method, which I described in Chapter 2, and based on nineteen interview transcriptions, I first selected twenty-one key words and classified these into three groups. The first group is ‘Subject’. This concerns the subject that the interviewees wish to cover using ICT. There are four categories in this group: business/economy, education, politics and health. The second group is ‘Activities’. This deals with what interviewees want to do when using ICT. There are eight categories: rescue, management/administration, shipping schedule, sending money/food, saving money, saving time, obtaining information and keeping in contact. The third group is ‘Objects’. This covers areas such as where and with whom interviewees want to communicate. There are nine categories: youth, community/society, farmer, family, friends, outer islands/rural area, overseas, seasonal worker and gender/disability.

I also counted the number of times in which interviewees mentioned certain key terms/words. For example, in the first group, there were 23 related comments on the ‘Subject’ of ‘business/economy’. ‘Education’ had 15 related comments, while ‘politics’ and ‘health’ each had seven. From interviewing and reading transcripts, I formed the impression that many interviewees had mentioned the economy, business and education. By quantifying the comments from the transcripts, I was able to make a more logical interpretation, rather than one based solely on impressions.

Please see the table in Appendix G, which shows the results of this analysis.

a. Subject – areas (4 keywords)

i. Health

ii. Education

iii. Politics

iv. Business/Economy

b. Activities (8 keywords)

i. Rescue

ii. Management /Administration

iii. Shipping Schedule

iv. Send money/food

v. Save money

vi. Save time

vii. Obtaining information

viii. Keeping in contact

c. Object – With whom and where (9 keywords)

i. Youth

ii. Community/Society

iii. Farmer

iv. Family

v. Friends

vi. Outer islands/rural area

vii. Overseas

viii. Seasonal worker

ix. Gender/disability

I also constructed a pie chart of each group from the corresponding table (see Appendix G).

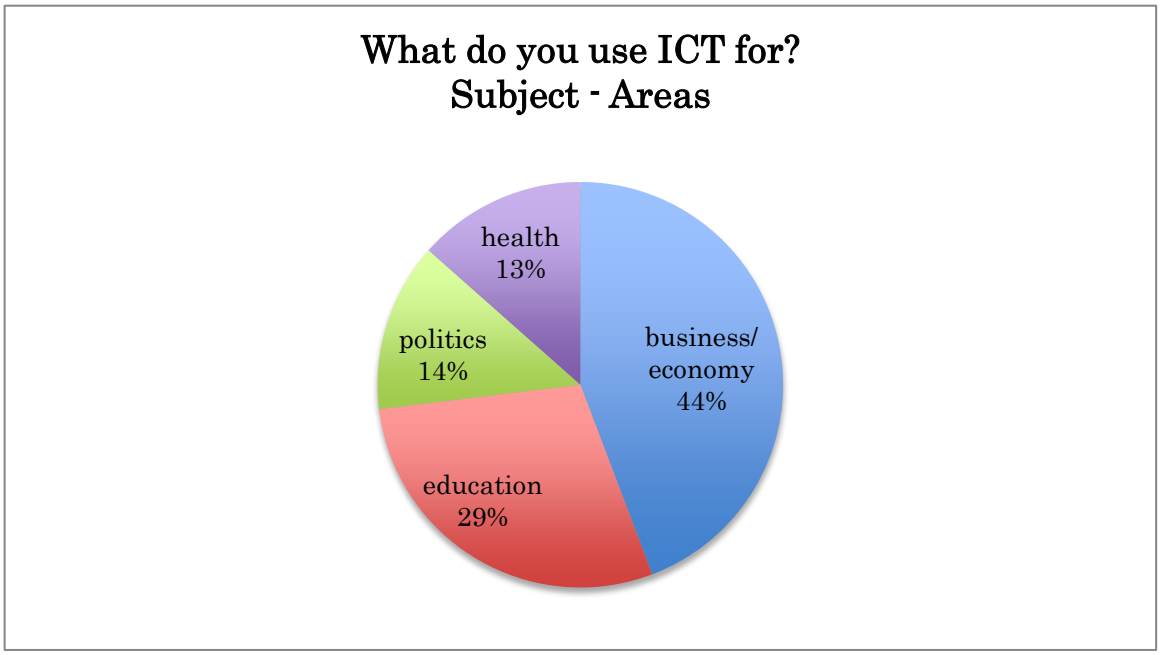


Figure 5.3 What you can do with ICT – Subject

Interviewees mostly identified Business/Economy (44%, n=23) as important, followed by Education (29%), Health (14%) and Politics (13%).

b. Activities (8 keywords)

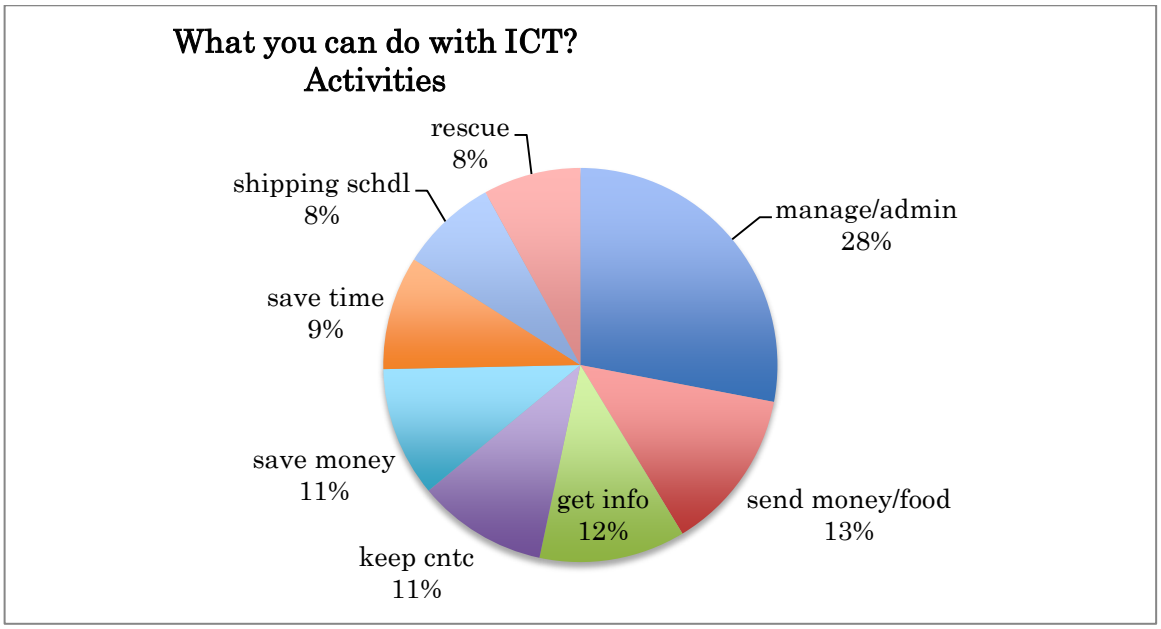


Figure 5.4 What you can do with ICT - Activities

Interviewees most often indicated that ICT eases management and administration (28%, n=21). This is followed by sending money/food (13%), to access information (12%), keep in contact, save money (both 11%), then save time (9%). Rescue and knowledge of shipping schedule both scored 8% (6 counts each).

c. Objects – who and where (9 keywords)

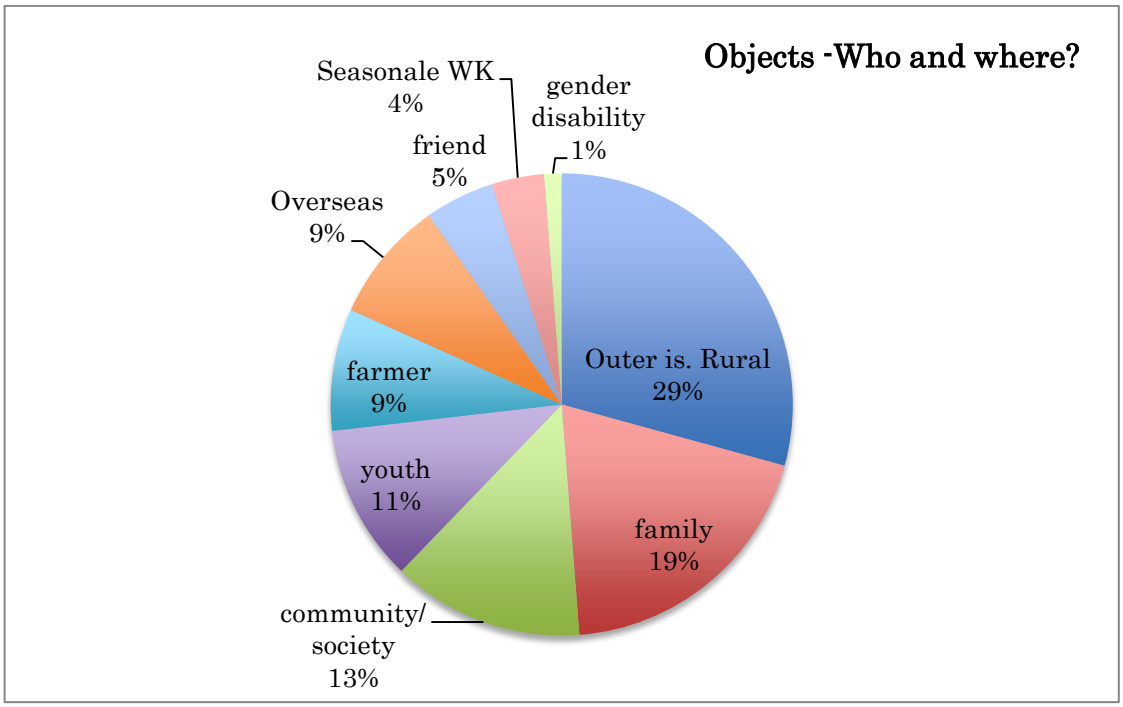


Figure 5.5 What you can do with ICT – Objects

Whom do people phone and what are the intended objects for ICT? Twenty-nine percent (n=24) of the interviewees mentioned the outer islands and rural areas. This is followed by family (19%), community/society (13%), youth (11%), farmer, overseas (both 9%), friend (5%), and seasonal workers (4%). Only a policy maker, the Hon. Ralph Regenvanu, mentioned gender and disability. However, I would like focus on his comment as an important message, because it tells us that the Vanuatu government focuses on women and people with disabilities, who are vulnerable and experience some disadvantages in society. The government of Vanuatu is aware that women and people with disabilities need particular

attention and support from its political will. This reminds us that the father of the nation, Father Lini, emphasised the development of rural areas and remote islands, as well as respect for traditional culture through the family living on their own land – Vanua (land) tu (our). Lini's aims for development were achieved using ICT, with the newly introduced regulation in favour of Universal Service. Here, we can also observe the Capability Approach, in that development of Vanuatu does not aim to use ICT nor Universal Service itself, but to develop their rural areas and remote islands, while respecting traditional family values, as part of the political will that emerged from the independence movement.

Findings:

It is interesting that no one mentioned that ICT was used to help make money. While ICT may not contribute directly to such developments as GDP growth, one clear result from this research is that ICT eases the management and administration of business and/or education. Furthermore, ICT connects people with their families in the outer islands, rural areas and overseas. In the next section, I will present an analysis of such issues as the tourism business, education, seasonal workers and the Social Network Service (Facebook), which connects the youth of Vanuatu. I will examine these issues with reference to data, including government statistics, research reports, and PhD theses.

5.6.5 Tourism business

As demonstrated above, business is a key reason for the use of ICT. Tourism is one of the main businesses in Vanuatu. According to Hezel (2012: 21), 21% of Vanuatu's GDP comes from the tourism industry, followed by export goods at 20%. This data is from 2005-2009, so

it may not reflect remittances, which I will discuss in the next section. Tourism, however, is still crucial to the economy of Vanuatu.

I interviewed two persons working in the tourism industry. Both stressed that ICT, such as mobile phones and the Internet, made it easier to manage their daily business compared to the time when they did not have a mobile phone.

> His business is concentrated in Port Vila, so the outer islands connection is relatively irrelevant. However, when guests are travelling to the outer islands and their flights are cancelled or whatever, now these guests can call his hotel from their mobile phones and let him know their new schedule. This helps his business (interview notes: owner and manager of hotel in Port Vila, 14th August, 2014).
>
> Internet access has also made it possible for him to expand advertisements and promotion to overseas customers, such as connecting to the four major online travel agents – Expedia, and TripAdvisor. Now, when he uploads photos and makes changes to his website, these travel agents' websites are updated automatically (From transcript of interview: owner and manager of hotel in Port Vila, 14th August, 2014).
>
> He is a tour driver. Usually he picks up tourists from the hotel and takes them to Yasur Volcanic Mountain, which is a world famous tourist site. Before the affordable Digicel mobile phone was introduced in 2009, he used radio to communicate with the Hotel and other respective actors to arrange the pick-up of guests. Radio communication caused miscommunication due to its low quality of voice control. Also, he had to be at the radio station to send and receive messages. Thus, this type of communication activity was complicated. Now he can communicate anytime and anywhere, with a clear and affordable mobile phone service to arrange to pick up tourists (transcript of interview: tour driver, born and raised in Tanna, 23rd August, 2014).

I have examined the number of visitors to Vanuatu according to the Vanuatu National Statistics Office. Interestingly, after affordable mobile phones were introduced to Vanuatu in 2009, the number of visitors decreased slightly in 2010 and 2011 (see Figure 5.6).

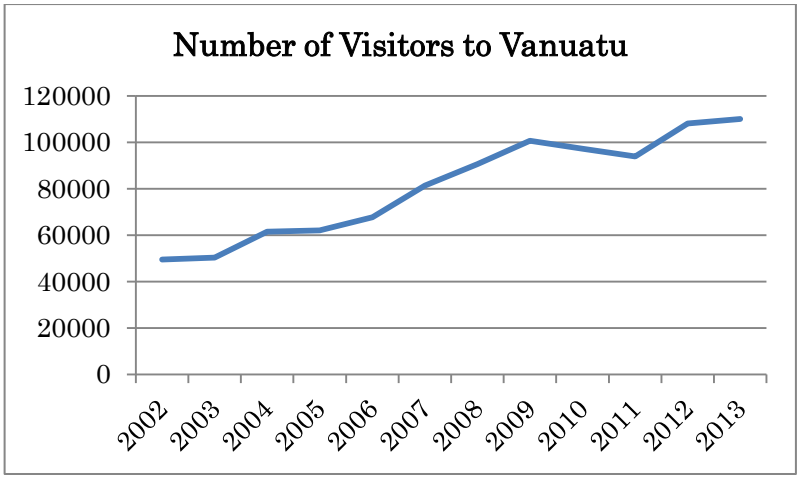


Figure 5.6 Number of Visitors to Vanuatu. Data from the Vanuatu National Statistics Office

As the above interviews make apparent, the tourism operators absolutely needed ICT to conduct their business. In 2010 and 2011, the tourism industry in Vanuatu had access to mobile phone technology for day to day business and to communicate with colleagues and clients. Why, then, was there a decline in the number of tourists, which would have affected their business? When an upturn of tourists is witnessed in both 2012 and 2013, the net increase was not that dramatic and could be interpreted as part of a longer term trend. Thus, the decrease in tourists seen in 2010 and 2011 was a short term downturn or plateau. This tells us that ICT may improve the quality of business, but not necessarily have a direct impact on the quantity of business. In order to increase tourist numbers in the longer term, Vanuatu may need to establish more hotels, flights, goods and services and other related elements. From this, we can see that, although ICT is important for the tourism business, it is not essential, and is only part of a larger tourism business development plan.

Unfortunately, Figure 5.6 only shows the number of visitors from overseas to Vanuatu. I could not find any statistics for domestic visitors. Since newly introduced mobile phones are connected to most of the outer islands, the number of visitors to the outer islands may show a different trend. Interestingly, one article notes a tenfold increase in tourists to the outer

islands. This reveals that locally owned bungalows in Vao, Malekula received at least ninety-four guests in 2014, whereas, before this, they had a maximum of nine guests only. They attribute this to their online booking page, which was launched in 2011 (Marango 2014).

I would like to add an observation on the tourism industry, arising from my stay in Port Vila. I used the local minibus/taxi service to commute around Vila. The minibus/taxi business is important, not only earning money for people from Efate, but also for those from the outer islands. The driver and his companion (who collected the fares and sat beside him), asked me many questions and seemed to enjoy listening to my conversation on the history, culture and economy of Japan. I asked where they were from and was impressed by their strong pride in their own island or village. I also observed that, when drivers spotted their friends and family members on the street, they gave short greetings and sometimes these drivers were asked to deliver goods, such as rice. At first, I wanted to ask a question about undertaking family business with a passenger in the bus or taxi, but I later realised that this business provided the drivers not only with money, but also with information from customers. They were also able to help their friends and family living in Port Vila. I concluded that their work had many objectives, not only to make money, but also to learn and help through interpersonal communication. ICT, mostly mobile phones, is helping drivers to take on more activities and increase their Capability.

5.6.6 Education

Education is another siginificant area of ICT activity in the interviews, at 29%, after business and economy (44%). One interviewee, Mr Andrew Molivurae, described his experience, although he admitted this was quite unique.

> Mr Molivurae has a unique education policy for his three children. He and his wife decided to provide home school education from Australia because they believe that Australian education is better for their children. The internet and current upgraded bandwidth provide the children with a great environment for learning through the internet. The twelve year old child can do basic programming by herself.
>
> I asked about traditional culture. Mr Molivurae is from Ambae, and his wife is from Malekula. Both islands have a strong traditional culture. Mr Molivurae said their children learn both their parents' family languages and culture, so there is no problem here.
>
> Mr Molivurae explained that ICT gives people a wider choice of education environments. For example, Khanacademy https://www.khanacademy.org, which provides free mathematics education online, is funded by Bill Gates.
>
> He also suggested scholarship for education using ICT. Now Vanautu and other Pacific Island countries receive a large number of scholarships from both Australia and New Zealand. Most of the scholarship costs cover a student's stipend in both countries. If, however, one uses the same cost for students who stay on the island and learn through ICT, then more students can have the opportunity to learn from Australia and NZ. ICT will give people a wider choice of alternative education in the future (From transcript of interview: Mr Andrew Molivurae, Former President of Vanuatu IT User Association, Director of IT Billing Engineering, 4th August 2014).

This case provides an example of the capability and freedom of choice of parents and children to access education from overseas.

Mr Marc Neil-Jones, Publisher/Managing Director of the *Vanuatu Daily Post*, suggested that the priority is for people from the remote and outer islands to access the news, which at the moment, they cannot do.

> I asked him what he would like to do if there was free broadband access availability for all of Vanuatu. Mr Neil-Jones replied that, at this moment, the distribution of the newspaper is limited to Efate and Luganville in Santo. Only Santo receives 500 copies per day. Other outer islands can receive copies through the Post Office. The Post Office on the outer islands is located in the towns, so the remote villages rarely receive newspapers.
>
> If Universal Access were available to the outer islands, he would like to distribute the news in digital format and send it to schools in the outer islands, free of charge. Schools in the outer islands have poor quality access to information. Access to a newspaper would help students to understand the

> outside world. (From transcript of interview: Mr Marc Neil-Jones, Publisher/Managing Director, *Vanuatu Daily Post*, 13th August, 2014).

One USP lecturer made the same comment as Mr Neil-Jones:

> I asked, if free broadband were available, how this would effect what teachers and students do – what would change? For the teacher, downloading files would be much easier and this would help their work. For the students, they would access the Internet prior to beginning their study, and use it to explore the world. Young students from the islands have a very limited perception of the world, and if they had greater access to the internet, they would see and learn and find out what is happening in the wider world (transcript of interview: USP lecturer, 8th August, 2014).

The Vanuatu Government prioritised ICT and education when they launched their Universal Access Policy in November 2013. This policy clearly states that among those that need access to voice communications, and narrowband and broadband Internet, by the 1st January 2018 include primary, secondary and tertiary schools, vocational training facilities, and early childhood education facilities (UAP 2013). In 2014, the Vanuatu government provided grants to selected schools to develop a Computer Lab and Community Centre (CLICC) and purchase tablets (VDP 2014).

These actions reveal that the expectations for ICT in education are very high. Having worked on distance education projects over a twenty-five year period, my position is totally in favour of ICT for education. However, I have also observed that there is a significant mismatch between education and ICT. For example, there is a lack of maintenance for donated ICT equipment, which is then abandoned, and newly developed materials are not used by schools. It is important to see how these expectations will be met, and how the trials and pilot projects will prove successful in the improvement of education, particularly in the outer islands and remote areas.

I would like to discuss another perspective on ICT and education. World Bank data shows that the percentage of primary school enrolment increased in 2010 (122%), after mobile phones were introduced in 2009. There is no data for the years 2011 and 2012, but the percentage for 2013 is still very high (123%). A figure of 100% means that all primary school age children are enrolled. Greater than 100% means that more children, either older or younger than the eligible primary school age, are enrolled (Figure 5.7). This is quite significant if you look at the composition of Vanuatu's population.

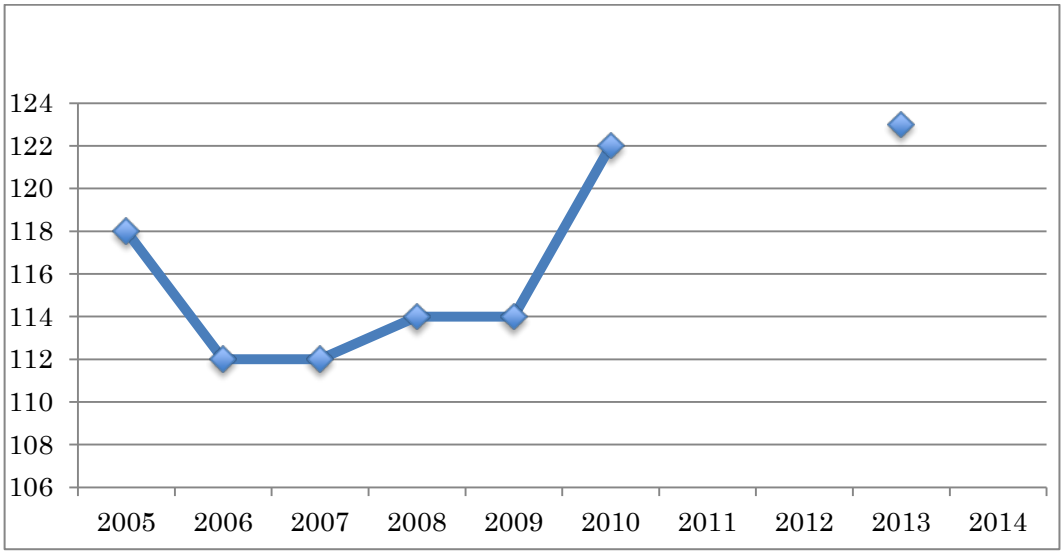


Figure 5.7 School enrolment, primary (% gross). Gross enrolment ratio. Primary. Total is the overall enrolment in primary education, regardless of age, expressed as a percentage of the population of official primary school aged children. GER can exceed 100%, due to the inclusion of over-aged and under-aged students, because of early or late school entrance and grade repetition. UNESCO Institute for Statistics

People aged between 0-14 years of age accounted for 36-40% of the total population of Vanuatu in the years 2006 to 2014. Since Vanuatu's total population is about 250,000, this figure of 36-40% equates to 100,000. Hypothetically, if half of these children enrol in primary school, the number of students would be 50,000. In 2009, 114% of these had enrolled, which

equates to a total of 57,000 students. In 2010, 122% were enrolled, or 61,000 people. Thus, in 2010, there was an increase in enrolments by 4,000 from the previous year. In 2013, 123% were still enrolled, which equates to 61,500. This is a large number compared to Vanuatu's population.

To address this increase, let us look at the results of my interviews. Within the category of activities, after managing/administration, sending money/food is the second most popular activity (see Figure 5.4). The main response in the ICT 'who and where – objects' category (see Figure 5.5) is to communicate with the rural areas and outer islands (29%), followed by family. According to one of interviewees, bank manager Mr Mathison, mobile phone access is great for communicating with branches in the outer islands. However, customers are still using a 'passbook' and not e-money.

> Mobile phone access was the first step for Universal Access, which was done by Digicel. This is a big change for NBV. NBV has 25 branches, spread out over all of Vanuatu. In the remote areas, we could not communicate at all, as telephone lines were not always connected (being broken). On occasion, we had to travel to the branches. NBV set up a satellite network for 13 branches, but it was their worst investment. It was expensive. Worst of all, the electrical power was always a problem. Solar and wind power are expensive and unreliable. We need a generator. So power is always a problem.
>
> For the customer, keeping and continuing the operations of banking is the bigger issue; such as savings, and loans. However, in the remote areas, people still prefer to use a 'Passbook'. There is the pilot telecentre in the remote areas. However, village people do not have any idea on how to use the Internet. In Africa, the mobile phone led to a revolution for e-banking. However, in Vanuatu, this phenomenon has not arisen.
>
> For the Bank, a 'Passbook' costs a lot, and also is unreliable, thus we do not want use it. We prefer mobile banking. We are now developing a new tablet system for mobile banking. Only NBV offers a loan service in Vanuatu. People can loan, save and withdraw with mobile banking without moving physical cash. But again, power is always a problem for communication (From transcript of interview: Mr Stuart Mathison, Head of Operators, National Bank of Vanuatu (NBV), 13th August, 2014).

I had an opportunity to witness one of my ni-Vanuatu friends sending money when I met her at a coffee shop in Port Vila. First, she called her family in the outer islands to confirm how much was to be sent, and when they needed it. She then left me alone at the coffee shop and ran to the Bank in Port Vila. After 20-30 minutes, she came back to the coffee shop, and then called her family in the outer island again and informed them that the money had just been sent. As I understand, family in the outer islands go to their local branch to receive the money. Although this scheme of sending money does not use ICT directly, the customers are using ICT (mobile phones and Internet) to communicate with their family in the outer islands and facilitate the transfer, as Mr Mathison explains above. ICT has clearly increased their ability to send money.

One of the major problems in Vanuatu's education system is the payment of tuition fees.

> The pushouts problem (equivalent to school 'drop out') could be linked to the inability of parents to pay for school fees. In rural areas, the majority of parents cannot afford the fees. For these people, any income they receive comes from selling products in the urban markets. This activity itself is dependent on the weather, the soil for gardening, the sea, the rules of chiefs, people who are going to buy the produce, transport fares, and so forth (Kalsuak 2004: 110).

Returning to the initial question of the increase in school enrolments in 2010, the answer could lie in the ability to transfer cash from Vila to the outer islands for school fees. I assume that, because of ICT, those who live and earn cash in Port Vila can now send money more easily to communities in the remote islands, where a few thousand children can enrol in school. ICT is important in gaining freedom of choice and achievement for ni-Vanuatu, who live on remote islands and want their children to go to school. It would be a good idea to test this assumption and confirm whether it is accurate.

5.6.7 Seasonal workers

The topic of 'seasonal workers' was only mentioned in the interviews by 4% of respondents. However, this is a relatively new labour scheme for Vanuatu and will have a significant influence, both on society and on the economy. In this section, I would like to examine the role of ICT in the seasonal worker scheme. There have been many studies on seasonal workers by academics, donor agencies and governments. The scheme was initiated by the New Zealand government in 2007 and, as a mark of its success, the Australian government is now keen to expand the scheme within their own country (Lee 2015).

I only had one interviewee from the outer island of Tanna. He discussed the seasonal worker scheme and ICT with a strong passion. I feel that this is an unavoidable issue because this scheme has become an essential revenue source for Vanuatu and a rare opportunity for ni-Vanuatu to travel overseas, especially for those living in the remote islands, who do not have as much access to a cash-based economy, nor the means to develop one.

> He can now communicate with friends with not only a mobile phone, but also using Facebook. He can now communicate with his friends who stay in NZ, Noumea, Australia and everywhere in Vanuatu, much more easily. From Tanna, many friends have gone to NZ as seasonal workers. He can now communicate with them. Seasonal workers who stayed in NZ bought and brought back iPads and smartphones to Tanna. The seasonal worker scheme gave the Tanna people not only good money, but also gave them some freedom to see another society away from their village and island – Tanna. They also explored how to use ICT in NZ. (From transcript of interview: Tour Driver, Born and raised in Tanna, 23th August, 2014).

As noted above, the seasonal worker scheme was started in April 2007 by the New Zealand government, in cooperation with Vanuatu. Ni-Vanuatu, mainly from Vanuatu's outer islands, travel to New Zealand to work on farms for a few months, mostly picking fruit. If I had the

chance to interview more outer island residents, then the proportion of those who mentioned the relevance of mobile phones to seasonal workers may have been higher. Rochelle-lee Bailey studied seasonal workers from Vanuatu, and also discussed the role of mobile phones for seasonal workers, both in New Zealand and on the outer islands. She outlined the results in her PhD thesis, 'Working the Vines: Seasonal Migration, Money, and Development in New Zealand and Ambrym, Vanuatu' (2014). Bailey found that mobile phones lessened the isolation between seasonal workers in New Zealand and their families in the outer islands of Vanuatu.

> How families cope with the pressures of an absent migrant, and how migrants manage separation from their families and communities play a vital role in decisions to migrate and overall experiences of labour mobility. Workers are at home in Vanuatu for less time than they are in New Zealand. RSE workers explained that communication with their families in Vanuatu helps with the loneliness of being absent, and enables them to participate remotely in decision-making processes at home (Bailey 2014: 177).
>
> Advancement in technologies has aided in maintaining communication between workers, their families and communities. This allows workers to participate in community decisions from New Zealand. As many told me, since the new cell phone tower was erected in North Ambrym they do not feel as isolated from their husbands or wives as before (Bailey 2014: 252).

Thus, ICT and mobile phones definitely support the seasonal worker scheme, both for the workers who have left their home villages and for their families who have stayed in the villages in the outer islands. Furthermore, not only does ICT connect workers in New Zealand to their families back home, but the seasonal workers have a critical role in learning and introducing ICT functions to Vanuatu when they return. As Mr Alma Wensi, UAP Project Manager of TRR, explained:

> Regarding a promotion awareness of the Internet's potential, the role of seasonal workers has had an enormous influence. Those seasonal workers who worked in New Zealand and Australia experienced the benefits of the Internet and have bought goods such as a Personal Computer, iPad, iPod and

> smart phone. They can introduce and teach what the Internet can do to their village people, and hence encourage using the ICT facilities, to be set up by the three programs (From transcript of interview: Mr Alma Wensi, UAP Project Manager, Telecommunications & Radiocommunications Regulator, 19th August, 2014).

I found the data from the World Bank about remittances into Vanuatu. In 2011, total remittances almost doubled from USD11,768,615 in 2010 to USD 21,765,886 in 2012 (Figure 5.8). At the same time as this increase, the number of seasonal workers declined. In 2012, the numbers of seasonal workers declined from 2,352 in 2010 to 1,794 in 2012 (Figure 5.9). So, while there was no increase in the total income from seasonal workers, they sent home double the amount of money. It is important to examine what might explain the increase in 2011.

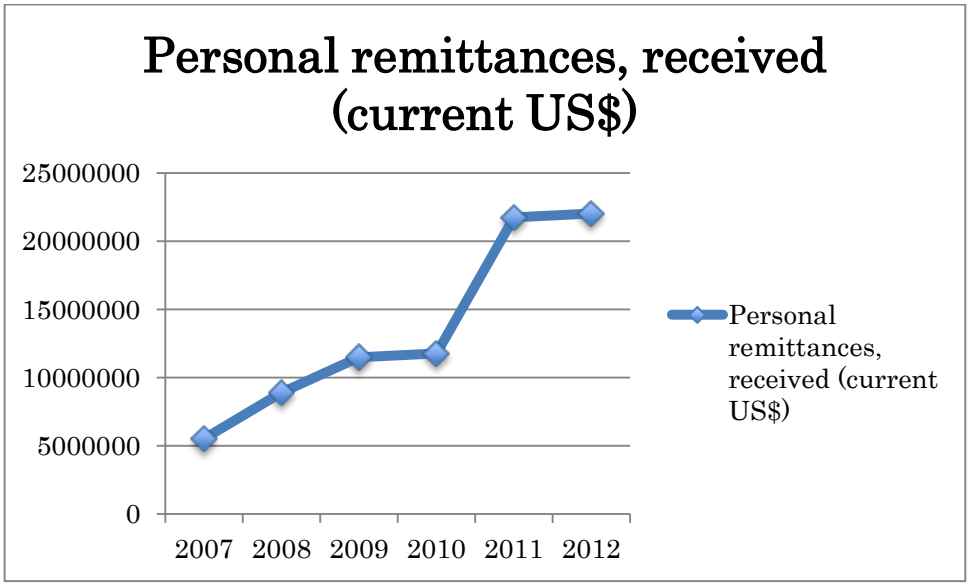


Figure 5.8 Personal remittances, received (current US$). Data from World Bank

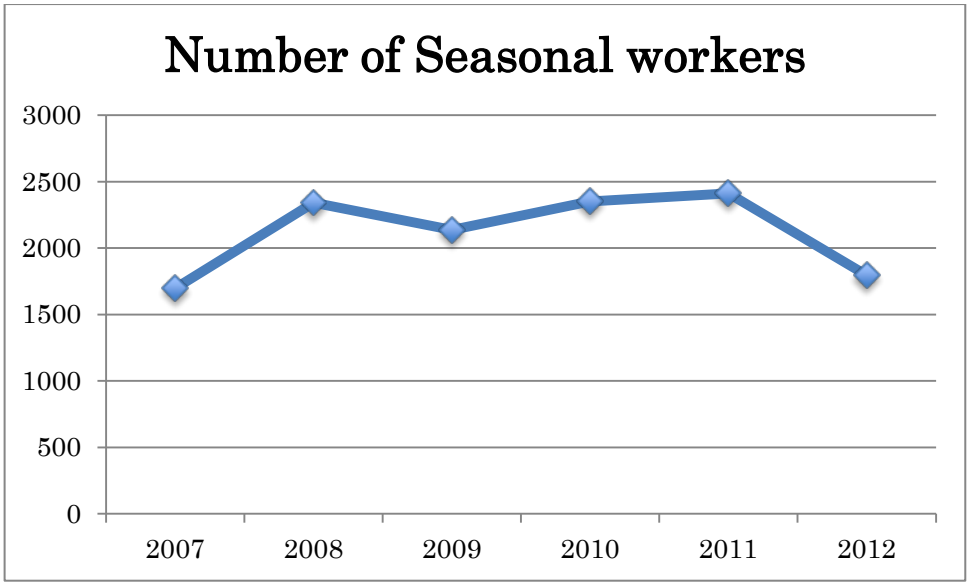


Figure 5.9 Number of Seasonal workers. Data from Bailey 2014

The Pacific Financial Inclusion Programme (PFIP), which is managed by the UN Capital Development Fund (UNCDF) and the United Nations Development Programme (UNDP), gave funds to Digicel Pacific to introduce a low cost money transfer scheme using mobile phones in Fiji, Samoa, Tonga and Vanuatu. This scheme started in Fiji in July 2010 and in Samoa, Tonga and PNG in 2011. In Vanuatu, Digicel's *isi Mani* is linked to the National Bank of Vanuatu. Vanuatu was not included in the 2011 money transfer scheme, which transferred funds from New Zealand and Australia, and it is still not clear why the remittance doubled in 2011. I can only assume that the improvement in sending money domestically, between Port Vila and the outer islands, may be one of the factors that encouraged seasonal workers to send money home with normal bank transfers, such as through the Western Union banking system.

5.6.8 Facebook (Yumi Toktok Stret)

I had a chance to interview Mr Matt Temar, Administrator of the 'Yumi Toktok Stret' (YTS) Facebook group, in Luganville, Santo Islands. 'Yumi Toktok Stret' (land) is a popular Facebook group, especially for the youths of Vanuatu. As of 12th August 2014, some 13,872 members had registered. About 10,000 of these are youths who live in Vanuatu, and mostly in the urban areas, such as Efate and Luganville. This Facebook group was started by a USP student, who believed that youth needed an open discussion on social issues. Yumi means 'you and me', that is, "we", Toktok equates to talking, and Stret means 'straight, that is, 'direct'. So, 'Yumi Toktok Stret' means 'Let us talk directly'.

I asked Mr Temar what YTS did.

> Last year in 2013 there was a long debate on Yumi Toktok Stret led by the Minister of Lands, Ralph Reganvanu, on the issue of Land Reform. The ongoing land dispute and debate triggered YTS members and volunteers to organize a debate LIVE on Television Blong Vanuatu (VBTC), which features the Minister of Lands, the MPs in opposition, a representative of the Vanuatu Council of Chiefs and the President of the Malvatumauri Council of Chiefs (From transcript of interview: Mr Matt Temar, Admin. of 'Yumi Toktok Stret' Facebook group, 9th August, 2014).

YTS also influence motions that have been put before the parliament. Another example of its influence concerns the Flag Act, the possibility of which was first raised by vigorous discussion on YTS. Before this, people could use the National flag anywhere and for any purpose, including commercial activities. Now, every business needs approval in the first instance from the government to use the National flag.

YTS is also close to politicians linked to youth. Mr Long explained:

> He (Mr Long) started to use Facebook around 2011-2012. It allowed him to join the community; to find a social life; to obtain information, especially on the society he is interested in. He can also join in on discussions. (From

> transcript of interview: Mr Mckerras Long, Part time assistant researcher, Vanuatu Cultural Centre, 26th August, 2014).

I asked him how he felt about using FB, to which he responded that:

> He can participate in society; he can socialise; it has given him opportunities to extend his voice (that is, his opinion) to big people, such as leaders and politicians. These are all good things. (From transcript of interview: Mr Mckerras Long, Part time assistant researcher, Vanuatu Cultural Centre, 26th August, 2014).

According to the summary of all these interviews, politics is third after business/economy, and education in 'Subject – Areas' (Group A) (see Figure 5.3). Obtaining information is third after administration, and sending money/food, in 'Activities' (Group B) (Figure 5.4). Community/society and youth are third and fourth respectively, after outer islands and family as 'Objects Who and Where' (Group C) (Figure 5.5). 'Yumi Toktok Stret' covers all of these categories using ICT: politics, getting information, community/society, and youth.

This open forum of Yumi Toktok Stret gives an opportunity for ni-Vanuatu youth in particular to join political and social discussions in a fully voluntary capacity. They have the freedom of choice to expand their Capability through the use of ICT. Ms Doreen Leona, member of the Advisory Group of Huhugaituvwa Association, and Manager of Member Services for the Vanuatu National Provident Fund, stressed that:

> Young people are now empowered and have information that helps them to find their own way. ICT has given the youth information that, in turn, gives them an opportunity to decide whether they will stay in the village or go outside of the village. (From transcript of interview: Ms Doreen Leona, member of the Advisory Group of Huhugaituvwa Association, Manager, Member Services of the Vanuatu National Provident Fund (VNPF), 20th August, 2014).

Ms Doreen Leona's comments were exactly the same as arguments in favour of the Capability Approach. Youth, especially those who live in the remote islands, can now access information obtained from ICT. This information gives them the freedom to choose and possibly to achieve, that is, Capability.

5.6.9 Negative Issues?

I also asked about any negative issues related to the use of ICT and found that all users were aware of problems and had solutions. Ms Rebecca Solomon, President of the Port Vila Youth Council, and secretary of the Vanuatu National Youth Council Executive, needed to communicate with her counterparts in six provinces and two municipalities (Malampa, Penama, Sanma, Shefa, Tafea, Torba, Port Vila and Luganville). She was fully aware that the style of communication had changed.

> Now she does not need to travel anymore except for special cases, such as to organize the Annual General Conference in the outer islands. However, this makes her lazy. Also, communication style has changed from one which was face to face, to one using the mobile phone. Face to face communication has a much more human touch. (From transcript of interview: Ms Rebecca Solomon, President of the Port Vila Youth Council, Secretary of the Vanuatu National Youth Council Executive, 7th August, 2014).

There was some criticism that people were spending too much money on their mobile phones, but Mr Richard Shinji, Senior Researcher of the Vanuatu Culture Centre, who was also one of the leaders of the PIPP mobile phone study, pointed out that:

> There is some criticism that people use too much money for their mobile phones. However, it also means that people need to communicate, that is, this is a positive and need not be a criticism. People living on the remote islands use their mobile phones more than people who live in the towns. It means

> that they need to communicate more than town people. On some of the islands, people use their mobile phones to just communicate with their near neighbours, and this phenomenon is typical for the introduction of a new device. Only when people get used to their mobile phones can they use them in a practical way (From transcript of interview: Richard Shinji, Senior Researcher, VCC, 26th August, 2014).

ITU data may provide proof of Mr Shinji's claim. In 2010, one year after the affordable mobile phone was introduced to the remote islands of Vanuatu in 2009, mobile cellular subscriptions (per 100 people) reached 72%. However, the following years' numbers decreased to 57% in 2011, 59% in 2012 and 50% in 2013 (Figure 5.10). There is a possibility that most of the increase in mobile phone subscriptions relied on the outer islands, and if this is the case, then a decrease in numbers would also come from the outer islands. However, more detailed data is needed to demonstrate this.

An example of outer island usage is given by Ms Marie-Jeanne Barang, who stated that only her father and brother had mobile phones in her home island.

> After Digicel came, mobile phones became drastically cheaper, starting from 1000vt. She bought a mobile phone and sent it to her parents. Now her family in Pentecost have 3 mobile phones, one for her father, and the other two owned by her two brothers. If she wants to talk with her mother, she calls her father and asks him to find her mother. (From transcript of interview. Ms Marie-Jeanne Barang, hotel staff, 18th August).

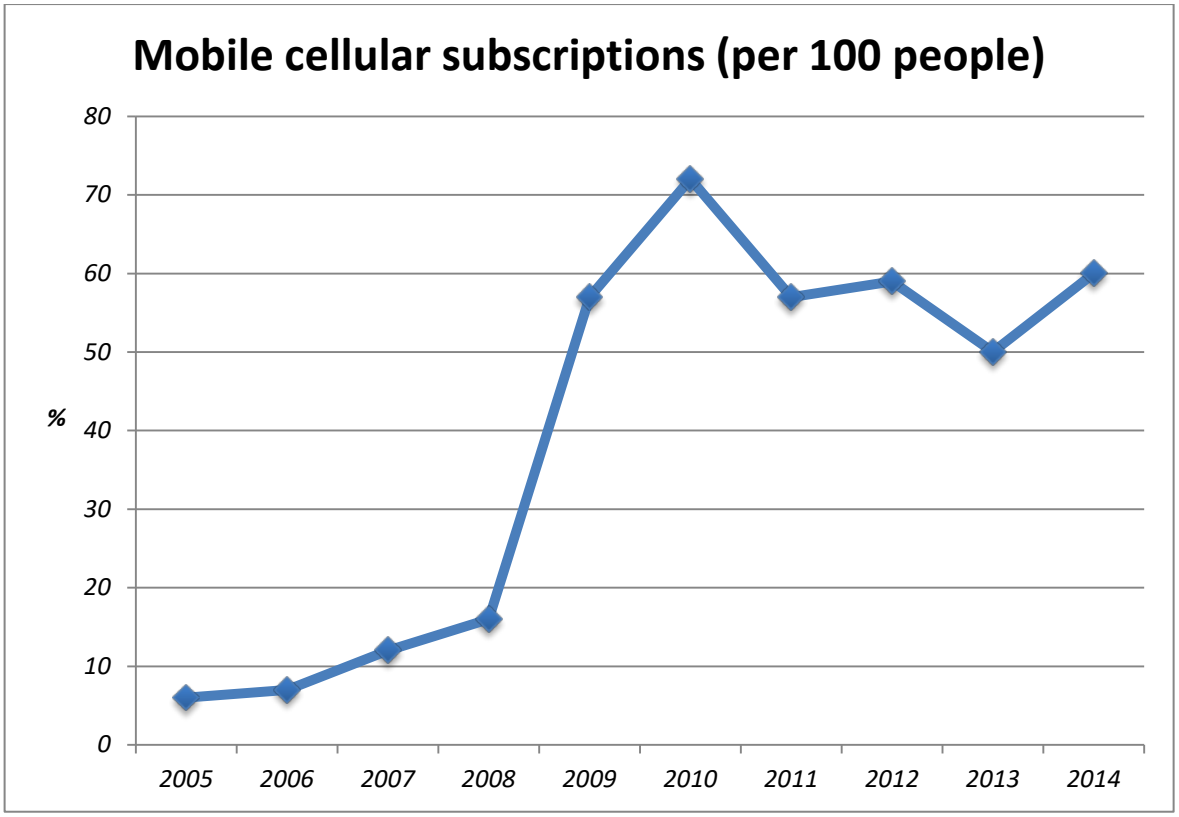


Figure 5.10 Mobile cellular telephone subscriptions (per 100 people)

Mobile cellular telephone subscriptions are subscriptions to a public mobile telephone service that provides access to the PSTN using cellular technology. The indicator includes (and is split into) the number of postpaid subscriptions, and the number of active prepaid accounts (that have been used during the last three months). The indicator applies to all mobile phone subscriptions that offer voice communications. It excludes subscriptions via data cards or USB modems, subscriptions to public mobile data services, private trunked mobile radio, telepoint, radio paging and telemetry services.

Data from ITU

Vanuatu society is conservative and retains strong traditional values. I am not familiar with the rules of each village, but as Mr Shinji pointed out, people may have learned from their experiences in using their mobile phone to manage order within their family and community. That is, it allows families to maintain their own traditional values in relationships within the family. This may reflect the decreased number of Mobile phone subscriptions.

5.7 Discussion

This chapter explores the meaning of development for Vanuatu based on its history and independence movement, including the selection of an official language and deregulation of telecommunication service. The chapter also introduces and analyses data from the field study.

After a few hundred years of suppression and discrimination under the colonial rule of the British and French, the ni-Vanuatu obtained their independence in 1980 and followed their own interpretations of development. In 2009, ni-Vanuatu chose telecom deregulation and achieved Universal Service through their own decision making. The ni-Vanuatu are also creating their own development agenda to improve in areas such as youth affairs, education and economic development using ICT.

One example of these accomplishments is demonstrated by one of my interviewees, Mr Fred Samuel, Government Chief Information Officer, Government of the Republic of Vanuatu, whom I first met in 2007 at a meeting with the French Director of TVL. I could not forget the expression on Mr Samuel's face when the French Director explained to us that Universal Service was impossible for Vanuatu. When I interviewed him in 2014, with Universal Access a reality, his face was full of energy, positivity and commitment. He gave a more than clear commentary on Universal Service during my interview.

> 80% of Vanuatu's population live in the rural area. It means that 80% of the population hardly accesses Government services. Only 20% of the population who live in the towns can access Government services. This is a fact of Vanuatu.
>
> Also, 50% of the population is under 25 years of age. It means that a large young population live in rural areas, where the literacy is much lower than in the towns. There is a need for change and this is a challenge for the Vanuatu government. Universal Access (UA) is very important, especially for the young population who live in the rural area. UA is very important for supporting economic, educational and all social structures of Vanuatu (From

> transcript of interview: Mr Fred Samuel, Government Chief Information Officer, Government of the Republic of Vanuatu, 19th August, 2014). (NB: in Vanuatu, the term Universal Access is used in place of Universal Service).

During my interview, Mr Samuel also mentioned Universal Access (UA) for disaster management. This became very relevant some six months later when the super cyclone Pam came to Vanuatu in March 2015.

> Regarding saving lives, beforehand, those people who live in rural areas and remote islands were not informed about upcoming cyclones, tsunamis, and all emergency news. But now they can receive the government warnings on natural disasters and escape or be prepared. Beforehand, people who live in rural areas and remote islands could not ask for emergency doctors and rescue services. Now they can. UA is important for saving lives (From transcript of interview: Mr Fred Samuel, Government Chief Information Officer, Government of the Republic of Vanuatu, 19th August, 2014).

The question of why remote islands need telecommunication, that is, Universal Service, is connected to the meaning of development and how to form a country. From the beginning of its independence movement, Vanuatu has had a clear ambition to develop rural areas and remote islands through the concept of unity by custom, that is, keeping its diverse traditional customs. In addition, the priority of the national government has been to educate its people. ICT supports these people's political will, as well as providing opportunities to expand their freedom of choice and achievements. That is Capability.

Chapter 6 USPNet and PEACESAT

In Chapter 5, undertaking an ethnographic field study along with other research, I examined the case of Vanuatu from the perspective of its independence movement, and the meanings of development and ICT for the people of Vanuatu. In this chapter, I will discuss a case study of two public networks, USPNet and PEACESAT, in connection with the Capability Approach and ICT4D. Both of these satellite communication systems began in the 1970s for public purposes, such as education and health, using a free secondhand satellite from NASA. As shown in Chapter 4, the Pacific Island countries had a monopoly telecom service for almost 100 years and only in the past decade have some countries started to deregulate and provide Universal Service to the remote and rural areas, such as Vanuatu. However, in the 1970s, the University of Hawaii and the University of the South Pacific took the initiative to develop Distance Education on a separate communication network from the incumbent carriers. I will examine the question of why these networks were developed in the 1970s, some time before the ICT revolution (Internet and free telecom market) of the 1990s. I also look at why USPNet was able to continue its development, while PEACESAT ceased. I shall examine these questions through the perspectives of Capability and Development as Freedom of choice and achievement.

6.1 USPNet

6.1.1 How USP and USPNet started

The history of the University of the South Pacific (USP) is important to the background of USPNet. The British and New Zealand governments agreed to examine the possibility of higher education in the Pacific and published their results in the so-called ‘Morris report’ in

1966. In terms of physical infrastructure, there was an idea to utilize the Royal New Zealand Air Force (RNZAF) complex at Laucala Bay in Suva, which was originally constructed in 1942, for the new higher education institute. (Morris Report 1966).

Britain and New Zealand were in charge of developing the concept of USP because, in 1966, the British still had several colonies in the Pacific (Fiji, Kiribati, Tuvalu and the Solomon Islands). New Zealand also had its own trust territory in Western Samoa, along with the annexed territories of the Cook Islands, Niue and Tokelau. While Australia managed Papua and New Guinea as a trust territory, they also considered establishing a higher education institute in Papua New Guinea.

There were numerous discussions before 1966 on regional, technical, and teacher education systems in the Pacific region. The Morris report made a clear and important claim, that:

> … we have unanimously come to the firm opinion that what is needed is a fully autonomous university, comprehending within itself, as well as Faculties of Arts and Science, the Fiji School of Medicine, the School of agriculture in Fiji, a college for the education and training of secondary teachers, … Accordingly we recommend that steps be taken as soon as possible to establish such a university, to be called the University of the South Pacific (Morris Report 1966: 24).

The Report also proposed that USP should be regional in character as well as in its mission (Renwick *et al.* 1991). An Interim Council was established after the Morris Report, and in 1968, Dr. Colin Aikman of Victoria University, Wellington, New Zealand, was appointed as USP's first Vice Chancellor. The Morris Report also emphasized 'Extra-Mural Studies', stating that:

> The University should have an Extra-mural Department to enable it to carry university studies to towns and villages through the Region, and to promote understanding of and affection for the University in the people of distant areas (Morris Report 1966: 48).

By 1968, the University's extension activities had been identified in a very broad outline (Renwick *et al.* 1991) and the first Diploma of Education courses were taught to off-campus students in 1971. On the 5th of March 1970, the University of the South Pacific was established by Royal Charter. The number of member countries grew to twelve as colonial territories obtained their independence. These included: the Cook Islands, Fiji, Kiribati, Marshall Islands, Nauru, Niue, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, and Vanuatu. In the same year, on the 10th of October, Fiji gained its independence from the United Kingdom. These member countries cover 33 million square kilometers and span four timezones, which has been a definite challenge for USP as a regional organization, especially from the perspective of communication.

USP's regional structure has been highly praised in a report from Asia Development Bank, as follows:

> Developing a regional university to serve 12 tiny countries spread out over the vast Pacific Ocean was a monumental task (Duncan and McMaster 2008: 1).

Actually, there are only two 'real' regional Universities in the world. One of these is USP and the other is the University of the West Indies. What defines a 'real' regional University is that its catchment encompasses more than 265 languages (Matthewson 1993: 319). Not only the languages of member countries, but also their education systems, are noticeably different. For example, students in the Marshall Islands were educated within a North American framework; the ni-Vanuatu students were educated according to two quite distinct models – an English-based and a French-based model; and Nauru followed the Australian state of Victoria's

educational curriculum and system of assessment (Matthewson 1993: 320). This means that, although English is the common language of communication across the various distinct cultures, their understanding of meaning and behavior could be different. For example, I was told by USP staff that Solomon Islanders customarily have more than one name in order to protect their private security. When the same student enrolled at USP under several different names, this caused major administrative problems. Thus, a 'real' regional University faces what Matthewson describes as the huge task of "Regionalism, on the one hand, which is an enriching unique feature, but on the other hand, it presents organisational difficulties, educational constraints, multiple agendas and learning needs" (Matthewson 1993: 353-354).

One of the reasons for USP's success as a regional institution is that each member country had some local university presence from the beginning. Dr. Aikman, the first Vice Chancellor, successfully obtained a grant from the Carnegie Corporation to build the regional centres, which support those students enrolled in USP's external courses. As a result, USP established three residential campuses (Laucala in Fiji, Alafua in Samoa, and Emalus in Vanuatu), with National Centres in each of the twelve countries. Several of these Centres have one or more sub-centres on other islands. They also connect with local people and pass information from USP to them as well as communicating people's needs back to the university (Renwick *et al.* 1991).

Before satellite technology was introduced to the university, the institution utilized the postal service for its extension (distance) courses. Even after the satellite network was installed into each of the centres, the postal service was still used to send textbooks. Thus, the current USP feature of regionalism, and the functions of distance education, were firmly conceptualized and put into practice before the introduction of the satellite network.

The Renwick report pointed out that the Vice Chancellor and other senior members of USP were already aware of the potential to use a satellite system for their extension service at an early stage. The President of the University of Hawaii was a member of the USP Council, and opened the door for USP to develop the PEACESAT project (which was started in 1970 at UH) with a previously used satellite. Although NASA offered its ATS-1 satellite for free use, USP needed to establish earth stations in each of its centres. Again, the Carnegie Corporation provided a grant, which made it possible for USP to contact NASA and the United States Agency for International Development (USAID) and prepare the USPNet project (Renwick *et al.* 1991).

In 1972, USPNet's first terminal opened at the Laucala Campus in Suva, followed by another at Nuku'alofa in Tonga. By 1976, USP extension centres were linked in Rarotonga, Port Vila, Honiara, Tarawa, Apia, and Niue, followed by Tuvalu in the following year (McMechan 2000). The number of extension courses and student numbers drastically increased. In 1981, there were 380 EFTS (effective full-time students) enrolled in extension courses. By 1989, eight years later, this number increased almost threefold to 1,263 EFTS. This included 6612 students by head count and 10,851 enrolments. The number of extension courses also increased. In 1980, there were only thirty courses, but by 1989, this increased fivefold to 148 courses. Of note is the fact that the ATS-1 satellite reached the end of its life in 1985 and was brought down by NASA, but four years after this event, the number of students had increased threefold and extension courses increased fivefold (Renwick *et al.* 1991: 19). This demonstrates a robust need for distance education services based on student demand, rather than on the opportunity provided by ICT.

Since USPNet was using the same satellite as PEACESAT, and the PEACESAT office at the University of Hawaii was managing this satellite network, USP found its work with PEACESAT quite stressful, particularly maintaining the network.

> With the exception of the main campus facilities in Suva all of the USP Centres found the maintenance of the general PEACESAT program difficult (McMechan 2000: 262).

Lewis and Mukaida (1991) and others describe those networks which use AST-1, like USPNet and Kangaroo Net, as 'part of' or 'under' the PEACESAT project. However, the University of the South Pacific made it clear that USPNet was operating independently from PEACESAT (McMechan 2000). As indicated by McMechan, because of USPNet and its location in the Pacific, PEACESAT could truly be said to have 'pan-Pacific' coverage. This came about as the direct result of USP's position as primary user of ATS-1 in the South Pacific.

It could be argued that the PEACESAT operation based in the University of Hawaii did not make as significant a contribution to the Pacific Islands, but rather, USP did by using the ATS-1 satellite, which was offered by NASA for free use. Furthermore, McMechan criticizes those PEACESAT operations at the University of Hawaii that demanded cooperation from other terminal centres in the Pacific Islands, such as the USP centres. This was based on the voluntary nature of USP's cooperation with PEACESAT, while PEACESAT staff were paid for their projects. Pacific Islanders working for USP were obliged to sacrifice work time for PEACESAT (McMechan 2000).

Christopher M. Plant describes the tension between USP and PEACESAT more strongly in his Master's thesis, 'PEACESAT and Development in the Pacific Islands'.

> Ironically enough it was PEACESAT's relationships with the University of the South Pacific and with Fiji's licencing authorities – both key institutions as regards PEACESAT – that disturbed progress (Plant 1979: 174).

USP had established its own network by arrangement with NASA. This was a great relief to the Fijian licencing authorities, who had strong reservations about the loose objectives of PEACESAT. As discussed earlier, USP had sound objectives. The Director and founder of PEACESAT at the University of Hawaii, John Bystrom, thought that the USPNet terminals were accountable to PEACESAT headquarters in Honolulu. One day, he unilaterally terminated the operations of Honiara (Solomon Islands), Apia (Samoa) and Tarawa (Kiribati) terminals because of licencing issues. USP had previously clarified that they were not obliged to provide information about licencing to the Director of PEACESAT, and indeed, he was not responsible for its licence. According to Plant, Bystrom had an idea that the PEACESAT system would become global, and for this, he demanded more legal and formal institutions for participating users (Plant 1979: 178). This tells us that PEACESAT was established by a single person, with a strong character and a rather controversial self-centred management style.

The history of PEACESAT and USPNet highlights the difficulties that existed between them. This explains perhaps why USP did not want to participate in any more projects that shared a satellite with PEACESAT after they obtained another used Satellite – GOES series from NOAA (National Oceanic and Atmospheric Administration). However, there was another reason why USP wanted its own satellite network. The former Director of University Extension, Dr. Claire Matthewson, notes that "some particular 'satellite events' deserve recounting" (Matthewson 2000: 66) with USPNet, including: disaster, contagious disease and coups. The USPNet satellite network helped the Pacific Islands people to access information on such events. The small scale of economy in island nations did not allow for multiple networks. For example, economically prosperous countries, such as Japan, have several marine communication cables and satellite networks. If one of these stops working, the telecommunication carriers switch to an alternative network. There is always a backup for

telecommunication services in developed countries, but not in small islands nations. USP offered a backup telecommunication service as a lifeline to its member countries outside of Fiji, when the incumbent telecommunication companies lost their networks in times of disasters and coups. USP recognised the importance of having its own network, not only for distance education, but also to allow communication between non-Fijian students and their families outside of Fiji. USP also recognized the importance of having a sustainable and reliable commercial telecommunication network, rather than the free but unsustainable and unreliable satellite communication network that had been offered by NASA through PEACESAT.

On those occasions when the national telecommunication service was out of action or its use prohibited by the national authority, USPNet was robust enough to connect students and families in all member countries. USP is not a national body, but a regional organization, and it is for this reason that it can legally escape the influence of national governments. Those occasions in which reliability was critical included Cyclone Bebe in 1972, an outbreak of cholera in Tarawa in 1976, an earthquake in Guadalcanal in 1977 and coups in Fiji in 1987.

The backup function provided by USPNet was also the most important reason for USP's proposal of an independent satellite network after ATS-1. USP was convinced to keep its own communication networks independent and separate from the national telecommunications carrier. This is an important point, as we can see more clearly with the Capability of USP to use ICT. The staff at USP had a clear mission. They knew what they wanted to do and how they wanted to achieve it. They chose technology themselves, and how to use it in their mission.

6.1.2 How the current USPNet developed

NASA's used satellite, ATS-1, had been operating for 16 years, which is an unexpectedly long time for a satellite. In August 1985, ATS-1 was finally disconnected, and USP and other users lost their satellite networks. However, as we have already noted, the 'extension service' was part of USP's original mission and its system of extension or distance education was developed at the heart of the University. It was not long before other connections were made. In the following year, from September 1986, and with the support of Fiji's Prime Minister Ratu Kamisese Mara, USPNet was re-established using a 'Project Share' agreement with INTELSAT, which provided free use of its satellite (Matthewson 2000: 66).

This 'Project Share' satellite service was provided to USP extension centres from September 1986 to September 1990. However, some centres (Niue, Western Samoa and Kiribati) were only able to be connected using HF radio. In Kiribati, the satellite service was disconnected in 1988 because the privatized telecommunications carrier decided to charge full commercial rates, which USP was unable to pay (Renwick *et al.* 1991: 27).

Problems between USP and the national telecommunications carriers existed prior to the re-establishment of satellite connections. The main problem was a lack of service from the the provider of the 'landlines' that connected USP with the telecommunications office. For example, in the proposal for an upgrade to USPNet, the listed item, "A typical fault register from June 1990 to Dec. 1993", shows the length of time in which USP centres were disconnected from their national telecommunication station. In some cases, USP was disconnected for more than one month.

Thus we can see that, towards the end of the 1980s, USP was convinced to have its own satellite network for the following reasons: first, USP had had negative experiences with PEACESAT; second, USP's experiences with the national telecommunications carriers were

also negative; third, since its foundation, USP had a clear mission to provide an extension service for higher education to towns and villages throughout the region. Finally, USP recognized the need for a separate, reliable, and sustainable commercial satellite network, rather than a free but unsustainable satellite as a backup communications lifeline, especially for the students and their families who lived in different countries.

Following a suggestion from Ratu Sir Kamisese Mara, the University of the South Pacific finally sought assistance from Japanese NGO, the Sasakawa Peace Foundation. Any discussion hereafter is based on my own knowledge and experience as a Program Officer in the Sasakawa Peace Foundation, when I was in charge of upgrading the USPNet project and PEACESAT.

As noted earlier, in August 1988, the Sasakawa Peace Foundation hosted the Pacific Island Nations Conference in Tokyo, Japan, and invited the following leaders from Pacific Island nations. All of these were USP members, except for Papua New Guinea and the Federated States of Micronesia.

Republic of Fiji: Rt Hon. Ratu Sir Kamisese Mara;
Republic of Kiribati: Hon. Ieremia T. Tabai;
Federated States of Micronesia: Hon. John H. Haglelgam;
Papua New Guinea: Rt Hon. Michael T. Somare;
Kingdom of Tonga: H. R. H. Crown Prince Tupouto'a;
Tuvalu: Rt Hon. Tomasi Puapua;
Republic of Vanuatu: Hon. Sethy J. Regenvanu;
Solomon Islands: Hon. Ezekiel Alebua;
Western Samoa: Hon. Tuilaepa Sailele
Cook Islands: Hon. Pupuke Robati;
Source: (https://www.spf.org/spinf/profile/conference.html Accessed 10 September 2015.)

Former Japanese Minister of Foreign Affairs, the Hon. Tadashi Kuranari, was appointed Chairman. In 1987, as Minister, he had announced the first official Japanese policy for the Pacific Islands since the end of WWII, the so-called Kuranari doctrine. This covered five principles, namely: a) respect for independence and self-help, b) support for regional cooperation, c) ensuring political stability, d) economic cooperation for development and e) promotion of People-to-People exchange. Mr Kuranari fully recognized the needs of the Pacific Islands, but the role of telecommunication was not mentioned in his doctrine.

In January 1989, Mr Sasakawa, Chairman of the Sasakawa Foundation (currently called the Nippon Foundation), visited Fiji to meet with Ratu Mara. At that meeting, Ratu Mara sounded out the possibility of launching a communication satellite for the Pacific Islands region. After a feasibility study in Japan, the Sasakawa Peace Foundation sent staff to Fiji in January 1990 to discuss details of the telecommunications project. Ratu Mara pointed out three key needs of a telecommunication service in the Pacific Islands. First, it had to serve as a communication service between the main islands and remote islands. Second, it had to function as a hotline system and connect all Pacific Island leaders simultaneously. This had been available at the USP in the past, through the ATS-1 satellite. Finally, it had to re-establish USPNet. Ratu Mara confirmed that this last point was the highest priority. When I joined the Sasakawa Peace Foundation in 1991, one of my tasks involved the proposal for USPNet.

In 1993, the Sasakawa Peace Foundation launched the Distance Education Development Study Committee for the Pacific Region, inviting Japanese experts on telecommunications and education to study Distance Education, with a focus on the USPNet proposal. At that time, USPNet's technical condition was tragic. Matthewson described the telecommunication line between the USP Centres and local ground stations as varying in reliability and local maintenance. Centres were potentially off the network for weeks, and the five member countries did not have access to USPNet, because the ground station service had not been

provided due to technical issues or local policy. The HF radio was available in these countries, but was frequently unsatisfactory. Matthewson (1993: 323) noted that "USPNet's greatest need (was) for full-duplex, interactive facilities".

The initial draft of the proposal for a USPNet upgrade was submitted to the Sasakawa Peace Foundation in 1992. Subsequently, the Foundation continued its discussions with USP. In 1995, the Sasakawa Peace Foundation decided to take this proposal to the Japanese Official Development Assistance (ODA). Their concern was the recurrent operation costs, to which the Foundation could not commit.

There was an obstacle to USP access to the Japanese ODA, however. One of the principles of the Japanese ODA is a bilateral agreement, and therefore, direct applications to Japan should come from individual nations, such as Fiji, and not from USP (a regional body). Because of this principle, the Japanese Embassy in Suva could not have any official contact with the University, even though they were located in same city. Another regional organization, the South Pacific Forum (SPF) (the current Pacific Islands Forum), functioned as the official partner in dialogue with the Japanese government. This meant that, if the SPF put in a request for a project, the Japanese government was obliged to receive and consider it as a matter of protocol.

In October 1996, the Hon. Amata Kabua was invited to Japan as the Chair of SPF, along with the SPF Secretary General and first President of Kiribati, the Hon. Iremia Tabai, by the Japanese government as part of an annual event. They brought with them the USPNet proposal and handed it directly to the Japanese government without any preliminary discussions with the Japanese Embassy in Suva. It should also be noted that the Hon. Amata Kabua decided to have the Marshall Islands join the USP in 1991, because he believed that a USP education was much more suitable and feasible for his country's youth than the United

States education system. This suggests that he was a strong supporter of the USP as well as USPNet. In another coincidence, when Kabua visited Japan in 1996, he was also the Chancellor of USP. This means that he was invited as the Chair of SPF, but also wore the hat of the Chancellor of USP when he submitted the USPNet proposal.

This unexpected submission of a direct proposal to the Ministry of Foreign Affairs in Japan initially elicited a very negative reaction, as there had been no preliminary discussions and even the Japanese Embassy in Fiji had not been informed. However, I believe that, if USP and SPF had held preliminary discussions and/or contacted the Japanese Embassy in Suva, it would not have been possible to submit the proposal. This is because, as a general policy principle, the Japanese ODA did not support multilateral governmental organizations at that time. The University of the South Pacific is a multilateral governmental organization.

6.1.3 Why the Japanese government supported USPNet

On April 30 1997, at a joint press conference held at the Japan-New Zealand Summit meeting, both the Japanese Prime Minister Hashimoto and the NZ Prime Minister Bolger announced their support of USPNet.

> The second area covered was regional and international issues. Japan and New Zealand cooperate closely as partners in the Asia Pacific region. We will continue to deepen cooperation in such areas as APEC, ARF (the ASEAN Regional Forum) and the World Trade Organization (WTO), as well as assistance to the Pacific Island countries. In particular, as far as assistance to the Pacific Island countries is concerned, consultations have been undertaken by the two countries on cooperating for the establishment of facilities for the use of the remote education program of the University of the South Pacific, which I understand is called the USP-net (Joint Press Conference by Prime Minister Hashimoto and Prime Minister Bolger on the Japan-New Zealand Summit Meeting, April 30, 1997, Wellington, New Zealand).
>
> Source: (http://www.mofa.go.jp/announce/announce/archive_1/970430.html Accessed 10 August 2015.)

After six months, in October 1997, the first Pacific Island Leaders' Summit was held in Tokyo, Japan.

The story of what had happened between October 1996, when USP and SPF submitted the USPNet proposal to the Japanese government, and April 1997, when the Prime Ministers of Japan and New Zealand made an announcement after a period of only five months, is an important one. At that time, there was an urgent need for the Japanese government to commit to Pacific Island countries, especially the South Pacific Forum. This was largely to do with 'Plutonium Shipping'.

The issue of 'Plutonium Shipping' is a delicate one for the government of Japan and members of the Pacific Islands Forum (PIF). I have examined all statements on Plutonium shipping and nuclear related issues in Pacific Islands Forum communiqués from 1992 to 2006 (Appendix H) and will provide an overview at this point. In examining the relevance of 'Plutonium Shipping' to USPNet, it is important to consider the Japanese government's attitude and its policy towards the Pacific Islands. My overview does not concern the finer details of Japanese policy, but rather the general trends. I would like to point out that the USP and USPNet were never a concern for the Japanese Government in the past. This viewpoint comes from my personal experience, since I was in charge of the USPNet project and invited Japanese Government officials several times to join our study committee. If the USPNet proposal had not been presented directly to the Japanese Ministry of Foreign Affairs in 1996, then USPNet would never have received ODA from Japan. I would say that this is the result of USP and PIF's decision, rather than that of the Japanese government, whose decision-making process was based on an entirely different agenda.

6.1.4 The Japanese government agenda

First, it is important to present an historical background of Japan and the Pacific Islands. Under the League of Nations, Japan had control of the mandated territories in the Pacific, present-day Northern Marianas Islands, Palau, Micronesia and the Marshall Islands. These were all former German territories. After WWII, Japan lost these territories, and only shifted its attention back to Pacific issues following the Daigofukuryumaru radiation exposure accident, near Bikini atoll in the Marshall Islands, in 1954. This resulted in a national anti-nuclear movement in Japan. However, in the year prior to the accident, the US President, Dwight D. Eisenhower, had launched a policy called 'Atoms for Peace' at the UN General Assembly. As this policy gathered strength, Japan's anti-nuclear movement diminished and the government introduced a plan to launch a nuclear power plant, following the United States policy of 'Atoms for Peace'. In 1957, the first Nuclear Power Plant was opened in Japan, with one of the main problems being that of nuclear power waste.

In 1980, in order to solve this problem, the Japanese government announced its plan to dump nuclear waste in the North Pacific. However, at that time, the anti-nuclear movement was growing stronger, especially after Australia changed to a Labor-led government. In 1985, the South Pacific Nuclear Free Zone Treaty (Treaty of Rarotonga) was signed by Australia, New Zealand and most of the Pacific Islands. In the same year, Japanese Prime Minister Nakasone visited the Pacific Islands for the first time as Prime Minister and announced the end of nuclear dumping.

From 1992, instead of nuclear waste dumping, Japan started to ship plutonium between Japan and France/England, where nuclear reprocessing facilities were located. In the same year, the South Pacific Forum made a statement on plutonium shipping in the *Forum Communiqué*.

These same statements were included in every SPF General Assembly over a fifteen year period until 2006 (see Appendix H):

> Plutonian Shipments
>
> 27. Forum Leaders noted that the Japanese Government plans from later this year to ship plutonium from Europe to Japan. The Forum urged Japan to consult fully with Forum countries regarding the proposed shipments (TWENTY-THIRD SOUTH PACIFIC FORUM, Honiara, Solomon Islands, 8-9 July 1992).
>
> Shipment of Radioactive Materials
>
> 26. Leaders reiterated their concerns about the risks of economic loss in an incident involving the shipment of radioactive materials through the Pacific, and restated their view that in the event of losses directly attributable to such an incident, there was an imperative on the shipping states not to leave the countries suffering those losses unsupported (THIRTY-SEVENTH PACIFIC ISLANDS FORUM, Nadi, Fiji, 24-25 October 2006).

This, and not USPNet, ICT4D, or Distance Education, was the Japanese government's agenda. Five years after the Pacific Forum initially complained about Plutonium shipping in 1992, the Japanese government announced its support of USPNet at the first Pacific Islands Leaders Meeting (PALM) in Japan in 1997. The upgrade began in October 1998. USP could now connect directly to Satellite space, bypassing the ground station of the local telecommunication service. Suva was the hub of the earth station; Apia and Port Vila were mini-hub earth stations; and the Cook Islands, Kiribati, Marshall Islands, Nauru, Niue, Solomon Islands, Tokelau, Tonga, and Tuvalu were remote earth stations. In May 2000, due to the Fijian coup, a large number of students returned home, but fortunately, some 35 courses were still delivered to the four regional centres with the largest concentrations of students (Kiribati, Samoa, Solomon Islands, and Tonga) using upgraded USPNet (UNESCO 2008: 9).

In all PALM meetings (1997, 2000, 2003, 2006, 2009) before the Fukushima nuclear power disaster of March 2011, Pacific Island leaders were invited to nuclear power plants, or met

with the Federation of Electric Power Companies of Japan (FEPC). FEPC also established a fund for the Pacific Islands Forum, the Pacific Islands Development Cooperation Fund.

> The Forum welcomed the goodwill shown by Japan in offering to establish a Pacific Islands Development Cooperation Fund, funded by the Japanese private sector. The Forum endorsed further consultations to finalize the details of the Fund. In doing so leaders confirmed their understanding that the Fund is quite separate from the issue of compensation and liability that the Forum is currently pursuing with the three nuclear shipping states (THIRTY-FIRST PACIFIC ISLANDS FORUM, Tarawa, Republic of Kiribati, 27-30 October 2000).

The main reason that the Japanese government decided to support USPNet was because of Plutonium shipping. The Japanese government never put together a study committee or conducted any research on USP and USPNet before 1997, but suddenly decided to provide a grant to upgrade USPNet because they needed support for 'Plutonium shipping'. I would argue that the Japanese offer of ODA to USPNet was intended as a form of compensation for plutonium shipping. Was the submission of a proposal from the Hon. Amata Kabua (Chair of PIF and Chancellor of USP) and the Hon. Iremia Tabai (Secretary General of PIF) to the Japanese government just a strange coincidence? I would like to stress that this 'coincidence' was a result of regional political will, that is, freedom of choice, to provide an opportunity to educate their youth at home, in USP and PIF member countries. Ironically, the Capability of the USP and PIF was fully activated by an entirely different agenda, the energy policies of Japan and the United States.

6.2 PEACESAT – its political and historical background

After the Soviet Union successfully launched its space rocket Sputnik in 1957, the United States accelerated its own space development program. In 1958, the US established NASA and developed a series of communication satellites. Under the Kennedy administration, the Communication Satellite Act of 1962 led to the creation of the dual-natured public/private Communication Satellite Corporation (COMSAT). The private COMSAT was granted a monopoly in the business of international satellite communication, for the express purpose of meeting the public goal of a global communication satellite system (Smith 1976: 108). One of these was the Applications Technology Satellite (ATS) series. In 1964, US Senator Pastore asked an important question on whether to spend 90-95% of public funds on a private company like COMSAT (Smith 1976: 115). Due to this pressure, NASA designed a multipurpose and advanced technology satellite for communication and other functions (Smith 1976: 231).

When the ATS-1 completed its experiment, NASA offered free access for public experiments. Mukaida, one of the Directors of PEACESAT, and Lewis note that:

> When the weather experiments were completed in 1969, NASA offered free access to the satellite to any non-profit, non-commercial group desiring to benefit from experimental communication programs by satellite (Mukaida and Lewis 1991: 242).

The University of Hawaii developed a proposal based on NASA's offer and started PEACESAT in 1971. After 42 years, this experiment ceased on 12 April 2012, losing another used satellite, GOES-7, from NOAA (NESDIS News Archive 2012; NOAA 2012).

Why did PEACESAT cease to operate, while USPNet continued to grow. Of course, PEACESAT was only an experiment, while USPNet is based on an institutional mission with multiple functions. But we could also note that, for 42 years, the continuity of PEACESAT relied heavily on its users' needs, and not on operations at the University of Hawaii.

Most of the papers on PEACESAT, written by staff of the project, focused on technology and project descriptions, with no evaluation of content (Plant 1979). I have read hundreds of these papers over the last twenty-five years, not only for this study, but also when making grants to PEACESAT at the University of Hawaii. I did not find any negative descriptions in any of these internally written reports. However, a different perspective was presented in reviews by outside experts, such as USP staff like Peter McMechan (2000), and research such as Plant's (1979) MA thesis. Since 1991, in my own work on the Pacific ICT project, I have heard many negative and rather emotional comments, as well as positive comments, about PEACESAT, especially its personnel. I assumed that some negativity would arise, as PEACESAT is an obstacle for incumbent telecommunication companies in the Pacific Islands. This provides 'free' satellite communication service to 'public' organizations, such as governmental regional organizations, government agencies, educational institutions and NGOs. However, there is another reason why PEACESAT has attracted negative feedback. According to Plant (1979), its aims and mission statement were vague and uncertain and the underlying attitude was inappropriate for the Pacific Islands.

Plant presents a complex story in his MA thesis (1979). (When it was eventually accepted in 1982, the title of his thesis had changed slightly, to 'PEACESAT: Communications and Development in the Pacific Islands'). Plant was employed as a Research Assistant at Simon Fraser University (SFU) from January 1978 to April 1979, to help launch Vancouver's participation in the PEACESAT system. During his time on this task, he realized that:

> Experience in monitoring and operating the PEACESAT terminal at SFU led me to believe that organizational and operational aspects of the system seriously prevented its use by Pacific people (Plant 1979: 3).

Plant pointed out that there was an "absence of a documented history of the project up to [that time] and the absence of any comprehensive outside evaluation of PEACESAT" (Plant 1979: 5). He thus decided to remedy this and used his own personal experience in the South Pacific, and with PEACESAT at Simon Fraser University, when researching for his dissertation. He also conducted intensive interviews with John Bystrom, the founder of PEACESAT, and with Carol Misko O'Keefe and Stuart Kingan from PEACESAT headquarters at the University of Hawaii. Plant reveals John Bystrom's detailed background and relationship with the US Federal Government, in addition to the circumstances in which PEACESAT started. One of his arguments is that United States foreign policy and defense interests were heavily involved in PEACESAT projects (Plant 1979: 182-183). One of Bystrom's proposals was the involvement of PEACESAT in mobile communication technology, particularly in sparsely populated areas of the Pacific, to meet US defence interests in the Cold War together with the Departments of States, Defense and Interior (quoted in Plant 1979: 182-183 from one of Bystrom's PEACESAT proposals, January 15 1976).

Plant also points out the 'harsh irony' that, according to Bystrom, PEACESAT would contribute to resolving the world's social problems and facilitate community development (Plant 1979: 183).

> It can make a fundamental contribution to the solution of world social problems by improving health, education, and community development programs while opening new markets for communication (Bystrom 1976, quoted in Plant 1979: 182-183).

Furthermore, Plant argues that the reason why Bystrom moved to Hawaii was defence-oriented, because PEACESAT met the broader US defense interests in the Pacific, and this region was of considerable strategic value to the United States (Plant 1979: 289). Locating the headquarters of PEACESAT at the University of Hawaii was an understandable decision (Plant 1979: 289).

The growth of PEACESAT was primarily due to users of USPNet. Without a clear mission statement and proper evaluation, PEACESAT also caused problems for other Federal agencies, such as NASA. Plant points to significant concerns, such as the global ambitions of PEACESAT: "NASA might well have panicked at the poor evaluative task that the PEACESAT Project was doing and at the extent to which PEACESAT seemed to be inexorably developing into a service rather an experiment" (Plant 1979: 293).

Plant's original research asked whether or not PEACESAT was appropriate within the context of development, and repeatedly concluded that it was not.

> The results of this study have so far shown that organizationally and operationally PEACSEAT as an institution is inappropriate for Pacific Island development (Plant 1979: 287).
>
> Consequently, the overall conclusion of this study must be that PEACESAT as an institution represents a highly inappropriate tool of development for the Pacific Islands (Plant 1979: 302).

In Plant's discussions on PEACESAT, the character of John Bystrom has been described as follows:

> At the other extreme, it could be argued that the impact of PEACESAT in the Pacific is marginal. Ironically, employing Bystrom's own stated methodological approach to evaluating PEACESAT which uses 'behavioural indicators' and 'user attitudes', the data from the Exchange Data Analysis can be interpreted as showing that the Pacific people do not much like being treated like 'exotic guinea pigs'. Clearly, there is validity in both

> interpretations, both of which indicated the inappropriateness of PEACESAT for the Pacific (Plant 1979: 301).

These conclusions reflect my own experiences working with PEACESAT as a grantor and project partner. The staff of PEACESAT never talked about Bystrom, although as the founder, he should have been an important figure. I can only remember one of the PEACESAT staff talking negatively about Bystrom. John Bystrom left PEACESAT in 1981, a couple of years after Plant submitted his thesis in December 1979. In his thesis, Plant mentions that:

> It is important to note that, given the absence of a documented history of the project up to now and the absence of any comprehensive outside evaluation of PEACESAT, the type of evaluation presented here is regarded as only the beginning of a process of evaluation. The writer has intended this study to provide the groundwork for his own further, more detailed attempts at evaluating PEACESAT; it is hoped that the study will enable others to do likewise (Plant 1979: 4-5).

I have never seen any academic works or evaluations on PEACESAT from a policy perspective. Plant's thesis was quite critical of Bystrom himself, noting that the relationship between PEACESAT and the United States federal government agencies, along with organizational and operational aspects of PEACESAT, was not openly shared with others who worked for PEACESAT, issues that I also observed in my work.

Despite Plant's negative criticism of PEACESAT, it survived for another three decades. In the 1970s and 1980s, USP was the main user of the same PEACESAT satellite as the one I described at the beginning of this chapter. It is difficult to imagine how this endeavour could have survived in the 1990s and 2000s without a clear policy or mission.

Based on my own observations, PEACESAT developed in two stages. Stage One involved using NASA's satellite, ATS-1, from 1971 to 1985 (16 years), with the USP being their primary user in the Pacific Islands. Stage Two made use of the NOAA satellite, GOES series, from 1987 to 2012 (25 years) (Cooperman, Mukaida and Topping 1991). This began with the Forum Fisheries Agency (FFA) as the major user in the Pacific Islands. One reason that PEACESAT survived into the 1990s and 2000s was its relationship with the FFA, which is a regional organization. Member countries in the Pacific each have fisheries agencies, which require information from and robust communication with FFA headquarters in Honiara, Solomon Islands. PEACESAT offered the FFA a free satellite network, not only for telephone communication, but also the very first Internet connection to FFA member countries. As I have already discussed USP in a previous section, the following section will be limited to the Forum Fisheries Agency and explore why such an institution needed PEACESAT.

6.3 Fisheries resource management and PEACESAT

The Pacific Islands contain a number of regional governmental organizations, such as the Pacific Islands Forum (PIF, formerly South Pacific Forum), the University of the South Pacific (USP) and the Forum Fisheries Agency (FFA). Established in 1947, the SPC is not only the oldest inter-governmental organization in the Pacific Islands, but also the largest. It has 26 member countries, including four former colonial powers: Australia, France, New Zealand and the United States of America (Netherlands and United Kingdom were also founding members, but withdrew in 1962 and 2004, respectively). One of the priorities for this large regional body was communication. On the 10th of January 1974, the SPC headquarters in Noumea, New Caledonia inaugurated the PEACESAT terminal at the request of SPC's Frank Mahony in 1973 (Plant 1972: 167).

SPC had not only been an active PEACESAT user, but one of its tasks was also to promote communication services for the region. The Regional Media Centre was launched in 1974 and is now located at the SPC office in Suva, Fiji. This centre aimed to promote the use of media for education, sustainable development and good governance in the region. While the other regional organisation, PIF, focused on the regulation and infrastructure of telecommunications, SPC focused on vocational training for the production of radio and TV content, video, graphic design and publication. The Centre also supported the management of privatized media organisations which, for a long time, had been run by the government (South Pacific Commission 1996a, 1996b, 1994; South Pacific Forum 1994). As a member of the Pacific Islands Chapter of the Internet Society (PICISOC), I have observed that SPC staff also made a major contribution to the development of ICT in the region, in particular, technical Internet support at both an organizational and individual level.

After the Pacific Island nations gained their independence, they then established more regional governmental organizations to promote regional cooperation. Each regional organization had its own priorities, such as education, tourism or environment, with the FFA in charge of managing, controlling and developing member countries' tuna fisheries.

We cannot ignore the historical arguments on ocean management in the Pacific Islands, which led to a large part of the Pacific Ocean being granted to the Pacific Island Countries as an Exclusive Economic Zone, as well as the birth of the FFA. Under the United Nations Convention on the Law of the Sea (UNCLOS) III, one proposal introduced a restriction on the rights of islands, that they should not generate a 200-mile economic zone (Beeby 1975). However, after decade-long negotiations, the Pacific Island countries thwarted these unwelcome proposals and successfully obtained Exclusive Economic Zones as part of the 1982 UNCLOS (Powles 2002).

> Arguably the most successful international endeavour which the countries of the Pacific have ever undertaken together was the achievement of nearly all island state objectives in the near decade-long negotiation of the 1982 United Nations Convention on the Law of the Sea (UNCLOS). While the value of economic resource rights which accrue to island countries from UNCLOS cannot be estimated until surveys and research reveal the extent of under-sea mineral and other resources in exclusive economic zones, it is clear that the surrounding waters of island states, and the continental shelves, contain a significant proportion of the overall resources available to them, certainly in the case of smaller island states (Powles 2002: 60).

The large EEZ under the possession of the Pacific Islands, and which they are both enjoying and struggling with, was not merely given to them. This came about as a result of their national and regional political will, and as a victory against the larger continental powers. Development of the Pacific Regional organization for the management of fisheries has had a unique history. It is not only an influential organization in the region, but also for the global community (Hayakawa 2012).

The Pacific Ocean has the largest stock of fish in the world market. In 2011, the Western Central Pacific Ocean (WCPO) share of the global catch was 55%. The estimated total value of the WCPO purse-seine fishery was almost $3.1 billion in 2011 (Pacific Islands Forum Fisheries Agency 2012). Fish are one of the biggest sources of wealth and revenue for small island countries. Before the UNCLOS was concluded in 1982, the Pacific Island Countries established the Forum Fisheries Agency (FFA) in the Solomon Islands in 1979, with seventeen members, to manage and protect their fish stocks. One of its roles is to provide information to all member countries. This required an information network, which was critical to FFA's activities. In the late 1980s, only PEACESAT provided FFA with an almost free satellite network.

Carlot and Allison (1992) argue that an "effective method of data transfer and dissemination to FFA Member Governments is essential" for 1) agreement monitoring and negotiation, 2) surveillance and negotiation, 3) surveillance and enforcement, 4) scientific research, 5) resource management, and 6) economic analysis (Carlot and Allison 1992: 5). In 1986, the FFA discussed the possibility of using satellite and HF radio technology to transmit data and messages. In 1987, FFA also took the opportunity to present a paper at the Pacific Telecommunications Council in Honolulu and make the telecommunication problems of island fisheries administration known to industry experts (Carlot and Allison 1992). In 1989, it was revealed that the monthly rent of communication channels had increased thirteenfold, from the initial price of US$300 to US$3,900, by Cable and Wireless, international carrier to the Solomon Islands. This induced FFA to choose PEACESAT, which became available in July 1990 (Carlot and Allison 1992: 10).

Cable and Wireless, which had attempted to impose unacceptably high communication costs on FFA, originated from those British telegraph companies founded in the 1860s, and enjoyed a monopoly in the Pacific from 1902. These companies gradually pulled out of the former colonies, such as Tonga in 2001, Vanuatu in 2011, and Fiji and the Solomon Islands in 2012 (Tabureguci 2012). Through FFA's network, PEACESAT stations were established all over the Pacific Islands (see Table 6.1), even to non-FFA members that still had fishing interests, such as New Caledonia in the early '90s:

COUNTRY	SHIP DATE	START DATE	COMMENT
Australia		1993	AFMA interested
Cook Islands	1-Dec-91	24-Jan-92	In operation
Federated States of Micronesia	22-Feb-92	1st qtr 92	Shipping
Fiji		1st qtr 92	
Kiribati	26-Sep-91	11-Feb-92	In operation
Marshall Islands		3rd qtr 92	
Nauru		1st qtr 92	
New Zealand		1993	MAF interested
Niue		1st qtr 92	Shipping
Palau		3rd qtr 92	
Papua New Guinea		10-Oct-91	In operation
Solomon Islands		30-Jun-91	In operation at FFA
Tonga		3rd qtr 92	
Tuvalu		1st qtr 92	
Vanuatu		24-Oct-91	In operation
Western Samoa		3rd qtr 92	

Table 6.1 PEACESAT terminals at FFA sites. Adapted from Carlot and Allison 1992

All FFA Pacific Island member states will benefit directly (including the 8 Pacific ACP States) or indirectly (other members of the PEACESAT network) from the project. The 14 Pacific Island FFA member countries are: Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Nauru, Niue, Palau, Papua New Guinea, Solomon Islands, Tonga, Tuvalu, Vanuatu and Western Samoa. Other members of the International PEACESAT Users Group (IPUG) will benefit from fast, reliable and free communications with FFA and its members' fisheries administrations through the Pacific-wide network. Other non-FFA members with active fisheries in the region may obtain ground stations at their own expense and become part of IPUG, e.g. the French OCT's, New Caledonia and French Polynesia (Pacific Regional Marine Resources Development Programme 1993/02: 4).

PEACESAT installed the Internet as part of its operations in Hawaii and made it possible for FFA members to access the Internet. The Forum Fisheries Agency was one of the first organizations to introduce the Internet into the Pacific Islands (Lassner n.d.).

> In August of 1994, PEACESAT and the Forum Fisheries Agency in the Solomon Islands conducted experiments using a Unix-based system to provide local E-mail, file transfer, and batch mail through the use of UUCP to transfer mail to the Internet. Once the tests were conducted, the service was made operational and FFA became an 'electronic post office' for its users. The creative use of the PEACESAT circuit has been an innovation that merits attention, especially since it provides an effective means for communication among Pacific Island Countries that do not have access to cost-effective electronic mail and file transfer services (Okamura, Blake, Lam and Mukaida 1995).

FFA was not only one of the first organizations to introduce the Internet to the region, but it was also a founding member of the Pacific Islands Chapter of the Internet Society (PICISOC), which supported Internet development in the region. However, I could not find any evidence that other agencies related to education, health and agriculture had utilized the PEACESAT station originally launched by FFA. There were sensitive issues of bypassing with 'non authorized' telecommunication services, that is, PEACESAT. Still, many Pacific Island people had an opportunity to access affordable communications, such as voice, data, teleconferencing and the Internet, especially for those working in the public sector, who needed regional and international cooperation.

However, FFA withdrew from PEACESAT in the late 1990s, as a result of advances in satellite technology and the privatization of satellite businesses, which allowed the FFA to have its own network, or use another that was more efficient. From the 2000s until 2012, when PEACESAT lost its satellite, PEACESAT headquarters at the University of Hawaii focused more on the United States and its affiliated territories, such as Micronesia, with which the US had a special political relationship (see Table 6.2). The Republic of Palau, Federated

States of Micronesia and the Republic of the Marshall Islands had a free association with the United States, while Guam, American Samoa and the Northern Mariana Islands are its territories.

2009 - Chuuk Hosts Upgraded Communication System
2003-2004 - Palau National Emergency Management Office Data Connection
2003-2004 - Ministry of Health and Environment, Republic of the Marshall Islands
2000 - Pacific Basin Telehealth* Workshop
1999-2003 - PEACESAT PRELStar** Partnership

Table 6.2 PEACESAT activities in 2000s
Adapted from 'Summary of Selected Projects and Activities'. Available from: http://obake.peacesat.hawaii.edu/text/30PROGRAM/Past/index.htm Accessed 10 September 2015
**Pacific Basin Telehealth: Hawaii-based organization which covers the common issues, connecting the US affiliated Pacific Islands to Hawai`i. Available from: http://www.pbtrc.org/who-we-are/ Accessed 10 September 2015*
*** PREL is an independent, non-profit organization with staff in Hawai'i, American Sāmoa, the Commonwealth of the Northern Mariana Islands, Guam, the Republic of the Marshall Islands, the Republic of Palau, and the Federated States of Micronesia: Chuuk, Kosrae, Pohnpei, and Yap. Available from: http://prel.org/about-us/mission-vision-strategic-plan/ Accessed 10 September 2015*

I could not find any project under the name of PEACESAT after 2009 on their web site. This means that, after FFA left PEACESAT, its activities diminished to short term ad hoc projects. Its role in providing a free public network was controversial at first. However, PEACESAT may have lost its position, especially after the satellite communication market was deregulated in the 1990s and the cost of satellite communication decreased. This was made worse after the departure of FFA, with PEACESAT's activities almost down to zero. Many academics and researchers in Japan supported PEACESAT. For example, Dr Takashi Iida had been eager to work with PEACESAT. One of the more tangible examples is the Pan-pacific Regional Telecommunications Network Experiment and Research Satellite project (PARTNERS), which was managed by the Japanese government from 1992. PARTNERS

followed PEACESAT's concept of 'international cooperation' (Iida, 1992). The PARTNERS project also ceased, as this was only an experiment and its main purpose was technological development. I have observed that PEACESAT presented many ideas to the Japanese government, institutions and researchers, in order to promote international cooperation in the development of satellites and telecommunications. I have also observed that PEACESAT attempted to establish its own policy and mission, not only as a communication service provider for distance education and distance health programs. However, this was not the original policy and mission, and PEACESAT was ultimately unable to take on a new role.

6.4 Discussion

On the day that Papua New Guinea obtained its independence, Sir Michael Somare spoke about communication. However, his message, as reported in a PEACESAT news file, sounds out of place for PEACESAT, which had provided a free satellite communication service for his people. Somare's message is similar to a discussion in this thesis on ICT4D. Technology is only a tool. People communicate for their own purposes and have done so for a long time. People do not communicate because of the availability of technology, such as satellites.

> Our forefathers traded in canoes. Hundreds of years later I'm talking to you through a satellite. But the message has not changed. We are friends. We are neighbours. We have a distinctive history and background and we can best protect our interests and further our expression through regional cooperation. Michael Somare, Prime Minister, Papua New Guinea, PEACESAT, September 14, 1975 (PEACESAT News File 1970-1975).

This chapter has clearly outlined how USP was founded. From the time of its establishment, its core mission was to provide distance education and other university services to the towns

and villages of all member countries. PEACESAT's main mission, on the other hand, was to provide and use satellite technologies within the context of Cold War politics, rather than to provide education and other public services to the Pacific Islands. PEACESAT had serious problems from the beginning, as it lacked a specific management policy. PEACESAT's initial aim was to obtain free second-hand satellites from the United States government and not necessarily to establish a clear purpose for their use. This problem came to light in the 2000s after the main user, FFA, had left. It could be argued that, even during the first stage of PEACESAT in the 1970s and 1980s, the project could only have survived because of robust users like USP.

The comparison between PEACESAT and USPNet tells us that technology by itself cannot produce change. Technology (ICT) can only be utilized to address a clear purpose. Using satellite technology could never have been a purpose in itself, but it can only be used as a tool in support of a mission, such as providing education and rural development. In its forty year history, PEACESAT made an effort to maintain access to NASA's free satellite, yet also attempted to keep its Pacific Island users without a clear mission. The PEACESAT operation in Hawaii was run by externally obtained funds. They were continually seeking grants to hire staff and maintain and upgrade their facilities. PEACESAT is a typical case of what Tomita argues in Chapter 2. Tomita, who drafted the Okinawa IT charter, warned that the expansion of IT constituted a major risk, that IT development would become an end in itself, and PEACESAT is just such a case in point. In the 1990s, PEACESAT gradually lost its users after the development of ICT (e.g., Internet, Wireless and compression technology), and the liberalization of the satellite communication industry. This allowed satellite communication services to become more affordable and reliable for Pacific Islanders.

It could be said that PEACESAT was a legacy of the Pacific. PEACESAT was quoted and highly valued in influential reports, such as *Maitland Report* of ITU and GII report of Al Gore. Without PEACESAT, many Pacific Island people, as well as Japanese scholars, would not have had an opportunity to discuss and learn about the possibility of ICT, particularly satellite technology for development in remote areas and developing countries.

We could argue that, because a free satellite service was initiated and managed by PEACESAT, the University of the South Pacific and the Forum Fisheries Agency could create a successful network with their member countries. However, it is also true that, without USP or FFA and their robust political will to form an ICT network for their own needs, then PEACESAT would not have lasted for forty years. It would never have been Pan-Pacific (although USP denied being part of PEACESAT, using only the same satellite), but merely a Hawaiian and US-affiliated regional network.

The Vanuatu case study in Chapter 5 examined the individual Capability Approach and Chapter 6 looked into the organizational Capability Approach. It is clear from this chapter that ICT can only be utilized effectively in those organizations with a clear mission, such as USP. That is, the use of ICT or Capability alone cannot be the mission. This was one reason why PEACESAT finally ceased operating, while USPNet still exists and is expanding.

Chapter 7 Conclusion

7.1 Universal Service is possible for the remote islands

This thesis strove to discover the answer to the question I have been continuously asking over the course of my twenty-five year journey in telecommunication development in the Pacific: how and why is Universal Service in telecommunications possible for remote islands and rural villages of the Pacific Islands which are scattered over a vast ocean? Universal Telecommunication Service is possible because people, communities and governments demand it. Universal Service cannot be given by developed countries, although they provide financial support and technology. The history of the Pacific Islands tells us that people never stopped moving around the Pacific since they first arrived in this region some 50,000 years ago, with subsequent waves of people entering and leaving. This means that, over time, information has always been exchanged, delivered and shared by many means, such as songs, stories, and paintings, long before the introduction of the current IT technologies such as radio, telephones and the internet.

Research from the United States, the birthplace of 'Universal Service', tells us that this is possible because of user demand and a public-service ethos, rather than due to monopoly or competition. It is important that, when the United States was arguing about Universal Service at the beginning of the 1900s, it was still in the process of expanding as a nation within the North American continent. The case study of Vanuatu tells us that the reformed telecommunication regime originated in the country's development philosophy and independence movement. Vanuatu has a 3,000 year history of human occupation, along with more than 100 languages and over eighty islands. For the people speaking different languages

on countless islands, 1980 was their first experience of national independence and unity in their 3,000 year history. For this, they needed a common language and new technologies, such as radio, which helped to create new forms of unity and ideas of nationhood. At the same time as Vanuatu's political leaders, such as Father Lini, were developing the meaning and values of their customs (Kastom) and culture, they also focused on small scale and rural development.

The University of the South Pacific gained an opportunity to upgrade its satellite network with the Japanese ODA, after a long period of negotiation with stakeholders, such as donor agencies, incumbent telecommuncation companies, and USP member countries. This is because, from the establishment of USP, it has had a very robust and clear mission statement, to bring university studies to towns and villages throughout the region. This, and not the use of technologies, was their invariable mission. It is in contrast to PEACESAT, which was established for satellite use, against the backdrop of Cold War military development and competition for outer space. It was established without a clear mission statement, but for the promotion of a satellite experiment. After four decades, PEACESAT lost its Pacific Island users and subsequently ceased to be employed.

This thesis demonstrates that Universal Service in telecommunication is possible as a result of demand from primary users, as an expression of political will, for example, in an independence movement, and with a clear mission of nation building focused on unifying diverse and remote areas, rather than simply to obtain technology and financial support from outside.

In 1991, I recognized the Pacific Island people's robust need for telecommunication services after dealing with requests from USP, PEACESAT and network users. For many years, it was believed that Universal Service for the remote and small islands was impossible under the free

market, due their scale of economy. It is only in the last decade that Universal Service has been possible for the remote islands, with a deregulated telecommunications market and advanced wireless technology. This change only happened because both the Vanuatu government and USP sent a clear message that they did not wish to use a service provided by the incumbent monopoly telecommunication company. Because of the deregulated telecommunication regime, Vanuatu and USP could obtain a new telecommunication service that covered all of their people, including students.

How did Universal Service become possible for these small, remote islands? In Chapter 3, I suggested that ICT4D originated in the 1950s with decolonization and competition for outer space development during the Cold War. In the 1970s, as a result of the demand for equal rights to outer space from newly independent countries, particularly those equatorial countries who claimed their own overhead geostationary arcs, UNESCO took the initiative to introduce new policies on media and global communication. Although the voices from developing countries were ignored, ITU established a special committee in the 1980s to address the world's telecommunication divide and appealed for equal access for developing countries. In the 1990s, deregulation of telecommunication industries was accelerated in the United States. This new ICT revolution also targeted the telecommunications market in developing countries.

In Chapter 4, I looked at the history, human migration and telecommunications development in the Pacific Islands. In the 2000s, the Pacific Island countries finally began to reform their policies and introduced competition to the telecommunications market. The Irish businessman, Mr O'Brien, challenged this situation in the small island countries. With his Irish spirit, he was the one who rallied against the huge colonial monopolies, which seemed not to care about poor people in small island nations.

The Vanuatu court cases in Chapter 5 tell us that the Vanuatu court decided the meaning of 'Public Service' and concluded that the incumbent telecommunication company was not meeting this obligation. The government of Vanuatu subsequently changed its telecommunication regime, which provided Universal Service to the people, especially in the remote islands that could not access telecommunications even after independence.

In Chapter 6, it was argued that, in its expansion of distance education, the University of South Pacific continued to develop and express its political will by establishing a separate satellite communication network from an incumbent telecommunication service. It also obtained official Japanese aid for this purpose. However, the Japanese government had an entirely different agenda, involving shipments of plutonium through the Pacific Ocean, not ICT4D in this region.

From these current and previous activities of developing countries, plus those of the Irish and Pacific Island governments and people, we deduce that Universal Service was the result of persistent challenges and demands, rather than passively waiting for an opportunity for telecommunication development. Pacific Island governments and citizens worked aggressively to obtain and improve opportunities for telecommunication development within the region. Universal Telecommunication Service was and will be achieved by the political will and effort of nations. Financial support and technology from outside are critical for telecommunication development, but these are not the primary engines of development, only an important source of fuel.

7.2 Meaning of development and Capability Approach

This thesis looked at the meaning of development, that is, Universal Service, as a basis for discussion on ICT for development. The question is, if people from the remote islands need a telecommunication service, then what is its purpose? If they have access to mobile phones, then with whom will they talk, and what will they talk about? In essence, what is the meaning of the newly available ICT-based communication for them, their community and country? I examined these questions by applying the Capability Approach, which Amartya Sen describes as an expansion of freedom for both the primary end and the principal means of development.

Since its beginnings after the Second World War, debate on the meaning of Development Studies has continued with no overall agreement. One of the dominant indices by which to measure development is the Gross Domestic Product, but this cannot inform us on such issues as those faced by the domestic poor. The ideas of basic human needs, human development, and so on have been actively discussed as alternatives to GDP, but Sen disagrees with setting a predefined development index and suggests that greater freedom is both the primary end and the principal means of development. The challenge, and major criticism, of Sen's Capability Approach is all about measurement. How does one measure the Capability and freedom of people? To do so, I undertook field research on Vanuatu. I tried to use the storytelling approach, based on open-ended interviews with Vanuatuan people. This approach has been utilized by the United States NGO, 'California Endowment', and by the EU. I then applied the KJ method to categorize the different comments/responses into small groups, and consolidate these into larger groups, in addition to data analysis using the logic of abduction.

Capability and freedom can be measured with multiple data sets. I achieved this by means of archival research, coupled with fieldwork and the story telling approach, then by grouping this data with the KJ method and other existing data analyses. I chose Vanuatu as a case study

for a number of reasons. Vanuatu obtained its independence in 1980, having been colonized for many years by both Britain and France. Telecommunication reform only occurred in 2007, twenty-seven years after independence. In 2009, most of the remote islands were connected by mobile phone. Before that time, 70% of Vanuatu's population did not have any access to telecommunications. My main reason for choosing Vanuatu was that much of the data I needed was available from official reports and web sites. Most notably, the Pacific Institute of Public Policy (PIPP) had undertaken nationwide surveys after the deregulation of Vanuatu's telecommunication system.

Fortunately (or unfortunately), none of the interviewees told me that they had made a lot of money because of mobile phones, but the majority said that mobile phones had helped to make their business and personal lives much easier. In particular, mobile phones made it easier for them to communicate with the remote islands, on which their families were located. According to the interviewees, the most significant impact of technology use was on 'sending money' to family in remote islands. The second most popular response was that using ICT was good for education. In Chapter 5, I outlined existing data indicating that many students could not have gone to school in the past, because their parents could not afford the tuition fee. However, data recorded in 2010 demonstrates that, after mobile phones were introduced to all the remote islands in the previous year (2009), the number of school enrolments jumped. That is, there was an additional enrolment of 4,000 students in 2010. The available data did not inform us about dropout numbers, but if the tuition fee was the major obstacle to schooling, we can assume that ICT may have helped education by allowing the transfer of money from urban areas, where people can work, to the remote islands, where earning an income is still difficult. Thus, ICT supported educational opportunities in an indirect, but important, way.

In Chapter 5, I also looked at the bigger picture, including the background of development and Vanuatu's independence movement, in order to identify the actual meaning of development for the ni-Vanuatu. Rural development was one of the primary aims of the independence of Vanuatu, which sought to protect the traditional customs and cultural diversity of each island and village, that is, 'land'. In the country's name, Vanuatu, 'Vanua' means land. Universal Telecommunication Service seems to support the concept of development as 'Unity and Diversity'.

ICT is thus able to support the course of development that the ni-Vanuatu themselves chose as a top priority at the time of their independence movement. It means that ICT can only be utilised when people have a clear and robust demand to achieve something, such as educational opportunities for their children and young adults. Education has been a national priority and a part of the agenda for action, from 2006 to 2015. ICT, and in particular technology, is only a tool to magnify human Capability.

In Chapter 6, the case study on satellite communication demonstrated that Capability belongs only to those organizations with a clear mission, and not to technology. My journey into telecommunications in the Pacific Islands began with proposals for assistance from USPNet and PEACESAT in 1991. USPNet finally obtained assistance from the governments of Japan, Australia and New Zealand to upgrade their own independent satellite network. Furthermore, in 2010, USP obtained an additional grant from the Japanese government to establish the Japan-Pacific ICT Centre on campus. Today, USP is one of the major regional centres and a leader in ICT development. In contrast, at the University of Hawaii, PEACESAT shut down forty-two years after they lost their principal user, the Forum Fisheries Agency. As a result, their activities and financial support declined, leading to the demise of this historical satellite experiment.

This thesis examined the origins of these two satellite projects. USP had a clear mission statement to provide higher education throughout the Pacific region, while PEACESAT did not. PEACESAT was established by one person with a strong character and a rather controversial self-centred management style.

As Tomita, the Japanese diplomat who drafted the Okinawa Charter, warned, the expansion of IT poses a major risk of becoming an end in itself. PEACESAT fell prey to this risk, which again reinforces the point that Capability is not created by technology, but by the people.

Although PEACESAT ended, we should not underestimate its contribution. PEACESAT was highly valued in a number of studies, including the *Maitland Report* of ITU and the GII report of Al Gore, as a successful case of international cooperation with the use of satellite technology. It was also highly valued by the Japanese government and researchers, who attempted to replicate it for their own experimental projects, such as 'PARTNERS' and 'WINDS'. These experiments aimed to promote 'international cooperation', especially for developing countries in Asia and the Pacific, as well as the remote islands of Japan. Without PEACESAT, Japanese satellite developers would not have had the idea of using communication satellites for international cooperation and progress in developing countries.

7.3 Telecommunications Policy for the Pacific Island Countries

Towards the end of my writing process, the Republic of Palau was debating whether to deregulate its Telecommunication Bill in order to gain access to an Asian Development Bank loan and connect the international undersea telecommunications cable. At the request of the Palauan public, I provided intellectual advice on the issues of deregulation and the meaning of Universal Service, based on my thesis research. As a result, the government of Palau

approved the new Telecommunication Bill, which introduced deregulation and competition to their telecommunication service regime, on the 21st September 2015. This reminds me that the origin of my thesis was not an academic interest, but rather, arose from the real work of telecommunication development, to which I had been dedicated for over two decades. This coincides with my question: what does academic study mean for the real world? In Chapter 2, I demonstrated that studies of ICT4D lack a theoretical basis, since this is descriptive rather than analytical. Heeks notes that ICT4D study has followed Marx's dictum: "The philosophers have only interpreted the world differently; the point is, to change it" (Heeks 2006: 1). This thesis followed Heeks' suggestion, to focus on theory and analysis. I would now like to adapt Marx's quote, to read: "The philosophers have interpreted the world differently; and to change it". I shall conclude this thesis with some suggestions on telecommunication policy for the people and governments of the Pacific Islands. These suggestions derive from my humble academic study on ICT4D and Universal Service.

First, the history of any country and that of any people should be revisited to identify their past use of information and communication, according to the technology that existed at the time. I would again like to quote Sir Michael Somare's message, which was already presented in Chapters 4 and 6:

> Our forefathers traded in canoes. Hundreds of years later I'm talking to you through a satellite. But the message has not changed. We are friends. We are neighbours. We have a distinctive history and background and we can best protect our interests and further our expression through regional cooperation. Michael Somare, Prime Minister, Papua New Guinea, PEACESAT, September 14, 1975 (PEACESAT News File 1970-1975).

As demonstrated in Chapter 4, by looking into the historical dynamism of human movement within the Pacific Islands, we can see that people already shared information across thousands of kilometers of ocean without currently available technology. Information and

communication were important factors in the lives of these people, especially in the remote islands.

Second, the history of nation-building should be revisited, to identify the meanings of development, communication and information sharing, whether between local people or with outside countries. The Vanuatu case study tells us that independence was a challenge for the unification of a country that has been quite diverse in its 3,000 year history. The unification of a people with hundreds of languages and over eighty islands was a result of their own decision. For this, they utilised an existing 'pidgin', created a new common language, Bislama, and used the radio to raise awareness of this new language and to fashion a new identity. As revealed by colonial council records, this endeavour was criticized and denied by both the British and French colonial masters. But the people of Vanuatu persisted, and Bislama is now the official language and has helped to unite the country. Furthermore, during the independence movement, the leaders of Vanuatu established their own path to development. The Melanesian Way, Melanesian Socialism and rural development were created with the idea of containing the virtue of smallness: "Small is beautiful, small is powerful, and small is practical" (Lini 1980a: 291). These ideas may help to identify why ICT is necessary for their development. The case of Vanuatu clearly indicates a need for unity as well as maintaining diversity in each small, remote island.

Third, they must identify the present direction, aims and plans for their country. One example would be the Government of the Republic of Vanuatu's *Priorities and Action Agenda for 2006-2015*, which aimed for "An Educated, Healthy and Wealthy Vanuatu". It is important to discuss how ICT can fulfil these national plans. My Vanuatu field study indicates a majority consensus on the importance of health and education and that ICT can contribute towards these things. This arises not only because of people's expectations, but also because they participated in this agenda for national action.

Furthermore, as Chapter 3 demonstrated by looking at the origin of Universal Service, it may be important to revisit the common understanding of public ethos and user (public) demand in a people's own country. Judging on the case study from Vanuatu, the legal dispute between the government and the incumbent telecommunication company revealed a definition of 'Public Service'. This demonstrated that obligations of 'Public Service' were not met by the incumbent telecommunication company and the government subsequently changed its telecommunication regime. The USPNet and PEACESAT case study tells us that technology alone is not the goal of social development. The university's mission and the demand of the community is to provide education throughout the region. This also tells us that development is not about using technology, but it means expanding Capability, which belongs to the people.

Last but not least, and in connection with the above, I would like to suggest changing the question from 'What can ICT do?' to 'What do the people of a country want to do with ICT?' This looks like a small difference, but it is a significant distinction between an ICT-centred question and a people-centred question. People do not communicate because of technologies, and the use of technology is not the aim of development. Unfortunately, discussions on ICT4D tend to be dominated by ICT experts, but it is crucial that all stakeholders participate to create telecommunication policy, including those from remote islands, in the education, health and business sectors, people with disabilities, and others.

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Appendix A:

Transcript Discussion on Post, Communication and Telecommunication from Proceedings of the New Hebrides Advisory Council

There is no comprehensive literature on the history of communication development in Vanuatu, except for Lissant Bolton's paper, ‘Radio and the Redefinition of Kastom in Vanuatu’ (1999). There are brief explanations of this issue, such as a paper by Peck and Greggory (2005) and three pages of comments by Rex Robinson (2002), who served as a radio engineer for the Condominium Post Office Radio Service from 1961 to 1966.

Because there is no detailed description available on Vanuatu’s communication history, I would like to present an overview, while referring to the Proceedings of the New Hebrides Advisory Council from the late 1950s to the early 1970s: (1959-1960, 1962, 1963, 1965, 1966, 1967, 1971, 1974).

The Advisory Council was established in 1957 by the two colonial powers, England and France. The indigenous peoples of the New Hebrides, now known as ni-Vanuatu, made up more than 90% of the population, but had only a small presence on this Council (Jackson 1972). The Council discussed various political and economic issues, including infrastructure, education and health.

I was able to access some copies of the proceedings (1959 to 1974) from the Vanuatu National Archives in Port Vila, and from the Hocken Library in Dunedin. The proceedings have not been digitized and are without any list of contents or agenda. This means that I needed to read through all the documents to find the sections in which the Council discussed telecommunications, radio, postal services, and so on. I may have overlooked some

discussions and I did not check all the proceedings, as neither the Vanuatu National Archives nor the Hocken Library held a complete collection. However, from these documents, I could still identify developments in historical communications, including the postal, radio and telecommunication services of Vanuatu.

In summary, after the repatriation of the American military stationed in Vanuatu during the Second World War, the telecommunication systems had not developed much for a period of almost 25 years, until the country became a 'tax haven' around 1970. Even the postal service was very poor. The documents also showed that that ICT4D was mainly for the benefit of the coloniser's and not for the ni-Vanuatu people, especially not those in remote areas and outer islands.

Interestingly, however, although the indigenous ni-Vanuatu did not have citizenship during this period (as Rawlings (2012) has noted), they still gained a minor presence on the Council, and they strongly advocated for the use of the Bislama language and local content on the radio. This led to and encouraged the movement towards the unity and independence of Vanuatu, as described by the so-called father of the Nation, Father Walter Lini (1980) in his autobiography.

Hereafter, I will select and comment on various extracts, which describe communications development, from the following proceedings:

New Hebrides Advisory Council, Third Session, December 1959 and February 1960 (Proc NH Advisory Council 1959, 1960).

New Hebrides Advisory Council, Sixth Session, November 1962 (Proc NH Advisory Council 1962).

New Hebrides Advisory Council, Seventh Session, December 1963 (Proc NH Advisory Council 1963).

Minutes if the New Hebrides Advisory Council, Tenth Session, September 1965 (Proc NH Advisory Council 1965).

Proceedings of the New Hebrides Advisory Council, 12th and 13th Session, December 1966 (Proc NH Advisory Council 1966).

Proceedings of the New Hebrides Advisory Council, 15th Session, 5-9 December 1967 (Proc NH Advisory Council 1967).

Proceedings of the New Hebrides Advisory Council, 22nd Session, 14-17th December 1971 (Proc NH Advisory Council 1971).

Proceedings of the New Hebrides Advisory Council, 26th Session, 10-17 December 1974 (Proc NH Advisory Council 1974).

In 1960, only Port Vila had a telephone system. Unlike in the pre-war period, it seems that there were no connections to the outside of Port Vila after the Second World War. The Council Members also discuss the right of telecommunication as well as universal service, in terms of using the telephone box for free emergency and hospital calls.

> Mr. den Granges wished to know under what conditions the Administration intended to re-establish the telephone system to what it was before as he noted that for a few years now it had been falling into ruin. A few years before the telephone system had extended outside the of Port Vila's limits, but after the war when the lines were worn out the Post Office had abandoned them. By law the Condominium ought to have re-established this telephone system because the subscribers had already paid for its installation. In another country one would have recourse to a court but in the New Hebrides people had to beg the Administration to grant them their indisputable rights. (underline by Author) (Proc NH Advisory Council 1959, 1960: 17)

There was also discussion on when the telephone system was installed in Vanuatu.

> … Mr Richards said that the telephone service in the Mele direction had, to his knowledge, not been operating for 13 years, and that to Bellevue perhaps a few years later, but that the line had been made of old wartime American installed wire… (Proc NH Advisory Council 1959, 1960: 18).
>
> … Mr des Granges interjected that this was absolutely incorrect – the line had been in service since 1917 … (Proc NH Advisory Council 1959, 1960: 18).

The telephone system in 1960 was quite costly, with 300 subscribers, and a revenue of 3,000 to 2,740 pounds sterling from telephone charges and 320 pounds sterling from advertisements in the telephone directory. The cost of a Telephone Mechanic and Assistant Telephone Mechanic accounted for more than 2,000 pounds sterling.

> Vila had an underground cable network with provision for about 420 telephone lines which provided a good reserve for the future and made it possible for almost any point in Vila to be connected to the telephone system. (Proc NH Advisory Council 1959, 1960: 37).

They also discussed the working hours of the Post Office, since people wanted to use this during lunch and after work. However, one lady telephonist worked from 7.30 to 11 a.m. and from 1.30 to 4 p.m., and indigenous telephonists were employed after normal hours. They did not talk about labour conditions for indigenous telephonists, however, I can assume that there were some violations of labour rights.

In 1960, a telephone development plan was introduced, but only for Bellevue, Mele, Erakor and Pango, which are all quite close to Vila.

The following outlines the roles and coverage of the Radio Department:

1) tele-radio and small ship section which received about 540 messages a month and employed one operator from 7 a.m.-11 a.m. and from 1.30 p.m.-4 p.m.
2) the point to point section handling traffic with Sydney, Noumea, Suva and Honiara and dealing with about 3,500 telegrams a month.
3) the air-radio section which dealt with aircraft movement, the sending of weather messages to Nandi and Tontouta, and information about airfields.
4) Also transmitted meteorological telegrams and aircraft bookings, both free of charge in accordance with the Melbourne Convention.
5) telegrams sent by Administration were also free of charge. All conversations and telegrams regarding medical matters were all free of charge.
   (Proc NH Advisory Council 1959, 1960: 40).

Maritime security was also discussed:

> Mr. Nicolas said that an automatic alarm apparatus which worked when stations called in did exist but as the frequency of 6,280 kilocycles which was allocated for distress was overloaded with calls from small ships, the apparatus would be giving the alarm 100-150 times a night. The only possible solution was a 24 hour watch by a radio operator (Proc NH Advisory Council 1959, 1960: 41).
>
> Concerning the Post Office and Radio Station, expenditure has increased by 3,300,000 francs. This has been caused by the considerable increase in postal services and radio and radio-telephone services. I would, however, like to point out that this new expenditure was balanced in part by an amount of 1,600,000 francs increased revenue (Proc NH Advisory Council 1962: 9).

In 1962, Mr Paul complained that Tanna did not have the services of a postal or telephone system. In addition, they had just begun to discuss hiring local trainees for these services, and questioned whether, if they were to hire local employees, they would need to prepare housing and salaries at the same level as Europeans.

The radio station was reportedly moved from Vila to Malapoa. It was also suggested that the provision of such public radio services was needed for security and protection for travel by air and sea (Proc NH Advisory Council 1962: 25).

The Council also discussed Radio Vila, for which the licence was paid in 1961, with a trial period of about one month. However, they needed more personnel and equipment, along with a bigger budget. There were requests to broadcast local news, local topics and important events, including the President's opening address in the Advisory Council criticising the *Pacific Islands Monthly*. I assume that this criticism relates to the article, 'New Hebrides Are Angry – Pandemonium is worse confounded' in the issue of January 1962. Otherwise, I can only assume that this was criticism of decolonisation since, in 1961, the United Nations established a 'Special Committee on decolonization or C-24' (Proc NH Advisory Council 1962: 26-27).

In 1963, there were only 2.5 post offices in Vanuatu: one for Tanna, one for Forari (on the west coast of Efate, with a manganese mine that was opened in 1962 by the French and closed in 1979) and a semi-agency in Lamap (Malekula). Mail for other places, such as Pentecost, could remain with local councils for other two weeks.

M. Thevenin explained:

> ... there is no mail service in the islands and that the bags are set down on plantations at random and we all do our best to get the mail out. … the mail is distributed voluntarily in the islands (Proc NH Advisory Council 1963: 18).

In 1963, radio operators were needed for the aeronautic service to cope with increasing air traffic, such as flights on Fiji Airways. The number of personnel in the Radio Department was more than doubled from 12 in 1958 to 30 in 1963.

Mr Thevenin asked whether they needed 1) a double station at Malapoa, 2) an automatic transmission with Tanna, 3) automatic telecommunications with Fiji, and 4) direct communication with Europe. This indicates that there was no such services at that time (Proc NH Advisory Council 1963: 22). Mr Robinson responded to Mr Thevenin, that Vanuatu's standard was simply low compared to the rest of the world, and proposed that:

> This will gradually affect all the users of radio services in this territory. There is no special island radio regulation. The regulations are international. The requirements for the technical use of a transmitter, here at Pentecost, are exactly the same as the requirements for London, Paris, New York, … nowhere does the international requirement climb down to local ideals (Proc NH Advisory Council 1963: 22).

Mr Thevenin replied:

> ... every time there is a suggestion we are always told, "No, impossible… impossible… impossible!" It worked in 1958 but it is costing more and more … (Proc NH Advisory Council 1963: 22).

Mr Wilkie supported increasing the budget for communication development:

> the reason why they (British and French governments) are giving this money to us is that they are convinced that adequate radio services are essential for the islands, and here – for about seven or eight years, I fully support that view. It is only when you have ships lost at sea, when you have hurricanes and disasters, that you realize how lucky you are if you have an efficient radio service (Proc NH Advisory Council 1963: 22).

Although the Council members were talking about radio communication, this is precisely equivalent to the current discussion on a digital divide in Internet and telecommunications.

The Council then discussed a more professional and efficient service, especially for the emergency radio service of island airfields, the safety of ships, storm warnings, and so on. It was reported that the first New Hebrideans (I assume ni-Vanutu) were headed to Fiji for training as an aeronautics operators, since hiring European operators would have been considerably uneconomical. It meant that the colonisers were aware and needed local human resources for economic reasons, that is, locals were much cheaper than European workers. However, they were also aware that not many ni-Vanuatu had only a basic education, which I assume was the result of a failed British and French colonial policy.

Dr Ilo suggested the possibility of launching a local broadcasting station, but members began to talk about problems of frequencies in the basic radio service (Proc NH Advisory Council 1963: 24).

The new radio transmitting and receiving station at Malapoa, financed from Metropolitan funds, opened on the 3rd September 1965 (Proc NH Advisory Council 1965: 4).

According to Robinson (2002), in about 1965, telephone service between the auto exchanges in Port Vila and Luganville (Santo) was opened.

By April 1966, fifty new telephone lines had been installed in Santo, increasing the number of lines in service to 200. A further fifty lines had also been ordered for Vila, which would increase the number to 400 (Proc NH Advisory Council 1966: ii).

A telephone service was now in operation between Isangel and the Tanna aerodrome. Radio-telephone services covered 40 overseas countries. Direct circuits were available from Vila to Santo, Noumea, Honiara, Fiji and Sydney (Proc NH Advisory Council 1966: iii).

New radio-telephone circuits between Vila and Santo did credit to the Radio Department, and the number of hours available for the outer island schedules had been increased (Proc NH Advisory Council 1966: iii).

On the 2nd August 1966, the Vila broadcasting station began, with programmes restricted to 4 days per week. The programmes were broadcast in French, English and Pidgin.

The Radio station collaborated with the Meteorological Department and developed daily meteorological bulletins as part of the Radio Vila programme (Proc NH Advisory Council 1966: iii).

Dr Ilo advocated for greater use of Pidgin:

> A few weeks ago, there was not enough time for the Pidgin session, and the people complained that the time should be limited as it is now but could we have a few more minutes for pidgin. They would also like the songs to be more of the local types than the foreign languages (Proc NH Advisory Council 1966: 113).

In 1967, the Council discussed the contents of radio broadcasts. There was too much government information in English and French, and they suggested the inclusion of more

Pidgin as well as local music and languages. Rev. Titus Path suggested more religious programs and interviews, which people could share.

Dr Ilo noted:

> I don't like to see Europeans occupying the position but I would like to the natives to be trained and to continue to broadcast in pidgin English (Proc NH Advisory Council 1967: 138).

Dr Ilo also suggested that church services and hymns be recorded and broadcast for people living in the villages.

The French Resident Commissioner replied to the request for the use of Pidgin:

> … it is certain that we are obliged to use natives who know English or French, and this appears because they know one of these languages fluently (Proc NH Advisory Council 1967: 138).

He did not deny the use of Pidgin English for radio, but meant that there was a reason to use English or French, rather than Pidgin.

In 1967, Santo still did not have any telephone services, but they did have teleradio. However, people could only use this for 30 minutes, three times each day, from Monday to Friday.

Mr Breusch described the telecommunication service in Santo:

> ... all the real complaint, and this comes from many people, is that we only have half an hour, 8:30 to 9.0 in the morning, 10.30 to 11.0, 2.30 to 3.0 in the afternoon daily Monday to Friday. This is tele radio … (Proc NH Advisory Council 1967: 11).

Mr Ala from Aoba agreed with Mr Breusch:

> waiting for so long to call somebody else in a hurry and not being able to get them, but nothing was done about it (by District Agent) (Proc NH Advisory Council 1967: 12).

In 1967 even the postal service did not exist in the outer islands, although there was a need for ni-Vanuatu to communicate amongst themselves.

Rev. R. Murray commented:

> ... concerning the service he received on Aoba is there a possibility of extension of Post Office Agencies? … well it would be an improvement in the service of the communications to the outer islands (Proc NH Advisory Council 1967: 14).

Mr Breusch described the situation at Lolowai as follows:

> I think the time has really arrived when we have to have a postal agency at Lolowai. New Hebrideans write to each other much more than they used to, … these people just would not be able to post their mail. The letters would go to Santo in some way and be stamped there (Proc NH Advisory Council 1967: 14).

Discussion then revolved around the additional budget for this development. Mr Paul suggested:

> I will just use an example, say at Walaha, if the natives want to post a letter well they can all bring them in, he does not want full salary, probably he would do it for £5 a month or… (Proc NH Advisory Council 1967: 15).

The Lolowai Post Office of Aoba was opened in 1970 (this had been discussed in 1967). Also in 1970, the Council discussed the new Vila telephone system, with 2000 lines to be installed in the new Post Office. They also discussed the new inter-island VHF system, which provides

overseas TELEX facilities linked into the new Vila telephone system (Proc NH Advisory Council 1970: v).

They noted that the Post Office system contract had been signed with the architect, and also discussed the telephone services between Vila and Santo. These did not have any privacy and the Council wanted to change this. Malekula would have two Post Offices at Norsup and Lakatoro; while Pentecost would have a sub-agency at Melsisi and Walaha.

Regarding the telephone system, while quite lot of houses within Vila deserved telephone lines, the new system would be not be completed until December 1973. This meant that other people had to wait another two years (Proc NH Advisory Council 1971: 13-14).

They also held discussions on the ethical code and responsibility of Radio Vila. As Mr Kalkoa pointed out:

> ... all listeners - … I am afraid it's only on the French side that one usually hears the cat calls and all this on the radio and I think this is not what you want to hear on the radio (Proc NH Advisory Council 1971: 15).

They were desperate for a telecommunication system at that time, and Mr Gubbay demanded:

> ... I know that in the development plan for five years we are to get telex … but could this not be brought forward as I think it is really needed at the present moment, considering the amount of banks and other businesses arriving here – could we not have it brought forward a little bit… (Proc NH Advisory Council 1971: 17).

They suggested changing the radio transmitter as planned, but the person in charge explained that, due to international regulations, the cost of the new equipment was more than that of the existing system. Although discussing the new telephone system for banks and businesses, the

Administration could not obtain a cheaper budget for the new radio system than for a telephone system with better coverage within Vanuatu, including the outer islands.

Mr Ala inquired about the new radio transmitters:

> ... we were told that in 1972 all the Condominium radio transmitters would be changed to a different type. I think you call it SSB... (Proc NH Advisory Council 1971: 17).

Mr Bennett replied:

> ... The changeover to single sideband working which we have to do according to international regulations will in the New Hebrides necessarily be slow. We shall first of all change over networks such as the metro-network, the national police networks, our own network between district agencies Vila and Santo and the base stations for working to the teleradio network. … the cost of the SSB equipment at the moment is considerably more than the cost of the old type of amplitude modulated equipment (Proc NH Advisory Council 1971: 17-18).

This record tells us how language in media was debated under the colonial administration, and how 'Bislama', which is now one of the official languages in Republic of Vanuatu, survived in the media.

According to the Proceedings, Archdeacon Rawcliffe, a member of the Advisory Council, suggested the use of 'bichelamar' (Mr Rawcliffe's use of "bichelamar" is hereafter referred to by its common name, 'Bislama"') as one of the languages to be used in the news media. He explained his reasoning as thus:

- Bislama is a language in its own right.
- It is a mistake to think of it as a debased form of English.

- It is in fact a cultural achievement of New Hebrideans in the past.

- It is not something which has been developed by Europeans.

- This is shown clearly by the fact that although the roots of the words are mainly English the grammar is entirely 'Melanesian'.

- This is why he prefers another term than 'pidgin English'.

Archdeacon Rawcliffe then concluded that:

> It is easy for English-speaking people to view this language as a form of English and therefore to think of it as being 'quaint' or 'funny' but once you look at it as a language in its own right and not as a form of English you view as something that should continue to exist as a lingua franca (Proc NH Advisory Council 1971: 188).

He also suggested that Bislama needed an orthography other than the use of English spelling, as can be found in PNG.

At this moment, I do not know who Archdeacon Rawcliffe was, nor the background of this issue. I can only assume that he made a motion on this because of negative actions or opinions on the use of Bislama in radio programs around 1970.

M. Delacroix, an ex-soldier and French businessman, disagreed with Mr. Rawcliffe's argument and argued that Bislama should not be a third official language. He also suggested that speaking Bislama will present a future disadvantage.

> These who in this country will speak Bislama in future times rather than another language will see themselves cut off from several outlets and will find themselves limited in modern society (Proc NH Advisory Council 1971: 190).

Mr. Seagoe, a British District Officer, supported Archdeacon Rawcliffe, noting that:

> … if we limited the language to English and French, 75% of the population and more will not understand what is going on in Radio Vila. … broadcasting service is of more importance to the New Hebrideans than Europeans … (Proc NH Advisory Council 1971: 191).

Mr. Abbil, who held a position at the New Hebrides Cooperative Department in 1971, suggested that they use Pidgin English on the Radio for some fifteen to twenty years, until such time as the ni-Vanuatu could speak a major language (I assume English or French). He did not support Bislama as a full language in its own right.

Mr. Kalkoa supported the use of Bislama on the radio, and also made an indirect political comment for the future:

> ... I tend to think that the pidgin which is at present in use on Radio Vila is not up to standard and I am afraid the Melanesians on Radio Vila need better training in this language (Proc NH Advisory Council 1971: 193).
>
> ... I should like to see pidgin English maintained, as far as this group or territory is concerned, as we never know what may happen in the future (Proc NH Advisory Council 1971: 193).

He may have been referring to the potential events following future independence. Both Papua New Guinea and the Solomon Islands obtained their independence in 1975 and 1978 respectively. I assume that the possibility of independence was discussed in Vanuatu in 1971 when this council was held.

Father Leymang, a ni-Vanuatu Catholic priest, agreed with Archdeacon Rawcliffe's argument for the use of Bislama in media, but:

> It seems to me that pidgin should be as a second language between the islands to awaken people as to their belonging to a greater sphere from a political point of view … but (not) to make pidgin into a written language and to an official language, there I cannot agree… (Proc NH Advisory Council 1971: 195).

Interestingly, Father Verlingue, a French Catholic priest, described French and English as the worst possible languages to use as a base for written Bislama.

At the end of the discussion the Council did not make a decision either on whether to use Bislama on the radio, or on its inclusion as an official language. The President of Council, Mr Allan, noted that a vote would not be taken, and that the matter of preparing a recommendation to the Resident Commissions should be left to Information Services.

The majority of the Council members held a negative opinion on the use of Bislama as a lingua franca, while a few agreed to use it only for their convenience. The exception was Archdeacon Rawcliffe, who defended the right to use Bislama in this way.

I focused on comments by Mr Kalkoa, who later became the first President of Vanuatu (as George Sokomanu). He expressed a very strong political message about the uncertain future, as shown by his indirect indication that there may be a possibility of and/or willingness to achieve independence – in other words, 'self-determination'. I would like to suggest that the ni-Vanuatu were not passive in selecting or using whichever language they felt was appropriate for the media and for their future. By 1971, they were already actively asserting their intentions.

As Walter Lini described in his autobiography, *Beyond Pandemonium: from the New Hebrides to Vanuatu* (1980), and as confirmed by Bolton, radio had a profound influence on fashioning a unified identity for Vanuatu, a country with tremendous cultural diversity. Radio also played an important role in the independence movement. In this sense, I believe that it is important, both culturally and politically, to discuss the use of language in the media and how this was determined.

In 1974, there were several major changes. As noted in the Proceedings of the Advisory Council:

> We have a direct link with PARIS and we have improved the service through NOUMEA. But the basic problem is still the refusal of the Australian authorities to accept our traffic through Australia to the rest of the world and ... (Proc NH Advisory Council 1974: 41).

Services included Telex, Telegrams and radio-telephone. Regarding the Australian issue, Rd Verlingue discussed connections with Vanuatu's status as a tax haven:

> To speak quite frankly, is this part of Australia's punitive measures against banks who have come and set up branches here in the tax haven? (Proc NH Advisory Council 1974: 46).

To this, the President replied:

> "This is not impossible. M. NOEL - " (Proc NH Advisory Council 1974: 46).

The 'tax haven' issue had a strong influence on telecommunication development and disconnection for political reasons. Rawlings points out that "The arrival of trust companies, banks, accountancy firms and expatriates resulted in an economic boom around Vila" (Rawlings 2004). Vanuatu needed reliable telecommunication services. As a result, in 1974, it was noted that the "Joint Administration has raised loans of 2 million Australian dollars from two local banks to finance several major projects. These include improving telephone lines in Vila and Santo, residual construction costs of Vila wharf" (*Pacific Islands Monthly* 1974).

This situation, the need for reliable telecommunications for Vanuatu to function as a tax haven, is still applicable today. However, there is a change from the former environment, as the present development definitely stems from the political will of ni-Vanautu, for the sake of

ni-Vanautu. I will discuss this issue in the next section on current developments and results of the field study.

APPENDIX B:

Letter, Government of the Republic of Vanuatu, Prime Ministers Office, Office of the Government Chief Information Officer.

GOVERNMENT OF THE REPUBLIC OF VANUATU

PRIME MINISTER'S OFFICE

OFFICE OF THE GOVERNMENT CHIEF INFORMATION OFFICER

P M B 053 Port Vila, Vanuatu
Tel: (678) 22413 Fax: 26301

GOUVERNEMENT DE LA REPUBLIQUE DU VANUATU

BUREAU DU PREMIER MINISTRE

BUREAU DU CHEF DE SERVICE DE L'INFORMATION

SPP 053 Port Vila, Vanuatu
Tel: (678) 22413 Fax: 26301

Ms Rieko Hayakawa

Department of Media, Film and Communication

University of Otago

New Zealand

18th September 2013

Dear Ms Hayakawa,

Re: Approval to conduct study titled ""Possibility of universal service in the Pacific Islands: case study in Vanuatu"

This letter is to inform you that your research projected titled "Possibility of universal service in the Pacific Islands: case study in Vanuatu" has the endorsement of the Office of the Government Chief Information Officer, Government of the Republic of Vanuatu. We look forward to you conducting research in Vanuatu and wish you success in your doctoral studies. If there is anything we can do to further aid your project or facilitate your interviews please do not hesitate to ask.

Yours sincerely,

Jackson Miake
ICT Program Manager

APPENDIX C:

Letter, Otago University Ethics Committee.



13/262

Academic Services
Manager, Academic Committees, Mr Gary Witte

10 December 2013

Dr V Devadas
Department of Media, Film and Communication
Division of Humanities

Dear Dr Devadas,

I am again writing to you concerning your proposal entitled "**Possibility of Telecommunication Universal Service in the Pacific Islands**", Ethics Committee reference number **13/262**.

Thank you for your responses on 29 November 2013 and 9 December 2013 addressing the issues raised by the Committee.

Thank you for reviewing and amending your application proposal, Information Sheet and Consent Form. The Committee notes your advice that the research data will be kept securely for at least five years, and that the role of Dr Bryant-Tokalau has been clarified.

Thank you for clarifying that participants will not be recorded, and that the researcher will take written notes which will then be transcribed. The Committee notes that the Information Sheet has been reviewed and amended to include an additional paragraph advising that there is a possibility participants could be identified, due to their position.

On the basis of this response, I am pleased to confirm that the proposal now has full ethical approval to proceed.

Approval is for up to three years from the date of this letter. If this project has not been completed within three years from the date of this letter, re-approval must be requested. If the nature, consent, location, procedures or personnel of your approved application change, please advise me in writing.

Yours sincerely,



Mr Gary Witte
Manager, Academic Committees
Tel: 479 8256
Email: gary.witte@otago.ac.nz

c.c. Dr V Devadas Department of Media, Film and Communication

APPENDIX D:

Letter, Ngai Tahu Research Consultation Committee



NGĀI TAHU RESEARCH CONSULTATION COMMITTEE
TE KOMITI RAKAHAU KI KĀI TAHU

Tuesday, 19 November 2013.

Dr Vijayandran Devadas,
Media Film and Communication Studies,
DUNEDIN.

Tēnā Koe Dr Vijayandran Devadas,

Possibility of Telecommunication Universal Service in the Pacific Islands

The Ngāi Tahu Research Consultation Committee (The Committee) met on Tuesday, 19 November 2013 to discuss your research proposition.

By way of introduction, this response from The Committee is provided as part of the Memorandum of Understanding between Te Rūnanga o Ngāi Tahu and the University. In the statement of principles of the memorandum it states "Ngāi Tahu acknowledges that the consultation process outline in this policy provides no power of veto by Ngāi Tahu to research undertaken at the University of Otago". As such, this response is not "approval" or "mandate" for the research, rather it is a mandated response from a Ngāi Tahu appointed committee. This process is part of a number of requirements for researchers to undertake and does not cover other issues relating to ethics, including methodology they are separate requirements with other committees, for example the Human Ethics Committee, etc.

Within the context of the Policy for Research Consultation with Māori, the Committee base consultation on that defined by Justice McGechan:

"Consultation does not mean negotiation or agreement. It means: setting out a proposal not fully decided upon; adequately informing a party about relevant information upon which the proposal is based; listening to what the others have to say with an open mind (in that there is room to be persuaded against the proposal); undertaking that task in a genuine and not cosmetic manner. Reaching a decision that may or may not alter the original proposal."

The Committee acknowledges that this research project is based on telecommunications work in Vanuatu therefore further consultation is not required in this instance, however should the project develop further research the Committee would request that you come back for further consultation.

We wish you every success in your research.

This letter of suggestion, recommendation and advice is current for an 18 month period from Tuesday, 19 November 2013 to 8 May 2015.



NGĀI TAHU RESEARCH CONSULTATION COMMITTEE
TE KOMITI RAKAHAU KI KĀI TAHU

Nāhaku noa, nā



Mark Brunton
Kaiwhakahaere Rangahau Māori
Research Manager Māori
Research Division
Te Whare Wānanga o Otāgo
Ph: +64 3 479 8738
Email: mark.brunton@otago.ac.nz
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APPENDIX E:

Information sheet

[Ethics Committee reference number **13/262**] [*9 July 2014*]



Possibility of Telecommunication Universal Service in the Pacific Islands

INFORMATION SHEET FOR PARTICIPANTS

Thank you for showing an interest in this project. Please read this information sheet carefully before deciding whether or not to participate. If you decide to participate we thank you. If you decide not to take part there will be no disadvantage to you and we thank you for considering our request.

What is the Aim of the Project?

The 90's Information and Communication Technologies (ICT) revolution, and especially the innovation of the Internet, drastically changed the world. Yet the Pacific Islands are still mostly separated from ICT's advantages. This research looks at the possibility of Universal Service (access for everyone) for this region within the perspective of capability and ICT. This research will focus on why ICT is needed for the whole population which includes remote islands and rural areas of the Pacific Islands. Vanuatu was chosen as a case study for research as they have had a comprehensive study on ICT and all documentation is accessible.

What Type of Participants are being sought?

I am asking Ni-Vanuatu citizens from three major cohorts about their use of ICTs. The three cohorts are:

1. Users
2. Policy makers
3. Service providers

1. From the Users, eight participants will be sought from both urban and rural areas, covering different occupations. Of the eight, a gender balance will be sought.
2. The policy makers will be made up of those who work for Telecommunication development, such as educators, telecommunication regulators, parliament members representing both rural and urban areas. It is anticipated that I will interview six participants.
3. The service providers will be drawn from telecommunication providers such as Vanuatu Telecom and Digicel, and an Internet provider. It is anticipated that 6 participants will be interviewed.

No compensation or rewards will be provided for interviewees, although it is expected that interviews will be conducted over lunch or coffee in Vila. In this case the expenses will be covered. In

rural areas Pacific custom dictates that food is brought to the interview if it is conducted in the home, or cover lunch if in a "kai bar".

All participants will have access to the results in the form of individual reports sent to them outlining the results of research. The dissertation and all articles arising from research will be deposited in the national archives of Vanuatu.

What will Participants be Asked to Do?

Should you agree to take part in this project, you will be asked to participate in an interview conducted by the researcher. The interview will look into the usage of communication technology and the nature of its impact on your life. The direction of the interview will depend on the answers. The interview should take 20 – 30 minutes.

Please be aware that you may decide not to take part in the project without any disadvantage to yourself of any kind.

What Data or Information will be Collected and What Use will be Made of it?

The interview will be transcribed for use in research. The interview will not be videotaped nor recorded. The results will be used in my PhD research and will be published. Access to all data will be by myself only and will be stored in the Department of Media, Film and Communication. Please be aware that should you wish we will make every attempt to preserve your anonymity.

Due to the nature of the research whereby participants are professionals or in official positions within Vanuatu and likely to be well known it may not be possible for your anonymity to be preserved in the completed research.

Can Participants Change their Mind and Withdraw from the Project?

You may withdraw from participation in the project at any time and without any disadvantage to yourself of any kind.

What if Participants have any Questions?

If you have any questions about our project, either now or in the future, please feel free to contact either:-

Ms Rieko Hayakawa and Dr Vijay Devadas

Department of Media, Film and Communication

University Telephone Number:- + 64 3 479 1100

Hayakawa.rieko@otago.ac.nz vijay.devadas@otago.ac.nz

This study has been approved by the University of Otago Human Ethics Committee. If you have any concerns about the ethical conduct of the research you may contact the Committee through the Human Ethics Committee Administrator (ph +64 3 479 8256). Any issues you raise will be treated in confidence and investigated and you will be informed of the outcome.

[Ethics Committee reference number **13/262**] *[9 July 2014]*

Possibility of Telecommunication Universal Service in the Pacific Islands

CONSENT FORM FOR

PARTICIPANTS

I have read the Information Sheet concerning this project and understand what it is about. All my questions have been answered to my satisfaction. I understand that I am free to request further information at any stage.

I know that:-

1. My participation in the project is entirely voluntary;

2. I am free to withdraw from the project at any time without any disadvantage;

3. Personal identifying information will be destroyed at the conclusion of the project but any raw data on which the results of the project depend will be retained in secure storage for at least five years. No names will be collected; unless I wish to be identified.

4. This project involves semi structured interviews. The general line of questioning includes usage of Communication Technology and the impacts it has made. The direction of the interview will depend on the answers given and that in the event that the line of questioning develops in such a way that I feel hesitant or uncomfortable I may decline to answer any particular question(s) and/or may withdraw from the project without any disadvantage of any kind.

5. The results of the project may be published and will be available in the University of Otago Library (Dunedin, New Zealand) but every attempt will be made to preserve my anonymity should I choose to remain anonymous.

6. I, as the participant: a) agree to being named in the research, ☐ OR;

b) would rather remain anonymous ☐

I agree to take part in this project.

....

(Signature of participant) (Date)

.....

(Printed Name)

Appendix F: Questionnaire

Questionnaire – field study in Vanuatu

I. Users:

1. Identify Characteristics of ICT

- What do you use for communication?
- When did you get it?
- How did you get it?
    - ➢ was it expensive for you?
    - ➢ did someone give it to you?
    - ➢ did you obtain from someone's recommendation?
- Why did you get it?
    - ➢ did your friend recommend?
    - ➢ did you want to do something with it?

2. Present and Past of Capability

(Main question)

- What could you do with it?
    - ➢ is that what you wanted to do?

- ➢ how do you feel? How does it change your life, thinking and future?

(Breakdown questions from Main question)

- Whom do you communicate with?

  - ➢ whom do you communicate (talk, text, email)? Do you communicate more often now?
  - ➢ where do they live?
  - ➢ what do you communicate with them?
  - ➢ does the communication change your life, future and thinking?

- What kind of information could you obtain with it?

  - ➢ was it difficult to obtain information without this technology?
  - ➢ how has this information changed or affected your life, future, and thinking?

3. Future hypothetical questions

- If you have a free communication opportunity WITH the entire world through either talk, text, email, or even video, what do you want to do?

  - ➢ whom do you want to communicate with?
  - ➢ what do you want to talk, email with them?
  - ➢ what kind of information do you want to obtain and why?

II. Policy Maker

1. Identify Characteristics of ICT project

- what did you do with the ICT project (I needed to study what she/he had done previously)?

- How and whom did you get support (moral support, financial support) for your project?

- What were the obstacles to implement the project?

- Who are the beneficiaries?

2. Present and Past of Capability

- What was changed after you implemented this ICT project?

- What did you expect from this ICT project?

- What kind of information and communication did you expect to be provided? And why?

- What was the situation before implementing this ICT project?

3. Universal Service and Capability

- Do you think Universal Service is necessary for all remote islands and rural areas? If so, why?

- Why is Universal Service important?

- What do you expect from ICT for the future of your community/country?

- Why do you expect this?

III. Provider

1. Identify Characteristics of ICT project

- How and what did you develop with your ICT service (I needed to study what she/he had done previously)?

- How and whom did you get support (moral support, financial support) for your new service?

- What were the obstacles to implement the service?

- Who are the beneficiaries of your service?

2. Present and Past of Capability

- How and what was changed after you implemented this ICT service?

- What did you expect from this ICT service?

- What kind of information and communication did you expect to be provided to your customer? And why do you think this is important?

- What was the situation before implementing this ICT service for your customer and/or potential customer?

3. Universal Service and Capability

- Do you think Universal Service is necessary for all remote islands and rural areas? If so, why?

- Why is Universal Service important?

- What do you expect from ICT for the future of your customer?

- Why do you expect this?

APPENDIX G: Grouping Key Words by the KJ Method

Grouping Key words

	business/ economy	education	politics	health	manage/ admin	send money/ food	get info	keep contact	save money	save time	shipping schdl	rescue	Outer is. Rural	family	community /society	youth	farmer	Overseas	friend	Seasonal WK	gender disability
remote islands people get more than others such as education and health and it is social ethical responsibility;		1		1									1								
good for his business thus Vanuatu's economy;	1																				
using phone/cable to get diagnoses from Australia to outer islands;	1			1									1								
outer islands can sell pigs - therefore good for local business;	1										1		1								
economic growth & improved access to education and health	1	1		1																	
more alternative education opportunities;		1																			
Give Australian education to kids in Vanuatu;		1																			
time, money and energy saving for communicate with outer islands;									1	1			1								
develop international & national market and huge variety of service-free call, sending money, roaming, meet variety needs of locals;	1					1															
ease communication for Seasonal workers in NZ								1												1	
open discussion for youth on social issue;															1	1					
influence to politics;			1																		
people aware what is happening in society;															1						
technology give opportunities for rural area;													1								
Farmers know shipping schedule by MP;											1						1				
possible to marketing local & kastom economy;	1												1								
Farmer can establish account for VNPF;																	1				
strengthen solidarity of sub-regional network MSG;			1		1										1						
assist local business such as farmers, manage time and save money and time;	1				1				1	1							1				
UA assist teachers, administrators, youth, leaders, and all in the villages;		1			1								1			1					
UA project support school and all village, Peace Corps, business, health workers, provincial area secretariat;	1	1		1	1								1								
Farmers can access to Govt application from islands;					1												1				
school students available educational materials online;		1					1														
UAP is important for grassroots, grandmother who lives remote village to talk with her child, grandchild;													1	1							
create new business opportunities;	1																				
efficiency manage business with communicating partners, customers, and suppliers;	1				1																
government, business administration and community activities in rural such as ease to shipping Kava for farmers;	1				1						1		1				1				
possible greater family bonding;														1							
saving lives - warning natural disasters for escape and prepared;												1									
emergency doctors and rescue services;				1								1									
access to millions content through internet for Rensari school kids;		1					1						1								
contribution for education;		1																			
UA important for rural areas in supporting economic;	1												1								
education and social structures		1													1						
HGA activities expand incl. Kava trade;	1																1				
connect with friends and families through FB;								1						1					1		

taking course of USP and AUF;		1																				
finding job for youth;	1															1						
HGS admin undertake self-learning and become intellectual;		1			1																	
youth are empowered to participate politics with obtain information and discuss online;			1				1									1						
youth can find their own way, give youth an opportunity to decide whether they will stay village or go outside;													1			1						
They set up a satellite dish on their own initiative and money in 2008, then Digicel come in 2009. So initiative was from them in 1st instance																						
save money and time for wedding ceremony;						1			1													
all human activities, social development, including gender and disability issue;	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1	1	1	
give power and opportunities to youth;																1						
give opportunity for participate politics and social development for youth;			1												1	1						
give opportunity to change and choose their future;																1						
No need to travel;									1	1												
save money save time;									1	1												
ease of communication with phones					1			1														
	business/ economy	education	politics	health	manage/ admin	send money/ food	get info	keep contact	save mone y	save time	shipping schdl	rescue	Outer is. Rural	family	community /society	youth	farmer	Overseas	friend	Seasonal WK	gender disability	
obtain and distribute information from and to PICs and internationally;					1		1											1				
Internet is important but business is still relying on printings;																						
high speed internet means people download past their quota in seconds.					1																	
Internet banking attract overseas customers and Vanuatu citizens such as traveler;	1				1	1												1				
Save staff travel to islands (25 branches);									1	1												
cable is much faster now than satellite. Other benefits immense																						
MP for life security such as trouble in remote area;												1	1									
easier to manage her job;	1				1																	
guests can communicate from outer islands;													1									
manage business from overseas;					1													1				
meet strong need from guests;	1																					
Internet allow them to expand Internet advertise to the world;	1				1													1				
Internet advertisement is easy management;	1				1													1				
communicate with her parents in Pentecost became cheaper and easier;									1				1	1								
can tell parents how much she send, how much they need;						1							1	1								
can tell parents when she loaded materials to the flight;											1		1	1								
can tell parent how she is, what she want;								1					1	1								
can know what they need, school fee, food etc.;						1																
makes her parents in Pentecost easier to communicate with her;													1	1								
Can communicate with family and friends all over the world with email and FB;														1				1	1			
Can get information of death of family and send photo to her parent;														1								
communication with her family is very important for her and her family;														1								
Before digicel her parents could phone the telephone centre but that was 2 hours walk from their village. Communication was difficult.										1				1								

provide same quality edu for PICs students		1																			
communicate anytime and anywhere;	1				1																
clear and affordable mobile phone service for pick up tourists;	1				1																
FB communicate with friends in other islands and overseas;																		1	1		
Seasonable worker bring Ipad and other ICT tools from NZ;																				1	
send money;						1															
keep up communication with whoever - how are you? Where are you? ;								1													
support connect to with family;														1							
join community and find social life;															1						
obtain information on society which interest;							1								1						
join discussion;			1												1						
participate society and extend his voice to leaders and politician through FB;			1												1						
keep contact with one another;								1													
send money;						1															
remote islands people use more use MP than town people, because they need to communicate more than town people;													1								
good for development of society;															1						
find definition of terms with Internet;							1														
find history (background) of discussion with Internet;							1														
obtain information for secondary students;		1					1														
made her business very easy;	1				1																
easy to communicate outer islands;					1								1								
easy to call ambulance when sick;				1								1									
easy to call police when accident happens;												1									
easier to communicate with her parents in Ambae;													1	1							
sending money;						1															
asking how are you;								1													
send food;						1															
can tell which flight she loaded foods;											1										
important information such as death in family;														1							

	business/ economy	education	politics	health	manage/ admin	send money/ food	get info	keep contact	save mone y	save time	shipping schdl	rescue	Outer is. Rural	family	community /society	youth	farmer	Overseas	friend	Seasonal WK	gender disability
	23	15	7	7	21	10	9	8	8	7	6	6	24	16	11	9	7	7	4	3	1

Appendix H: Statement on Plutonium and radioactive shipment in the Forum Communiqué from 1992 to 2006.

Quoted from PIF website

Available from http://forumsec.org/pages.cfm/newsroom/documents-publications/forum-communiques/ Accessed 10 August 2015

TWENTY-THIRD SOUTH PACIFIC FORUM

Honiara, Solomon Islands

8 - 9 July 1992

Plutonium Shipments

27. Forum Leaders noted that the Japanese Government plans from later this year to ship plutonium from Europe to Japan and that such shipments would transit through the Pacific region. They noted the risks inherent in such shipments from surface accidents and from possible loss of cargo at sea. They expressed their concern that the shipments be made in accordance with the highest international safety and security standards and in a manner which satisfactorily addresses all possible contingencies. The Forum urged Japan to consult fully with Forum countries regarding the proposed shipments.

TWENTY-FOURTH SOUTH PACIFIC FORUM

Nauru

10 - 11 August 1993

Plutonium Shipments

43. The Forum noted that Japan's first shipment of plutonium from Europe had transited the Pacific region. It also noted that Japan had responded to the Forum concerns by providing briefings and some information relating to safety and security arrangements it made for the shipment. It nevertheless recalled that the Forum had expressed its concern about the shipment in its 1992 Communiqué and it reiterated the risks inherent in such shipments.

44. It again stressed that they must be made in accordance with the highest international safety and security standards, and in a manner satisfactorily addressing all possible contingencies. The Forum considered the drawing up of a draft code of practice for the transport of radioactive materials by sea which was negotiated by the IAEA/IMO Joint Working Group and which the IMO would consider adopting this year, represents a positive development. The Forum expressed the desire that its members continue to monitor, and where possible actively participate in, further discussions on ways in which the code might be strengthened where appropriate. The Forum reaffirmed the importance of Japan consulting fully with Forum countries regarding such shipments, and providing information on its plutonium use programme.

TWENTY-FIFTH SOUTH PACIFIC FORUM

Brisbane, Australia

31 July - 2 August 1994

29. It welcomed the ban on the dumping of radioactive wastes at sea adopted by all but one party to the London Convention in November 1993. It expressed concern at the possibility of continued dumping of radioactive wastes in the North Pacific by Russia. It restated the importance of an enhanced international regime to cover possible trans-boundary damage arising from peaceful nuclear activity. It reiterated its concerns at the risks inherent in shipments of radioactive materials by Japan, and its expectation that such shipments would be made in accordance with the highest international safety and security standards and in a manner which satisfactorily addressed all possible contingencies.

TWENTY-SIXTH SOUTH PACIFIC FORUM

Madang, Papua New Guinea

13 - 15 September 1995

Other Nuclear Issues

38. The Forum expressed continuing concern about shipments of plutonium and radioactive wastes through the region. It noted with appreciation the cooperation of Japan in responding to the Forum's concerns by the provision of information on, and consultation about, the shipments. It reiterated, however, the expectation that such shipments should be carried out in accordance with the highest international safety and security standards, in a manner which

satisfactorily addressed all possible contingencies, and in full consultation with Forum countries.

TWENTY-SEVENTH SOUTH PACIFIC FORUM

Majuro, Republic of Marshall Islands

3 - 5 September 1996

Hazardous and Radioactive Wastes

24. The Forum agreed that shipments of plutonium and radioactive wastes through the region posed a continuing concern. It reiterated the expectation that such shipments should be carried out in accordance with the highest international safety and security standards, in a manner which satisfactorily addressed all possible contingencies, and in full consultation with Forum countries. In this regard, it appreciated the cooperation of Japan in responding to Forum concerns by provision of information on, and consultation about, its shipments.

TWENTY-EIGHTH SOUTH PACIFIC FORUM

Rarotonga, Cook Islands

17 - 19 September 1997

Radioactive Waste Shipments and Accident Liability

32. The Forum agreed that shipments of plutonium and radioactive wastes through the region posed a continuing concern and agreed to adopt a consistent position on the issue, taking into account the risks of an accident occurring and the consequences of such an accident. It

reiterated the expectation that such shipments should be carried out in a manner which addressed all possible contingencies and the concerns of relevant countries. The Forum expected that shipments would be made only if the cargo is of demonstrably minimal risk, ships are of the highest standard and shipping states agree to promote the safety of the material and provide compensation for any industries harmed as a result of changes in the market value of the region's fisheries and tourism products in the event of an accident.

33. In this regard, the Forum noted the efforts of Japan, France and the United Kingdom in providing information about the recent shipment of high level wastes and expressed the hope that this would be continued.

TWENTY-NINTH SOUTH PACIFIC FORUM

Pohnpei, Federated States of Micronesia

24 - 25 August 1998

Shipment of Radioactive Wastes

38. The Forum reiterated its position that shipments of plutonium and radioactive wastes through the region posed a continuing concern and agreed to adopt a consistent position on the issue, taking into account the risks of an accident occurring and the consequences of such an accident. It reiterated the expectation that such shipments should be carried out in a manner which addressed all possible contingencies and the concerns of relevant countries, including coastal states of the region. The Forum expected that shipments would be made only if the cargo is of demonstrably minimal risk, ships are of the highest standard and shipping states agree to promote the safety of the material and provide compensation for any industries

harmed as a result of changes in the market value of the region's fisheries and tourism products in the event of an accident.

39. In this regard, the Forum noted the efforts of Japan, France and the United Kingdom in providing information about the recent shipment of high-level wastes and expressed the hope that this would be continued.

40. Leaders agreed to pursue discussions with France, Japan and the United Kingdom on the current liability regime for compensating the region for economic losses caused to tourism, fisheries and other affected industries as a result of an accident involving a shipment of radioactive materials, even if there is no actual environmental damage caused. After an assessment is made on the adequacy of such a regime, the Forum will consider strategies for ensuring that an adequate and comprehensive compensation scheme is put in place.

THIRTIETH SOUTH PACIFIC FORUM

Koror, Republic of Palau

3 - 5 October 1999

Shipment of Radioactive Materials

30. The Forum reiterated its view that shipments of radioactive materials and Mixed Oxide (MOX) fuel through the region posed a continuing concern and agreed to adopt a consistent position on the issue, taking into account the risks of an accident occurring and the consequences of such an accident. It reiterated the expectation that such shipments should be carried out in a manner that addressed all possible contingencies and the concerns of relevant countries, including coastal states of the region. The Forum expected that shipments would be

made only if the cargo was of demonstrably minimal risk, ships are of the highest standard and shipping states agree to promote the safety of the material and provide compensation for any industries harmed as a result of changes in the market value of the region's fisheries and tourism products in the event of an accident.

31. The Forum noted the constructive dialogue that had taken place between Forum members and government and nuclear industry representatives from France, Japan and the United Kingdom on the current liability and compensation regime for the shipment of radioactive materials and MOX fuel through the region. It reaffirmed its desire to continue to pursue discussions with France, Japan and the United Kingdom on a liability regime for compensating the region for economic losses caused to tourism, fisheries and other industries affected as a result of an accident involving a shipment of radioactive materials and MOX fuel even if there is no actual environmental damage caused.

32. The Forum agreed to pursue innovative arrangements and assurances with representatives of the Governments of France, Japan and the United Kingdom and nuclear industries to meet members' continuing concerns in this area.

33. Leaders urged those members which are also members of the International Maritime Organisation (IMO) and the International Atomic Energy Agency (IAEA) to pursue within these international agencies, a strong regime of prior notification to, and consultation with, coastal states on planned shipments of radioactive materials and MOX fuel (consistent with security requirements), the development of a regime for the preparation of Environmental Impact Statements and Emergency Response Plans.

THIRTY-FIRST PACIFIC ISLANDS FORUM

Tarawa, Republic of Kiribati

27-30 October 2000

Shipment of Radioactive Materials

28. The Forum reiterated its view that shipments of radioactive materials and Mixed Oxide (MOX) fuel through the region posed a continuing concern.

29. The Forum, recalling its 1999 decision, noted the continuation of constructive dialogue between Forum members and government and nuclear industry representatives from France, Japan and the United Kingdom, on a liability regime for compensating the region for economic losses caused to tourism, fisheries and other industries affected as a result of an accident involving a shipment of radioactive materials and MOX fuel even if there is no actual environmental damage caused.

30. The Forum noted that amendments to existing international liability regimes were currently under negotiation and that, once concluded, would take some time to enter into force. It is therefore necessary that discussions focus on intermediate innovative arrangements or assurances to address Forum's concerns.

31. The Forum therefore reaffirmed its desire to continue these discussions with France, Japan and the United Kingdom and called for a high-level commitment from the three shipping states to carry the process forward. Leaders also agreed that the broad range of issues discussed at the second meeting between Forum members and government and nuclear industry representatives from France, Japan and the United Kingdom be further explored at future meetings in early 2001.

Trust Fund for the purposes of cooperation between Japan and Pacific Island Countries

32. The Forum welcomed the offer by Japan to establish a 'good will' trust fund for Forum Island Countries with an initial principal of US$10 million proposed to be invested with the interest to be used to finance development projects for Forum Island Countries in the fields of environment, energy and tourism. The principal of the trust fund would be available to cover the costs of the initial response to incidents during shipment of radioactive materials and MOX fuel through the region.

33. The Forum welcomed the goodwill shown by Japan in offering to establish a Pacific Islands Development Cooperation Fund, funded by the Japanese private sector. The Forum endorsed further consultations to finalize the details of the Fund. In doing so Leaders confirmed their understanding that the Fund is quite separate from the issue of compensation and liability that the Forum is currently pursuing with the three nuclear shipping states.

THIRTY-SECOND PACIFIC ISLANDS FORUM

Republic of Nauru

16 - 18 August 2001

Shipment of Radioactive Materials

22. The Forum reiterated its continuing concerns over the shipment of radioactive materials through the region. It acknowledged the continued constructive and useful discussions taking place between Forum members and government officials and nuclear industry representatives from France, Japan and the United Kingdom on innovative arrangements and assurances to meet Forum members' continuing concerns.

23. The Forum noted the assurances made by the shipping states and shippers relating to the safety of the shipments and their response in the event of an incident. The Leaders called for the shipping states also to provide assurances on providing compensation in the event of an incident where there was no release of radioactivity. The Forum agreed that its concerns should be constructively and vigorously pursued at the appropriate political level.

THIRTY-THIRD PACIFIC ISLANDS FORUM

Suva, Fiji Islands

15 - 17 August 2002

Shipment of Radioactive Materials

33. Forum Leaders welcomed the growing recognition in international fora such as at the recent ACP Summit in Nadi, in the IAEA and at the NPT PrepCom, of the concerns of SIDS and other coastal States regarding the shipment of radioactive material and encouraged Forum members to continue to constructively and vigorously pursue their concerns in appropriate fora. They also expressed their disappointment that shipping states did not meet with Forum members prior to the August 2002 Leaders meeting, but notes there is agreement that the meeting will take place before the end of the year and expresses the hope that significant progress will be made at that meeting taking account of the proposals that Forum members have put forward for discussion.

34. While noting the reservation by Australia, the Forum reiterated its continuing serious concerns over the shipment of radioactive materials through the region; called on shipping States to meet with Forum members as soon as possible and to mandate their representatives, at a high political level, to seriously consider and progress the proposals that Forum members

have developed for innovative arrangements and assurances. These proposals include acceptance by shipping States of full responsibility and liability for compensation for any damage which may result directly or indirectly from transport of radioactive materials through the region; the assurance by those States that the highest possible safety standards are met; and the appropriate advanced notification and consultations by shipping States with States in the region through which the shipments pass, taking into account security considerations and the legitimate interests of Forum member countries.

THIRTY-FOURTH PACIFIC ISLANDS FORUM

Auckland, New Zealand

14 - 16 August 2003

Shipment of Radioactive Materials

34. Leaders reiterated their continuing concerns over the shipment of radioactive materials through the region. It welcomed the recent assurance by shipping States to take all practicable action to assist in the management of an incident, whether or not such an incident involved the release of radioactivity, and to cooperate effectively with any state concerned, particularly states close to where any accident had taken place. Leaders called on shipping States to continue the dialogue with Forum members and in particular, to progress the proposals that Forum members had developed for innovative arrangements and assurances.

THIRTY-FIFTH PACIFIC ISLANDS FORUM

Apia, Samoa

5 - 7 August 2004

Shipment of Radioactive Materials

30. Leaders reiterated their concerns about possible economic loss in a non-release situation and sought an assurance from shipping States that where there is a demonstrable link between the incident and economic loss Forum countries would not be left to carry such a loss unsupported by the shipping States. Leaders agreed that further work be undertaken on the case for a region-specific Environment Impact Assessment including the extent to which the IAEA and shipping States' EIAs adequately take account of region-specific dimensions and on any examples of claims being made for rumour-type damage.

THIRTY-SIXTH PACIFIC ISLANDS FORUM

PAPUA NEW GUINEA

25 – 27 OCTOBER 2005

Shipment of Radioactive Materials

29. Leaders reiterated their concerns about the risks of economic loss in an incident involving the shipment of radioactive materials through the Pacific, and restated their view that in the event of losses directly attributable to such an incident, there is an imperative on the shipping

states not to leave the countries suffering those losses unsupported. They agreed that the Chair write again to the shipping states in early 2006, taking account of further research on the case for 'rumour damage' and the outcomes of the planned International Atomic Energy Agency (IAEA) regional workshop, and restating the Forum Leaders' view as outlined above. Leaders noted the IAEA's response to New Zealand's informal request for a region-specific Environmental Impact Assessment (EIA), and that the Forum Secretariat in consultation with members will consider the implications of that response for the Forum's EIA proposal.

THIRTY-SEVENTH PACIFIC ISLANDS FORUM

NADI, FIJI

24 – 25 OCTOBER 2006

Shipment of Radioactive Materials

26. Leaders reiterated their concerns about the risks of economic loss in an incident involving the shipment of radioactive materials through the Pacific, and restated their view that in the event of losses directly attributable to such an incident, there was an imperative on the shipping states not to leave the countries suffering those losses unsupported.